



*IMA's Certification for  
Accountants and  
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## **CMA Exam Support Package**

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The logo for the Certified Management Accountant (CMA) certification. It features the letters 'CMA' in a serif font, with a registered trademark symbol (®) to the upper right of the 'A'. The 'C' and 'M' are in a dark green color, while the 'A' is in a dark blue color. The logo is set against a white background with a subtle blue shadow effect.

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**CMA Part 1 – Financial Reporting, Planning, Performance, and Control**  
**Examination Practice Questions**

# CMA Part 1 – Financial Reporting, Planning, Performance, and Control Examination Practice Questions

## Section A: External Financial Reporting Decisions

1. *CSO: 1A1a LOS: 1A1a*  
The financial statements included in the annual report to the shareholders are **least** useful to which one of the following?
  - a. Stockbrokers.
  - b. Bankers preparing to lend money.
  - c. Competing businesses.
  - d. Managers in charge of operating activities.
  
2. *CSO: 1A1d LOS: 1A1e*  
Which one of the following would result in a decrease to cash flow in the indirect method of preparing a statement of cash flows?
  - a. Amortization expense.
  - b. Decrease in income taxes payable.
  - c. Proceeds from the issuance of common stock.
  - d. Decrease in inventories.
  
3. *CSO: 1A1c LOS: 1A1b*  
The statement of shareholders' equity shows a
  - a. reconciliation of the beginning and ending balances in shareholders' equity accounts.
  - b. listing of all shareholders' equity accounts and their corresponding dollar amounts.
  - c. computation of the number of shares outstanding used for earnings per share calculations.
  - d. reconciliation of the beginning and ending balances in the Retained Earnings account.
  
4. *CSO: 1A1d LOS: 1A1b*  
When using the statement of cash flows to evaluate a company's continuing solvency, the **most** important factor to consider is the cash
  - a. balance at the end of the period.
  - b. flows from (used for) operating activities.
  - c. flows from (used for) investing activities.
  - d. flows from (used for) financing activities.

5. *CSO: 1A1a LOS: 1A1b*  
A statement of financial position provides a basis for all of the following **except**
- computing rates of return.
  - evaluating capital structure.
  - assessing liquidity and financial flexibility.
  - determining profitability and assessing past performance.
6. *CSO: 1A1b LOS: 1A1b*  
The financial statement that provides a summary of the firm's operations for a period of time is the
- income statement.
  - statement of financial position.
  - statement of shareholders' equity.
  - statement of retained earnings.
7. *CSO: 1A1b LOS: 1A1e*  
Bertram Company had a balance of \$100,000 in Retained Earnings at the beginning of the year and \$125,000 at the end of the year. Net income for this time period was \$40,000. Bertram's Statement of Financial Position indicated that Dividends Payable had decreased by \$5,000 throughout the year, despite the fact that both cash dividends and a stock dividend were declared. The amount of the stock dividend was \$8,000. When preparing its Statement of Cash Flows for the year, Bertram should show Cash Paid for Dividends as
- \$20,000.
  - \$15,000.
  - \$12,000.
  - \$5,000.
8. *CSO: 1A1b LOS: 1A1c*  
All of the following are elements of an income statement **except**
- expenses.
  - shareholders' equity.
  - gains and losses.
  - revenue.

9. *CSO: IA1d LOS: IA1c*  
Dividends paid to company shareholders would be shown on the statement of cash flows as
- operating cash inflows.
  - operating cash outflows.
  - cash flows from investing activities.
  - cash flows from financing activities.
10. *CSO: IA1d LOS: IA1c*  
All of the following are classifications on the statement of cash flows **except**
- operating activities.
  - equity activities.
  - investing activities.
  - financing activities.
11. *CSO: IA1d LOS: IA1c*  
The sale of available-for-sale securities should be accounted for on the statement of cash flows as a(n)
- operating activity.
  - investing activity.
  - financing activity.
  - noncash investing and financing activity.
12. *CSO: IA1d LOS: IA1c*  
A statement of cash flows prepared using the indirect method would have cash activities listed in which one of the following orders?
- Financing, investing, operating.
  - Investing, financing, operating.
  - Operating, financing, investing.
  - Operating, investing, financing.
13. *CSO: IA1d LOS: IA1e*  
Kelli Company acquired land by assuming a mortgage for the full acquisition cost. This transaction should be disclosed on Kelli's Statement of Cash Flows as a(n)
- financing activity.
  - investing activity.
  - operating activity.
  - noncash financing and investing activity.

14. *CSO: IA1d LOS: IA1e*  
Which one of the following should be classified as an operating activity on the statement of cash flows?
- A decrease in accounts payable during the year.
  - An increase in cash resulting from the issuance of previously authorized common stock.
  - The purchase of additional equipment needed for current production.
  - The payment of a cash dividend from money arising from current operations.
15. *CSO: IA1a LOS: IA1d*  
All of the following are limitations to the information provided on the statement of financial position **except** the
- quality of the earnings reported for the enterprise.
  - judgments and estimates used regarding the collectability, salability, and longevity of assets.
  - omission of items that are of financial value to the business such as the worth of the employees.
  - lack of current valuation for most assets and liabilities.
16. *CSO: IA1d LOS: IA1c*  
The most commonly used method for calculating and reporting a company's net cash flow from operating activities on its statement of cash flows is the
- direct method.
  - indirect method.
  - single-step method.
  - multiple-step method.
17. *CSO: IA1d LOS: IA1c*  
The presentation of the major classes of operating cash receipts (such as receipts from customers) less the major classes of operating cash disbursements (such as cash paid for merchandise) is **best** described as the
- direct method of calculating net cash provided or used by operating activities.
  - cash method of determining income in conformity with generally accepted accounting principles.
  - format of the statement of cash flows.
  - indirect method of calculating net cash provided or used by operating activities.

18. *CSO: IA1a LOS: IA1e*  
When a fixed asset is sold for less than book value, which one of the following will decrease?
- Total current assets.
  - Current ratio.
  - Net profit.
  - Net working capital.
19. *CSO: IA1a LOS: IA1e*  
Stanford Company leased some special-purpose equipment from Vincent Inc. under a long-term lease that was treated as an operating lease by Stanford. After the financial statements for the year had been issued, it was discovered that the lease should have been treated as a capital lease by Stanford. All of the following measures relating to Stanford would be affected by this discovery **except** the
- debt/equity ratio.
  - accounts receivable turnover.
  - fixed asset turnover.
  - net income percentage.
20. *CSO: IA1d LOS: IA1h*  
Larry Mitchell, Bailey Company's controller, is gathering data for the Statement of Cash Flows for the most recent year end. Mitchell is planning to use the indirect method to prepare this statement, and has made the following list of cash inflows for the period.
- Net income of \$100,000.
  - Securities purchased for investment purposes with an original cost of \$100,000 sold for \$125,000.
  - Proceeds from the issuance of additional company stock totaling \$10,000.
- The correct amount to be shown as net cash provided by operating activities is
- \$100,000.
  - \$135,000.
  - \$225,000.
  - \$235,000.
21. *CSO: IA1d LOS: IA1e*  
During the year, Deltech Inc. acquired a long-term productive asset for \$5,000 and also borrowed \$10,000 from a local bank. These transactions should be reported on Deltech's Statement of Cash Flows as
- Outflows for Investing Activities, \$5,000; Inflows from Financial Activities, \$10,000.
  - Inflows from Investing Activities, \$10,000; Outflows for Financing Activities, \$5,000.
  - Outflows for Operating Activities, \$5,000; Inflows from Financing Activities, \$10,000.
  - Outflows for Financing Activities, \$5,000; Inflows from Investing Activities, \$10,000.

22. *CSO: IA1d LOS: IA1e*

Atwater Company has recorded the following payments for the current period.

Purchase Trillium stock	\$300,000
Dividends paid to Atwater shareholders	200,000
Repurchase of Atwater Company stock	400,000

The amount to be shown in the Investing Activities Section of Atwater's Cash Flow Statement should be

- a. \$300,000.
- b. \$500,000.
- c. \$700,000.
- d. \$900,000.

23. *CSO: IA1d LOS: IA1e*

Carlson Company has the following payments recorded for the current period.

Dividends paid to Carlson shareholders	\$150,000
Interest paid on bank loan	250,000
Purchase of equipment	350,000

The total amount of the above items to be shown in the Operating Activities Section of Carlson's Cash Flow Statement should be

- a. \$150,000.
- b. \$250,000.
- c. \$350,000.
- d. \$750,000.

24. *CSO: IA1d LOS: IA1e*

Barber Company has recorded the following payments for the current period.

Interest paid on bank loan	\$300,000
Dividends paid to Barber shareholders	200,000
Repurchase of Barber Company stock	400,000

The amount to be shown in the Financing Activities Section of Barber's Cash Flow Statement should be

- a. \$300,000.
- b. \$500,000.
- c. \$600,000.
- d. \$900,000.



25. *CSO: IA1d LOS: IA1e*

Selected financial information for Kristina Company for the year just ended is shown below.

Net income	\$2,000,000
Increase in accounts receivable	300,000
Decrease in inventory	100,000
Increase in accounts payable	200,000
Depreciation expense	400,000
Gain on the sale of available-for-sale securities	700,000
Cash received from the issue of common stock	800,000
Cash paid for dividends	80,000
Cash paid for the acquisition of land	1,500,000
Cash received from the sale of available-for-sale securities	2,800,000

Kristina's cash flow from financing activities for the year is

- a. \$(80,000).
- b. \$720,000.
- c. \$800,000.
- d. \$3,520,000.

26. *CSO: IA1d LOS: IA1e*

Selected financial information for Kristina Company for the year just ended is shown below.

Net income	\$2,000,000
Increase in accounts receivable	300,000
Decrease in inventory	100,000
Increase in accounts payable	200,000
Depreciation expense	400,000
Gain on the sale of available-for-sale securities	700,000
Cash received from the issue of common stock	800,000
Cash paid for dividends	80,000
Cash paid for the acquisition of land	1,500,000
Cash received from the sale of available-for-sale securities	2,800,000

Kristina's cash flow from investing activities for the year is

- a. \$(1,500,000).
- b. \$1,220,000.
- c. \$1,300,000.
- d. \$2,800,000.

27. *CSO: IA1d LOS: IA1e*

For the fiscal year just ended, Doran Electronics had the following results.

Net income	\$920,000
Depreciation expense	110,000
Increase in accounts payable	45,000
Increase in accounts receivable	73,000
Increase in deferred income tax liability	16,000

Doran's net cash flow from operating activities is

- a. \$928,000.
- b. \$986,000.
- c. \$1,018,000.
- d. \$1,074,000.

28. *CSO: IA1d LOS: IA1e*

Three years ago, James Company purchased stock in Zebra Inc. at a cost of \$100,000. This stock was sold for \$150,000 during the current fiscal year. The result of this transaction should be shown in the Investing Activities Section of James' Statement of Cash Flows as

- a. Zero.
- b. \$50,000.
- c. \$100,000.
- d. \$150,000.

29. *CSO: 1A1d LOS: 1A1e*

Madden Corporation's controller has gathered the following information as a basis for preparing the Statement of Cash Flows. Net income for the current year was \$82,000. During the year, old equipment with a cost of \$60,000 and a net carrying value of \$53,000 was sold for cash at a gain of \$10,000. New equipment was purchased for \$100,000. Shown below are selected closing balances for last year and the current year.

	<u>Last Year</u>	<u>Current Year</u>
Cash	\$ 39,000	\$ 85,000
Accounts receivable net	43,000	37,000
Inventories	93,000	105,000
Equipment	360,000	400,000
Accumulated depreciation - equipment	70,000	83,000
Accounts payable	22,000	19,000
Notes payable	100,000	100,000
Common stock	250,000	250,000
Retained earnings	93,000	175,000

Madden's cash inflow from operating activities for the current year is

- a. \$63,000.
- b. \$73,000.
- c. \$83,000.
- d. \$93,000.

30. *CSO: 1A1d LOS: 1A1e*

Selected financial information for Kristina Company for the year just ended is shown below.

Net income	\$2,000,000
Increase in accounts receivable	300,000
Decrease in inventory	100,000
Increase in accounts payable	200,000
Depreciation expense	400,000
Gain on the sale of available-for-sale securities	700,000
Cash received from the issue of common stock	800,000
Cash paid for dividends	80,000
Cash paid for the acquisition of land	1,500,000
Cash received from the sale of available-for-sale securities	2,800,000

Assuming the indirect method is used, Kristina's cash flow from operating activities for the year is

- a. \$1,700,000.
- b. \$2,000,000.
- c. \$2,400,000.
- d. \$3,100,000.

31. *CSO: 1A2a LOS: 1A2a*  
A change in the estimate for bad debts should be
- treated as an error.
  - handled retroactively.
  - considered as an extraordinary item.
  - treated as affecting only the period of the change.

32. *CSO: 1A2a LOS: 1A2d*  
Finer Foods Inc., a chain of supermarkets specializing in gourmet food, has been using the average cost method to value its inventory. During the current year, the company changed to the first-in, first-out method of inventory valuation. The president of the company reasoned that this change was appropriate since it would more closely match the flow of physical goods. This change should be reported on the financial statements as
- cumulative-effect type accounting change.
  - retroactive-effect type accounting change
  - change in an accounting estimate.
  - correction of an error.

### **Section B: Planning, Budgeting and Forecasting**

33. *CSO: 1B2a LOS: 1B2b*
- Cerawell Products Company is a ceramics manufacturer that is facing several challenges in its operations due to economic and industry conditions. The company is currently preparing its annual plan and budget. Which one of the following is subject to the **least** control by the management of Cerawell in the current fiscal year?
- A new machine that was purchased this year has not helped reduce Cerawell's unfavorable labor efficiency variances.
  - A competitor has achieved an unexpected technological breakthrough that has given them a significant quality advantage, and has caused Cerawell to lose market share.
  - Vendors have asked that the contract price for the goods they supply to Cerawell be renegotiated and adjusted for inflation.
  - Experienced employees have decided to terminate their employment with Cerawell and go to work for the competition.

34. *CSO: 1B2a LOS: 1B2e*  
All of the following are advantages of the use of budgets in a management control system **except** that budgets
- force management planning.
  - provide performance criteria.
  - promote communication and coordination within the organization.
  - limit unauthorized expenditures.
35. *CSO: 1B2b LOS: 1B2e*  
In developing the budget for the next year, which one of the following approaches would most likely result in a successful budget with the **greatest** amount of positive motivation and goal congruence?
- Permit the divisional manager to develop the goal for the division that in the manager's view will generate the greatest amount of profits.
  - Have senior management develop the overall goals and permit the divisional manager to determine how these goals will be met.
  - Have the divisional and senior management jointly develop goals and objectives while constructing the corporation's overall plan of operation.
  - Have the divisional and senior management jointly develop goals and the divisional manager develop the implementation plan.
36. *CSO: 1B2b LOS: 1B2e*  
Which one of the following statements concerning approaches for the budget development process is **correct**?
- The authoritative approach to budgeting discourages strict adherence to strategic organizational goals.
  - To prevent ambiguity, once departmental budgeted goals have been developed, they should remain fixed even if the sales forecast upon which they are based proves to be wrong in the middle of the fiscal year.
  - With the information technology available, the role of budgets as an organizational communication device has declined.
  - Since department managers have the most detailed knowledge about organizational operations, they should use this information as the building blocks of the operating budget.
37. *CSO: 1B2b LOS: 1B2e*  
Which one of the following items would **most** likely cause the planning and budgeting system to fail? The lack of
- historical financial data.
  - input from several levels of management.
  - top management support.
  - adherence to rigid budgets during the year.

38. *CSO: 1B2b LOS: 1B2e*  
All of the following are disadvantages of authoritative budgeting as opposed to participatory budgeting, **except** that it
- may result in a budget that is not possible to achieve.
  - may limit the acceptance of proposed goals and objectives.
  - reduces the communication between employees and management.
  - reduces the time required for budgeting.
39. *CSO: 1B2d LOS: 1B2m*  
All of the following statements concerning standard costs are correct **except** that
- time and motion studies are often used to determine standard costs.
  - standard costs are usually set for one year.
  - standard costs can be used in costing inventory accounts.
  - standard costs are usually stated in total, while budgeted costs are usually stated on a per-unit basis.
40. *CSO: 1B2d LOS: 1B2o*  
One approach for developing standard costs incorporates communication, bargaining, and interaction among product line managers; the immediate supervisors for whom the standards are being developed; and the accountants and engineers before the standards are accepted by top management. This approach would **best** be characterized as a(n)
- imposed approach.
  - authoritative approach.
  - engineering approach.
  - participative approach.
41. *CSO: 1B2d LOS: 1B2n*  
When compared with ideal standards, practical standards
- produce lower per-unit product costs.
  - result in a less desirable basis for the development of budgets.
  - incorporate very generous allowances for spoilage and worker inefficiencies.
  - serve as a better motivating target for manufacturing personnel.

42. *CSO: 1B2d LOS: 1B2q*  
Jura Corporation is developing standards for the next year. Currently XZ-26, one of the material components, is being purchased for \$36.45 per unit. It is expected that the component's cost will increase by approximately 10% next year and the price could range from \$38.75 to \$44.18 per unit depending on the quantity purchased. The appropriate standard for XZ-26 for next year should be set at the
- current actual cost plus the forecasted 10% price increase.
  - lowest purchase price in the anticipated range to keep pressure on purchasing to always buy in the lowest price range.
  - highest price in the anticipated range to insure that there are only favorable purchase price variances.
  - price agreed upon by the purchasing manager and the appropriate level of company management.
43. *CSO: 1B2d LOS: 1B2m*  
Which one of the following will allow a better use of standard costs and variance analysis to help improve managerial decision-making?
- Company A does not differentiate between variable and fixed overhead in calculating its overhead variances.
  - Company B uses the prior year's average actual cost as the current year's standard.
  - Company C investigates only negative variances.
  - Company D constantly revises standards to reflect learning curves.
44. *CSO: 1B2d LOS: 1B2m*  
After performing a thorough study of Michigan Company's operations, an independent consultant determined that the firm's labor standards were probably too tight. Which one of the following facts would be **inconsistent** with the consultant's conclusion?
- A review of performance reports revealed the presence of many unfavorable efficiency variances.
  - Michigan's budgeting process was well-defined and based on a bottom-up philosophy.
  - Management noted that minimal incentive bonuses have been paid in recent periods.
  - Production supervisors found several significant fluctuations in manufacturing volume, with short-term increases on output being followed by rapid, sustained declines.
45. *CSO: 1B3a LOS: 1B3a*  
For cost estimation simple regression differs from multiple regression in that simple regression uses only
- one dependent variable, while multiple regression uses all available data to estimate the cost function.
  - dependent variables, while multiple regression can use both dependent and independent variables.
  - one independent variable, while multiple regression uses more than one independent variable.
  - one dependent variable, while multiple regression uses more than one dependent variable.

46. *CSO: 1B3a LOS: 1B3a*

A company has accumulated data for the last 24 months in order to determine if there is an independent variable that could be used to estimate shipping costs. Three possible independent variables being considered are packages shipped, miles shipped, and pounds shipped. The quantitative technique that should be used to determine whether any of these independent variables might provide a good estimate for shipping costs is

- a. flexible budgeting.
- b. linear programming.
- c. linear regression.
- d. variable costing.

47. *CSO: 1B3a LOS: 1B3b*

Dawson Manufacturing developed the following multiple regression equation, utilizing many years of data, and uses it to model, or estimate, the cost of its product.

$$\text{Cost} = \text{FC} + a*L + b*M$$

Where: FC = fixed costs

L = labor rate per hour

M = material cost per pound

Which one of the following changes would have the **greatest** impact on invalidating the results of this model?

- a. A significant reduction in factory overheads, which are a component of fixed costs.
- b. Renegotiation of the union contract calling for much higher wage rates.
- c. A large drop in material costs, as a result of purchasing the material from a foreign source.
- d. A significant change in labor productivity.

48. *CSO: 1B3a LOS: 1B3c*

In order to analyze sales as a function of advertising expenses, the sales manager of Smith Company developed a simple regression model. The model included the following equation, which was based on 32 monthly observations of sales and advertising expenses with a related coefficient of determination of .90.

$$S = \$10,000 + \$2.50A$$

S = sales

A = advertising expenses

If Smith Company's advertising expenses in one month amounted to \$1,000, the related point estimate of sales would be

- a. \$2,500.
- b. \$11,250.
- c. \$12,250.
- d. \$12,500.



49. *CSO: 1B3a LOS: 1B3c*  
The results of regressing Y against X are as follows.

	<u>Coefficient</u>
Intercept	5.23
Slope	1.54

When the value of X is 10, the estimated value of Y is

- a. 6.78.
  - b. 8.05.
  - c. 20.63.
  - d. 53.84.
50. *CSO: 1B3b LOS: 1B3d*  
Which one of the following techniques would **most** likely be used to analyze reductions in the time required to perform a task as experience with that task increases?

- a. Regression analysis.
- b. Learning curve analysis.
- c. Sensitivity analysis.
- d. Normal probability analysis.

51. *CSO: 1B3b LOS: 1B3e*  
Aerosub Inc. has developed a new product for spacecraft that includes the manufacturing of a complex part. The manufacturing of this part requires a high degree of technical skill. Management believes there is a good opportunity for its technical force to learn and improve as they become accustomed to the production process. The production of the first unit requires 10,000 direct labor hours. If an 80% learning curve is used and eight units are produced, the cumulative average direct labor hours required per unit of the product will be

- a. 5,120 hours.
- b. 6,400 hours.
- c. 8,000 hours.
- d. 10,000 hours.

52. *CSO: 1B3b LOS: 1B3d*  
A manufacturing firm plans to bid on a special order of 80 units that will be manufactured in lots of 10 units each. The production manager estimates that the direct labor hours per unit will decline by a constant percentage each time the cumulative quantity of units produced doubles. The quantitative technique used to capture this phenomenon and estimate the direct labor hours required for the special order is

- a. cost-profit-volume analysis.
- b. the Markov process.
- c. linear programming analysis.
- d. learning curve analysis.

53. *CSO: 1B3b LOS: 1B3e*

A manufacturing company has the opportunity to submit a bid for 20 units of a product on which it has already produced two 10-unit lots. The production manager believes that the learning experience observed on the first two lots will continue for at least the next two lots. The direct labor required on the first two lots was as follows.

- 5,000 direct labor hours for the first lot of 10 units
- 3,000 additional direct labor hours for the second lot of 10 units

The learning rate experienced by the company on the first two lots of this product is

- 40.0%.
- 60.0%.
- 62.5%.
- 80.0%.

54. *CSO: 1B3b LOS: 1B3e*

Aerosub Inc. has developed a new product for spacecraft that includes the manufacture of a complex part. The manufacturing of this part requires a high degree of technical skill. Management believes there is a good opportunity for its technical force to learn and improve as they become accustomed to the production process. The production of the first unit requires 10,000 direct labor hours. If an 80% learning curve is used, the cumulative direct labor hours required for producing a total of eight units would be

- 29,520 hours.
- 40,960 hours.
- 64,000 hours.
- 80,000 hours.

55. CSO: 1B3b LOS: 1B3e1B3b

Propeller Inc. plans to manufacture a newly designed high-technology propeller for airplanes. Propeller forecasts that as workers gain experience, they will need less time to complete the job. Based on prior experience, Propeller estimates a 70% cumulative learning curve and has projected the following costs.

<u>Cumulative number of units produced</u>	<u>Manufacturing Projections</u>	
	<u>Average cost per unit</u>	<u>Total costs</u>
1	\$20,000	\$20,000
2	14,000	28,000

If Propeller manufactures eight propellers, the total manufacturing cost would be

- a. \$50,660.
- b. \$54,880.
- c. \$62,643.
- d. \$112,000.

56. CSO: 1B3b LOS: 1B3e

Martin Fabricating uses a cumulative average-time learning curve model to monitor labor costs. Data regarding two recently completed batches of a part that is used in tractor-trailer rigs is as follows.

<u>Batch Number</u>	<u>Number of Units</u>	<u>Cumulative Average Hours Per Unit</u>
1	50	20
2	50	16

If the same rate of learning continues for the next several batches produced, which of the following best describes (1) the type (i.e., degree) of learning curve that the firm is experiencing and (2) the average hours per unit for units included in the 201-400 range of units produced (i.e., the last 200 units)?

	<u>Type (Degree) of Learning Curve</u>	<u>Average Hours Per Unit for Units 201-400</u>
a.	20%	10.24.
b.	80%	10.24.
c.	80%	7.68.
d.	20%	3.84.

57. CSO: 1B3b LOS: 1B3e

Propeller Inc. plans to manufacture a newly designed high-technology propeller for airplanes. Propeller forecasts that as workers gain experience, they will need less time to complete the job. Based on prior experience, Propeller estimates a 70% cumulative learning curve and has projected the following costs.

<u>Cumulative number of units produced</u>	<u>Manufacturing Projections</u>	
	<u>Average cost per unit</u>	<u>Total costs</u>
1	\$20,000	\$20,000
2	14,000	28,000

If Propeller produces eight units, the average manufacturing cost per unit will be

- a. \$1,647.
- b. \$6,860.
- c. \$9,800.
- d. \$14,000.

58. CSO: 1B3b LOS: 1B3e

In competing as a subcontractor on a military contract, Aerosub Inc. has developed a new product for spacecraft that includes the manufacturing of a complex part. Management believes there is a good opportunity for its technical force to learn and improve as they become accustomed to the production process. Accordingly, management estimates an 80% learning curve would apply to this unit. The overall contract will call for supplying eight units. Production of the first unit requires 10,000 direct labor hours. The estimated total direct labor hours required to produce the seven additional units would be

- a. 30,960 hours.
- b. 40,960 hours.
- c. 56,000 hours.
- d. 70,000 hours.

59. CSO: 1B3b LOS: 1B3e

A manufacturing company required 800 direct labor hours to produce the first lot of four units of a new motor. Management believes that a 90% learning curve will be experienced over the next four lots of production. How many direct labor hours will be required to manufacture the **next** 12 units?

- a. 1,792.
- b. 1,944.
- c. 2,016.
- d. 2,160.

60. CSO: 1B3b LOS: 1B3e

Propeller Inc. plans to manufacture a newly designed high-technology propeller for airplanes. Propeller forecasts that as workers gain experience, they will need less time to complete the job. Based on prior experience, Propeller estimates a 70% cumulative learning curve and has projected the following costs.

<u>Cumulative number of units produced</u>	<u>Manufacturing Projections</u>	
	<u>Average cost per unit</u>	<u>Total costs</u>
1	\$20,000	\$20,000
2	14,000	28,000

The estimated cost of an order for seven additional propellers, after completing production of the first propeller, would be

- a. \$34,880.
- b. \$54,880.
- c. \$92,000.
- d. \$98,000.

61. CSO: 1B3c LOS: 1B3g

Johnson Software has developed a new software package. Johnson's sales manager has prepared the following probability distribution describing the relative likelihood of monthly sales levels and relative income (loss) for the company's new software package.

<u>Monthly Sales</u>		
<u>In Units</u>	<u>Probability</u>	<u>Income (Loss)</u>
10,000	.2	\$(4,000)
20,000	.3	10,000
30,000	.3	30,000
40,000	.2	60,000

If Johnson decides to market its new software package, the expected value of additional monthly income will be

- a. \$23,200.
- b. \$24,000.
- c. \$24,800.
- d. \$25,000.1B4a

62. CSO: 1B3c LOS: 1B3g

According to recent focus sessions, Norton Corporation has a “can’t miss” consumer product on its hands. Sales forecasts indicate either excellent or good results, with Norton’s sales manager assigning a probability of .6 to a good results outcome. The company is now studying various sales compensation plans for the product and has determined the following contribution margin data.

	<u>Contribution Margin</u>
If sales are excellent and	
Plan 1 is adopted	\$300,000
Plan 2 is adopted	370,000
 If sales are good and	
Plan 1 is adopted	240,000
Plan 2 is adopted	180,000

On the basis of this information, which of the following statements is **correct**?

- Plan 2 should be adopted because it is \$10,000 more attractive than Plan 1.
- Plan 1 should be adopted because it is \$8,000 more attractive than Plan 2.
- Plan 1 should be adopted because of the sales manager’s higher confidence in good results.
- Either Plan should be adopted, the decision being dependent on the probability of excellent sales results.

63. CSO: 1B3c LOS: 1B3g

Denton Inc. manufactures industrial machinery and requires 100,000 switches per year in its assembly process. When switches are received from a vendor they are installed in the specific machine and tested. If the switches fail, they are scrapped and the associated labor cost of \$25 is considered lost productivity. Denton purchases “off the shelf” switches as opposed to custom-made switches and experiences quality problems with some vendors’ products. A decision must be made as to which vendor to buy from during the next year based on the following information.

<u>Vendor</u>	<u>Price per switch</u>	<u>Percentage expected to pass the test</u>
P	\$35	90%
Q	37	94%
R	39	97%
S	40	99%

Which vendor should Denton’s controller recommend to management?

- Vendor P.
- Vendor Q.
- Vendor R.
- Vendor S.

64. CSO: 1B3c LOS: 1B3g

Scarf Corporation's controller has decided to use a decision model to cope with uncertainty. With a particular proposal, currently under consideration, Scarf has two possible actions, invest or not invest in a joint venture with an international firm. The controller has determined the following.

Action 1: Invest in the Joint Venture

Events and Probabilities:

Probability of success = 60%.

Cost of investment = \$9.5 million.

Cash flow if investment is successful = \$15.0 million.

Cash flow if investment is unsuccessful = \$2.0 million.

Additional costs to be paid = \$0

Costs incurred up to this point = \$650,000.

Action 2: Do Not Invest in the Joint Venture

Events

Costs incurred up to this point = \$650,000.

Additional costs to be paid = \$100,000.

Which one of the following alternatives correctly reflects the respective expected values of investing versus not investing?

- a. \$300,000 and \$(750,000).
- b. \$(350,000) and \$(100,000).
- c. \$300,000 and (100,000).
- d. \$(350,000) and \$(750,000).

65. CSO: 1B3c LOS: 1B3g

Allbee Company has three possible investment opportunities. The controller calculated the payoffs and probabilities, as follows.

Payoffs	Probabilities		
	Investment A	Investment B	Investment C
\$(20,000)	.3	.2	.3
(10,000)	.1	.2	.1
30,000	.3	.2	.2
70,000	.2	.2	.3
100,000	.1	.2	.1

The cost of investments A, B, and C are the same. Using the expected-value criterion, which one of the following rankings of these investments, from highest payoff to lowest payoff, is correct?

- a. A, B, C.
- b. B, A, C.
- c. C, A, B.
- d. B, C, A.

66. CSO: 1B3c LOS: 1B3g

The sales manager of Serito Doll Company has suggested that an expanded advertising campaign costing \$40,000 would increase the sales and profits of the company. He has developed the following probability distribution for the effect of the advertising campaign on company sales.

<u>Sales increase</u> <u>(units)</u>	<u>Probability</u>
15,000	.10
30,000	.35
45,000	.10
60,000	.25
75,000	.20

The company sells the dolls at \$5.20 each. The cost of each doll is \$3.20. Serito's expected incremental profit, if the advertising campaign is adopted, would be

- a. \$6,500.
- b. \$46,500.
- c. \$53,000.
- d. \$93,000.

67. CSO: 1B3c LOS: 1B3g

Stock X has the following probability distribution of expected future returns.

<u>Probability</u>	<u>Expected</u> <u>Return</u>
.10	-20%
.20	5%
.40	15%
.20	20%
.10	30%

The expected rate of return on stock X would be

- a. 10%.
- b. 12%.
- c. 16%.
- d. 19%.



68. CSO: 1B3c LOS: 1B3g  
Which one of the following four probability distributions provides the highest expected monetary value?

<u>Alternative #1</u>		<u>Alternative #2</u>		<u>Alternative #3</u>		<u>Alternative #4</u>	
Cash		Cash		Cash		Cash	
<u>Prob.</u>	<u>Inflows</u>	<u>Prob.</u>	<u>Inflows</u>	<u>Prob.</u>	<u>Inflows</u>	<u>Prob.</u>	<u>Inflows</u>
10%	\$50,000	10%	\$50,000	10%	\$50,000	10%	\$150,000
20%	75,000	20%	75,000	20%	75,000	20%	100,000
40%	100,000	45%	100,000	40%	100,000	40%	75,000
30%	150,000	25%	150,000	30%	125,000	30%	50,000

- Alternative #1.
- Alternative #2.
- Alternative #3.
- Alternative #4.

69. CSO: 1B3c LOS: 1B3g  
The Lions Club is planning to sell pretzels at a local football game and has estimated sales demand as follows.

Sales demand	8,000	10,000	12,000	15,000
Probability	10%	40%	30%	20%

The cost of the pretzels varies with the quantity purchased as follows.

Purchase quantity	8,000	10,000	12,000	15,000
Cost per unit	\$1.25	\$1.20	\$1.15	\$1.10

Any unsold pretzels would be donated to the local food bank. The calculated profits at the various sales demand levels and purchase quantities are as follows.

<u>Sales Demand</u>	<u>Expected Profits at Various Purchase Quantity Levels</u>			
	<u>8,000</u>	<u>10,000</u>	<u>12,000</u>	<u>15,000</u>
8,000	\$6,000	\$4,000	\$ 2,200	\$ (500)
10,000	6,000	8,000	6,200	3,500
12,000	6,000	8,000	10,200	7,500
15,000	6,000	8,000	10,200	13,500

Which one of the following purchase quantities would you recommend to the Lions Club?

- 8,000.
- 10,000.
- 12,000.
- 15,000.

70. *CSO: 1B4a LOS: 1B4d*  
 All of the following are criticisms of the traditional budgeting process **except** that it
- makes across-the-board cuts when early budget iterations show that planned expenses are too high.
  - incorporates non-financial measures as well as financial measures into its output.
  - overemphasizes a fixed time horizon such as one year.
  - is not used until the end of the budget period to evaluate performance.

71. *CSO: 1B4a LOS: 1B4b*  
 Many companies use comprehensive budgeting in planning for the next year's activities. When both an operating budget and a financial budget are prepared, which one of the following is **correct** concerning the financial budget?

	Included in the Financial Budget		
	Capital Budget	Pro-forma Balance Sheet	Cash Budget
a.	Yes	No	Yes.
b.	No	Yes	No.
c.	Yes	Yes	Yes.
d.	No	No	No.

72. *CSO: 1B4a LOS: 1B4b*  
 What would be the correct chronological order of preparation for the following budgets?

- Cost of goods sold budget.
- Production budget.
- Purchases budget.
- Administrative budget.

- I, II, III, IV.
  - III, II, IV, I.
  - IV, II, III, I.
  - II, III, I, IV.
73. *CSO: 1B4a LOS: 1B4c*  
 Which one of the following **best** describes the order in which budgets should be prepared when developing the annual master operating budget?
- Production budget, direct material budget, revenue budget.
  - Production budget, revenue budget, direct material budget.
  - Revenue budget, production budget, direct material budget.
  - Revenue budget, direct material budget, production budget.

74. *CSO: 1B4d LOS: 1B4a*  
 A budgeting approach that requires a manager to justify the entire budget for each budget period is known as
- performance budgeting.
  - program budgeting.
  - zero-base budgeting.
  - incremental budgeting.

75. *CSO: 1B4f LOS: 1B4d*  
 Rainbow Inc. recently appointed Margaret Joyce as vice president of finance and asked her to design a new budgeting system. Joyce has changed to a monthly budgeting system by dividing the company's annual budget by twelve. Joyce then prepared monthly budgets for each department and asked the managers to submit monthly reports comparing actual to budget. A sample monthly report for Department A is shown below.

Rainbow Inc.  
Monthly Report for Department A

	<u>Actual</u>	<u>Budget</u>	<u>Variance</u>
<u>Units</u>	1,000	900	100F
Variable production costs			
Direct material	\$2,800	\$2,700	\$100U
Direct labor	4,800	4,500	300U
Variable factory overhead	4,250	4,050	200U
Fixed costs			
Depreciation	3,000	2,700	300U
Taxes	1,000	900	100U
Insurance	1,500	1,350	150U
Administration	1,100	990	110U
Marketing	<u>1,000</u>	<u>900</u>	<u>100U</u>
Total costs	<u>\$19,450</u>	<u>\$18,090</u>	<u>\$1,360U</u>

This monthly budget has been imposed from the top and will create behavior problems. All of the following are causes of such problems **except**

- the use of a flexible budget rather than a fixed budget.
- top management authoritarian attitude toward the budget process.
- the inclusion of non-controllable costs such as depreciation.
- the lack of consideration for factors such as seasonality.

76. *CSO: 1B4f LOS: 1B4d*  
When compared to static budgets, flexible budgets
- offer managers a more realistic comparison of budget and actual fixed cost items under their control.
  - provide a better understanding of the capacity variances during the period being evaluated.
  - encourage managers to use less fixed costs items and more variable cost items that are under their control.
  - offer managers a more realistic comparison of budget and actual revenue and cost items under their control.
77. *CSO: 1B4f LOS: 1B4a*  
Country Ovens is a family restaurant chain. Due to an unexpected road construction project, traffic passing by the Country Ovens restaurant in Newtown has significantly increased. As a result, restaurant volume has similarly increased well beyond the level expected. Which type of budget would be **most** appropriate in helping the restaurant manager plan for restaurant labor costs?
- Zero-based budget.
  - Rolling budget.
  - Activity-based budget.
  - Flexible budget.
78. *CSO: 1B5a LOS: 1B5c*  
Netco's sales budget for the coming year is as follows.

<u>Item</u>	<u>Volume in Units</u>	<u>Sales Price</u>	<u>Sales Revenue</u>
1	200,000	\$50	\$10,000,000
2	150,000	10	1,500,000
3	300,000	30	<u>9,000,000</u>
	Total sales revenue		<u>\$20,500,000</u>

Items 1 and 3 are different models of the same product. Item 2 is a complement to Item 1. Past experience indicates that the sales volume of Item 2 relative to the sales volume of Item 1 is fairly constant. Netco is considering an 10% price increase for the coming year for Item 1, which will cause sales of Item 1 to decline by 20%, while simultaneously causing sales of Item 3 to increase by 5%. If Netco institutes the price increase for Item 1, total sales revenue will decrease by

- \$1,050,000.
- \$850,000.
- \$750,000.
- \$550,000.

79. *CSO: 1B5a LOS: 1B5i*  
Hannon Retailing Company prices its products by adding 30% to its cost. Hannon anticipates sales of \$715,000 in July, \$728,000 in August, and \$624,000 in September. Hannon's policy is to have on hand enough inventory at the end of the month to cover 25% of the next month's sales. What will be the cost of the inventory that Hannon should budget for purchase in August?
- a. \$509,600.
  - b. \$540,000.
  - c. \$560,000.
  - d. \$680,000.
80. *CSO: 1B5a LOS: 1B5f*  
Streeter Company produces plastic microwave turntables. Sales for the next year are expected to be 65,000 units in the first quarter, 72,000 units in the second quarter, 84,000 units in the third quarter, and 66,000 units in the fourth quarter. Streeter maintains a finished goods inventory at the end of each quarter equal to one half of the units expected to be sold in the next quarter. How many units should Streeter produce in the second quarter?
- a. 72,000 units.
  - b. 75,000 units.
  - c. 78,000 units.
  - d. 84,000 units.
81. *CSO: 1B5a LOS: 1B5f*  
Ming Company has budgeted sales at 6,300 units for the next fiscal year, and desires to have 590 good units on hand at the end of that year. Beginning inventory is 470 units. Ming has found from past experience that 10% of all units produced do not pass final inspection, and must therefore be destroyed. How many units should Ming plan to produce in the next fiscal year?
- a. 6,890.
  - b. 7,062.
  - c. 7,133.
  - d. 7,186.
82. *CSO: 1B5a LOS: 1B5f*  
Savior Corporation assembles backup systems for home computers. For the first quarter, the budget for sales is 67,500 units. Savior will finish the fourth quarter of last year with an inventory of 3,500 units, of which 200 are obsolete. The target ending inventory is 10 days of sales (based upon 360 days). What is the budgeted production for the first quarter?
- a. 75,000.
  - b. 71,700.
  - c. 71,500.
  - d. 64,350

83. *CSO: 1B5a LOS: 1B5f*

Streeter Company produces microwave turntables. Sales for the next year are expected to be 65,000 units in the first quarter, 72,000 units in the second quarter, 84,000 units in the third quarter, and 66,000 units in the fourth quarter. Streeter usually maintains a finished goods inventory at the end of each quarter equal to one half of the units expected to be sold in the next quarter. However, due to a work stoppage, the finished goods inventory at the end of the first quarter is 8,000 units less than it should be. How many units should Streeter produce in the second quarter?

- a. 75,000 units.
- b. 78,000 units.
- c. 80,000 units.
- d. 86,000 units.

84. *CSO: 1B5a LOS: 1B5f*

Data regarding Rombus Company's budget are shown below.

Planned sales	4,000 units
Material cost	\$2.50 per pound
Direct labor	3 hours per unit
Direct labor rate	\$7 per hour
Finished goods beginning inventory	900 units
Finished goods ending inventory	600 units
Direct materials beginning inventory	4,300 units
Direct materials ending inventory	4,500 units
Materials used per unit	6 pounds

Rombus Company's production budget will show total units to be produced of

- a. 3,700.
- b. 4,000.
- c. 4,300.
- d. 4,600.

85. CSO: 1B5a LOS: 1B5f

Krouse Company is in the process of developing its operating budget for the coming year. Given below are selected data regarding the company's two products, laminated putter heads and forged putter heads, that are sold through specialty golf shops.

	Putter Heads	
	Forged	Laminated
Raw materials		
Steel	2 pounds @ \$5/lb.	1 pound @ \$5/lb.
Copper	None	1 pound @ \$15/lb.
Direct labor	1/4 hour @ \$20/hr.	1 hour @ \$22/hr.
Expected sales (units)	8,200	2,000
Selling price per unit	\$30	\$80
Ending inventory target (units)	100	60
Beginning inventory (units)	300	60
Beginning inventory (cost)	\$5,250	\$3,120

Manufacturing overhead is applied to units produced on the basis of direct labor hours. Variable manufacturing overhead is projected to be \$25,000, and fixed manufacturing overhead is expected to be \$15,000.

The estimated cost to produce one unit of the laminated putter head is

- \$42.
- \$46.
- \$52.
- \$62.

86. CSO: 1B5a LOS: 1B5d

Tidwell Corporation sells a single product for \$20 per unit. All sales are on account, with 60% collected in the month of sale and 40% collected in the following month. A partial schedule of cash collections for January through March of the coming year reveals the following receipts for the period.

	<u>Cash Receipts</u>		
	<u>January</u>	<u>February</u>	<u>March</u>
December receivables	\$32,000		
From January sales	54,000	\$36,000	
From February sales		66,000	\$44,000

Other information includes the following.

- Inventories are maintained at 30% of the following month's sales.
- Assume that March sales total \$150,000.

The number of units to be purchased in February is

- 3,850 units.
- 4,900 units.
- 6,100 units.
- 7,750 units.

87. CSO: 1B5a LOS: 1B5i

Stevens Company manufactures electronic components used in automobile manufacturing. Each component uses two raw materials, Geo and Clio. Standard usage of the two materials required to produce one finished electronic component, as well as the current inventory, are shown below.

<u>Material</u>	<u>Standard</u>	<u>Price</u>	<u>Current Inventory</u>
	<u>Per Unit</u>		
Geo	2.0 pounds	\$15/lb.	5,000 pounds
Clio	1.5 pounds	\$10/lb.	7,500 pounds

Stevens forecasts sales of 20,000 components for each of the next two production periods. Company policy dictates that 25% of the raw materials needed to produce the next period's projected sales be maintained in ending direct materials inventory.

Based on this information, the budgeted direct material purchases for the coming period would be

- |    | <u>Geo</u> | <u>Clio</u> |
|----|------------|-------------|
| a. | \$450,000  | \$450,000.  |
| b. | \$675,000  | \$300,000.  |
| c. | \$675,000  | \$400,000.  |
| d. | \$825,000  | \$450,000.  |



88. CSO: 1B5a LOS: 1B5i

Petersons Planters Inc. budgeted the following amounts for the coming year.

Beginning inventory, finished goods	\$ 10,000
Cost of goods sold	400,000
Direct material used in production	100,000
Ending inventory, finished goods	25,000
Beginning and ending work-in-process inventory	Zero

Overhead is estimated to be two times the amount of direct labor dollars. The amount that should be budgeted for direct labor for the coming year is

- a. \$315,000.
- b. \$210,000.
- c. \$157,500.
- d. \$105,000.

89. CSO: 1B5a LOS: 1B5i

Over the past several years, McFadden Industries has experienced the following regarding the company's shipping expenses.

Fixed costs	\$16,000
Average shipment	15 pounds
Cost per pound	\$.50

Shown below are McFadden's budget data for the coming year.

Number of units shipped	8,000
Number of sales orders	800
Number of shipments	800
Total sales	\$1,200,000
Total pounds shipped	9,600

McFadden's expected shipping costs for the coming year are

- a. \$4,800.
- b. \$16,000.
- c. \$20,000.
- d. \$20,800.

90. *CSO: 1B5a LOS: 1B5g*  
 Swan Company is a maker of men's slacks. The company would like to maintain 20,000 yards of fabric in ending inventory. The beginning fabric inventory is expected to contain 25,000 yards. The expected yards of fabric needed for sales is 90,000. Compute the yards of fabric that Swan needs to purchase.

- a. 85,000.
- b. 90,000.
- c. 95,000.
- d. 135,000.

91. *CSO: 1B5a LOS: 1B5g*  
 Manoli Gift Shop maintains a 35% gross profit margin percentage, and carries an ending inventory balance each month sufficient to support 30% of the next month's expected sales. Anticipated sales for the fourth quarter are as follows.

October	\$42,000
November	58,000
December	74,000

What amount of goods should Manoli Gift Shop plan to purchase during the month of November?

- a. \$40,820.
- b. \$51,220.
- c. \$52,130.
- d. \$62,800.

92. *CSO: 1B5a LOS: 1B5g*  
 In preparing the direct material purchases budget for next quarter, the plant controller has the following information available.

Budgeted unit sales	2,000
Pounds of materials per unit	4
Cost of materials per pound	\$3
Pounds of materials on hand	400
Finished units on hand	250
Target ending units inventory	325
Target ending inventory of pounds of materials	800

How many pounds of materials must be purchased?

- a. 2,475.
- b. 7,900.
- c. 8,700.
- d. 9,300.

93. *CSO: 1B5a LOS: 1B5g*  
Playtime Toys estimates that it will sell 200,000 dolls during the coming year. The beginning inventory is 12,000 dolls; the target ending inventory is 15,000 dolls. Each doll requires two shoes which are purchased from an outside supplier. The beginning inventory of shoes is 20,000; the target ending inventory is 18,000 shoes. The number of shoes that should be purchased during the year is

- a. 396,000 shoes.
- b. 398,000 shoes.
- c. 402,000 shoes.
- d. 404,000 shoes.

94. *CSO: 1B5a LOS: 1B5g*  
Maker Distributors has a policy of maintaining inventory at 15% of the next month's forecasted sales. The cost of Maker's merchandise averages 60% of the selling price. The inventory balance as of May 31 is \$63,000, and the forecasted dollar sales for the last seven months of the year are as follows.

June	\$700,000
July	600,000
August	650,000
September	800,000
October	850,000
November	900,000
December	840,000

What is the budgeted dollar amount of Maker's purchases for July?

- a. \$355,500.
- b. \$360,000.
- c. \$364,500.
- d. \$399,000.

95. *CSO: 1B5a LOS: 1B5m*  
All of the following would appear on a projected schedule of cost of goods manufactured **except** for

- a. ending work-in-process inventory.
- b. beginning finished goods inventory.
- c. the cost of raw materials used.
- d. applied manufacturing overhead.

96. CSO: 1B5a LOS: 1B5j

A company that manufactures furniture is establishing its budget for the upcoming year. All of the following items would appear in its overhead budget **except** for the

- a. overtime paid to the workers who perform production scheduling.
- b. cost of glue used to secure the attachment of the legs to the tables.
- c. fringe benefits paid to the production supervisor.
- d. freight charges paid for the delivery of raw materials to the company.

97. CSO: 1B5a LOS: 1B5l

Using the following budget data for Valley Corporation, which produces only one product, calculate the company's predetermined factory overhead application rate for variable overhead.

Units to be produced	11,000
Units to be sold	10,000
Indirect materials, varying with production	\$ 1,000
Indirect labor, varying with production	10,000
Factory supervisor's salary, incurred regardless of production	20,000
Depreciation on factory building and equipment	30,000
Utilities to operate factory machines	12,000
Security lighting for factory	2,000
Selling, general and administrative expenses	5,000

- a. \$2.09.
- b. \$2.30.
- c. \$4.73.
- d. \$5.20.

98. CSO: 1B5a LOS: 1B5m

Given the following data for Scurry Company, what is the cost of goods sold?

Beginning inventory of finished goods	\$100,000
Cost of goods manufactured	700,000
Ending inventory of finished goods	200,000
Beginning work-in-process inventory	300,000
Ending work-in-process inventory	50,000

- a. \$500,000.
- b. \$600,000.
- c. \$800,000.
- d. \$950,000.

99. CSO: 1B5a LOS: 1B5o1B5b

Tut Company's selling and administrative costs for the month of August, when it sold 20,000 units, were as follows.

	Costs	
	<u>Per Unit</u>	<u>Total</u>
Variable costs	\$18.60	\$372,000
Step costs	4.25	85,000
Fixed costs	<u>8.80</u>	<u>176,000</u>
Total selling and administrative costs	<u>\$31.65</u>	<u>\$633,000</u>

The variable costs represent sales commissions paid at the rate of 6.2% of sales. The step costs depend on the number of salespersons employed by the company. In August there were 17 persons on the sales force. However, two members have taken early retirement effective August 31. It is anticipated that these positions will remain vacant for several months. Total fixed costs are unchanged within a relevant range of 15,000 to 30,000 units per month. Tut is planning a sales price cut of 10%, which it expects will increase sales volume to 24,000 units per month. If Tut implements the sales price reduction, the total budgeted selling and administrative costs for the month of September would be

- a. \$652,760.
- b. \$679,760.
- c. \$714,960.
- d. \$759,600.

100. CSO: 1B5b LOS: 1B5u

Granite Company sells products exclusively on account, and has experienced the following collection pattern: 60% in the month of sale, 25% in the month after sale, and 15% in the second month after sale. Uncollectible accounts are negligible. Customers who pay in the month of sale are given a 2% discount. If sales are \$220,000 in January, \$200,000 in February, \$280,000 in March, and \$260,000 in April, Granite's accounts receivable balance on May 1 will be

- a. \$107,120.
- b. \$143,920.
- c. \$146,000.
- d. \$204,000.

101. *CSO: 1B5b LOS: 1B5t*

Myers Company uses a calendar-year and prepares a cash budget for each month of the year. Which one of the following items should be considered when developing July's cash budget?

- a. Federal income tax and social security tax withheld from employee's June paychecks to be remitted to the Internal Revenue Service in July.
- b. Quarterly cash dividends scheduled to be declared on July 15 and paid on August 6 to shareholders of record as of July 25.
- c. Property taxes levied in the last calendar year scheduled to be paid quarterly in the coming year during the last month of each calendar quarter.
- d. Recognition that 0.5% of the July sales on account will be uncollectible.

102. *CSO: 1B5b LOS: 1B5t*

Brown Company estimates that monthly sales will be as follows.

January	\$100,000
February	150,000
March	180,000

Historical trends indicate that 40% of sales are collected during the month of sale, 50% are collected in the month following the sale, and 10% are collected two months after the sale. Brown's accounts receivable balance as of December 31 totals \$80,000 (\$72,000 from December's sales and \$8,000 from November's sales). The amount of cash Brown can expect to collect during the month of January is

- a. \$76,800.
- b. \$84,000.
- c. \$108,000.
- d. \$133,000.

103. CSO: 1B5b LOS: 1B5u

Cooper Company's management team is preparing a cash budget for the coming quarter. The following budgeted information is under review.

	<u>January</u>	<u>February</u>	<u>March</u>
Revenue	\$700,000	\$800,000	\$500,000
Inventory purchases	350,000	425,000	225,000
Other expenses	150,000	175,000	175,000

The company expects to collect 40% of its monthly sales in the month of sale and 60% in the following month. 50% of inventory purchases are paid in the month of purchase, and the other 50% in the following month. All payments for other expenses are made in the month incurred.

Cooper forecasts the following account balances at the beginning of the quarter.

Cash	\$100,000
Accounts receivable	300,000
Accounts payable (Inventory)	500,000

Given the above information, the projected change in cash during the coming quarter will be

- a. \$412,500.
- b. \$300,000.
- c. \$112,500.
- d. \$ -0-.

104. CSO: 1B5b LOS: 1B5u

Bootstrap Corporation anticipates the following sales during the last six months of the year.

July	\$460,000
August	500,000
September	525,000
October	500,000
November	480,000
December	450,000

20% of Bootstrap's sales are for cash. The balance is subject to the collection pattern shown below.

Percentage of balance collected in the month of sale	40%
Percentage of balance collected in the month following sale	30%
Percentage of balance collected in the second month following sale	25%
Percentage of balance uncollectible	5%

What is the planned net accounts receivable balance as of December 31?

- a. \$279,300.
- b. \$294,000.
- c. \$360,000.
- d. \$367,500.

105. CSO: 1B5b LOS: 1B5u

Projected monthly sales of Wallstead Corporation for January, February, March, and April are as follows.

January	\$300,000
February	340,000
March	370,000
April	390,000

- The company bills each month's sales on the last day of the month.
- Receivables are booked gross and credit terms of sale are: 2/10, n/30.
- 50% of the billings are collected within the discount period, 30% are collected by the end of the month, 15% are collected by the end of the second month, and 5% become uncollectible.

Budgeted cash collections for Wallstead Company during April would be

- a. \$343,300.
- b. \$347,000.
- c. \$349,300.
- d. \$353,000.



106. *CSO: 1B5b LOS: 1B5u*

Tip-Top Cleaning Supply carries a large number of different items in its inventory, giving the firm a competitive advantage in its industry. Below is part of Tip-Top's budget for the first quarter of next year.

Sales	\$855,000
Cost of goods sold	425,000
Rent and salary expenses	375,000

Historically, all of the sales are on account and are made evenly over the quarter. 5% of all sales are determined to be uncollectible and written off. The balance of the receivables is collected in 50 days. This sales and collection experience is expected to continue in the first quarter. The projected balance sheet for the first day of the quarter includes the following account balances.

Cash	\$ 10,000
Accounts receivable (net)	450,000
Inventory	900,000
Accounts payable	800,000

How much cash can Tip-Top anticipate collecting in the first quarter (based on a 360-day year)?

- \$811,000.
- \$830,000.
- \$901,250.
- \$902,500.

107. *CSO: 1B5b LOS: 1B5u*

Monroe Products is preparing a cash forecast based on the following information.

- Monthly sales: December \$200,000; January \$200,000; February \$350,000; March \$400,000.
- All sales are on credit and collected the month following the sale.
- Purchases are 60% of next month's sales and are paid for in the month of purchase.
- Other monthly expenses are \$25,000, including \$5,000 of depreciation.

If the January beginning cash balance is \$30,000, and Monroe is required to maintain a minimum cash balance of \$10,000, how much short-term borrowing will be required at the end of February?

- \$60,000.
- \$70,000.
- \$75,000.
- \$80,000.

108. CSO: 1B5b LOS: 1B5u

Prudent Corporation's budget for the upcoming accounting period reveals total sales of \$700,000 in April and \$750,000 in May. The sales cash collection pattern is

20% of each month's sales are cash sales.

5% of a month's credit sales are uncollectible.

70% of a month's credit sales are collected in the month of sale.

25% of a month's credit sales are collected in the month following the sale.

If Prudent anticipates the cash sale of a piece of old equipment in May for \$25,000, May's total budgeted cash receipts would be

- a. \$560,000.
- b. \$702,500.
- c. \$735,000.
- d. \$737,500.

109. CSO: 1B5b LOS: 1B5u

ANNCO sells products on account, and experiences the following collection schedule.

In the month of sale	10%
In the month after sale	60%
In the second month after sale	30%

At December 31, ANNCO reports accounts receivable of \$211,500. Of that amount, \$162,000 is due from December sales, and \$49,500 from November sales. ANNCO is budgeting \$170,000 of sales for January. If so, what amount of cash should be collected in January?

- a. \$129,050.
- b. \$174,500.
- c. \$211,500.
- d. \$228,500.

110. CSO: 1B5b LOS: 1B5u

Brooke Company's management team is preparing a cash budget for the coming quarter. The following budgeted information is under review.

	<u>January</u>	<u>February</u>	<u>March</u>
Revenue	\$700,000	\$800,000	\$500,000
Inventory purchases	350,000	425,000	225,000
Other expenses	150,000	175,000	175,000

The company expects to collect 40% of its monthly sales in the month of sale and 60% in the following month. 50% of inventory purchases are paid in the month of purchase, and 50% in the following month. Payments for all other expenses are made in the month incurred.

Brooke forecasts the following account balances at the beginning of the quarter.

Cash	\$200,000
Accounts receivable	300,000
Accounts payable (Inventory)	400,000

Given the above information, the projected ending cash balance for February will be

- a. \$712,500.
- b. \$500,000.
- c. \$232,500.
- d. \$120,000.

111. *CSO: 1B5b LOS: 1B5u*

Health Foods Inc. has decided to start a cash budgeting program to improve overall cash management. Information gathered from the past year reveals the following cash collection trends.

- 40% of sales are on credit
- 50% of credit sales are collected in month of sale
- 30% of credit sales are collected first month after sale
- 15% of credit sales are collected second month after sale
- 5% of credit sales result in bad debts

Gross sales for the last five months were as follows.

January	\$220,000
February	240,000
March	250,000
April	230,000
May	260,000

Sales for June are projected to be \$255,000. Based on this information, the expected cash receipts for March would be

- a. \$230,000.
- b. \$237,400.
- c. \$242,000.
- d. \$243,200.

112. CSO: 1B5b LOS: 1B5u

Tidwell Corporation sells a single product for \$20 per unit. All sales are on account, with 60% collected in the month of sale and 40% collected in the following month. A schedule of cash collections for January through March of the coming year reveals the following receipts for the period.

	<u>Cash Receipts</u>		
	<u>January</u>	<u>February</u>	<u>March</u>
December receivables	\$32,000		
From January sales	54,000	\$36,000	
From February sales		66,000	\$44,000
From March sales			72,000

Other information includes the following.

- Inventories are maintained at 30% of the following month's sales.
- Tidwell desires to keep a minimum cash balance of \$15,000. Total payments in January are expected to be \$106,500, which excludes \$12,000 of depreciation expense. Any required borrowings are in multiples of \$1,000.
- The December 31 balance sheet for the preceding year revealed a cash balance of \$24,900.

Ignoring income taxes, the financing needed in January to maintain the firm's minimum cash balance is

- \$8,000.
- \$10,600.
- \$11,000.
- \$23,000.

113. *CSO: 1B5b LOS: 1B5u*  
 Data regarding Johnsen Inc.'s forecasted dollar sales for the last seven months of the year and Johnsen's projected collection patterns are as follows.

<u>Forecasted sales</u>	
June	\$700,000
July	600,000
August	650,000
September	800,000
October	850,000
November	900,000
December	840,000

<u>Types of sales</u>	
Cash sales	30%
Credit sales	70%

Collection pattern on credit sales (5% determined to be uncollectible)

During the month of sale	20%
During the first month following the sale	50%
During the second month following the sale	25%

Johnsen's budgeted cash receipts from sales and collections on account for September are

- \$635,000.
- \$684,500.
- \$807,000.
- \$827,000.

114. *CSO: 1B5b LOS: 1B5u*

The Mountain Mule Glove Company is in its first year of business. Mountain Mule had a beginning cash balance of \$85,000 for the quarter. The company has a \$50,000 short-term line of credit. The budgeted information for the first quarter is shown below.

	<u>January</u>	<u>February</u>	<u>March</u>
Sales	\$60,000	\$40,000	\$50,000
Purchases	35,000	40,000	75,000
Operating costs	25,000	25,000	25,000

All sales are made on credit and are collected in the second month following the sale. Purchases are paid in the month following the purchase, while operating costs are paid in the month that they are incurred. How much will Mountain Mule need to borrow at the end of the quarter if the company needs to maintain a minimum cash balance of \$5,000 as required by a loan covenant agreement?

- \$0.
- \$5,000.
- \$10,000.
- \$45,000.

## Section C: Performance Management

115. *CSO: 1C1a LOS: 1C1d*  
A major **disadvantage** of a static budget is that
- it is more difficult to develop than a flexible budget.
  - it is made for only one level of activity.
  - variances tend to be smaller than when flexible budgeting is used.
  - variances are more difficult to compute than when flexible budgeting is used.
116. *CSO: 1C1a LOS: 1C1d*  
Arkin Co.'s controller has prepared a flexible budget for the year just ended, adjusting the original static budget for the unexpected large increase in the volume of sales. Arkin's costs are mostly variable. The controller is pleased to note that both actual revenues and actual costs approximated amounts shown on the flexible budget. If actual revenues and actual costs are compared with amounts shown on the original (static) budget, what variances would arise?
- Both revenue variances and cost variances would be favorable.
  - Revenue variances would be favorable and cost variances would be unfavorable.
  - Revenue variances would be unfavorable and cost variances would be favorable.
  - Both revenue variances and cost variances would be unfavorable.
117. *CSO: 1C1b LOS: 1C1d*  
Use of a standard cost system can include all of the following advantages **except** that it
- assists in performance evaluation.
  - emphasizes qualitative characteristics.
  - permits development of flexible budgeting.
  - allows employees to better understand what is expected of them.
118. *CSO: 1C1b LOS: 1C1e*  
Which one of the following statements is **correct** concerning a flexible budget cost formula?  
Variable costs are stated
- per unit and fixed costs are stated in total.
  - in total and fixed costs are stated per unit.
  - in total and fixed costs are stated in total.
  - per unit and fixed costs are stated per unit.

119. CSO: 1C1b LOS: 1C1e

The monthly sales volume of Shugart Corporation varies from 7,000 units to 9,800 units over the course of a year. Management is currently studying anticipated selling expenses along with the related cash resources that will be needed. Which of the following types of budgets (1) should be used by Shugart in planning, and (2) will provide Shugart the **best** feedback in performance reports for comparing planned expenditures with actual amounts?

- |    | <u>Planning</u> | <u>Performance Reporting</u> |
|----|-----------------|------------------------------|
| a. | Static          | Static.                      |
| b. | Static          | Flexible.                    |
| c. | Flexible        | Static.                      |
| d. | Flexible        | Flexible.                    |

120. CSO: 1C1b LOS: 1C1f

The following performance report was prepared for Dale Manufacturing for the month of April.

	<u>Actual Results</u>	<u>Static Budget</u>	<u>Variance</u>
Sales units	<u>100,000</u>	<u>80,000</u>	<u>20,000F</u>
Sales dollars	\$190,000	\$160,000	\$30,000F
Variable costs	125,000	96,000	29,000U
Fixed costs	<u>45,000</u>	<u>40,000</u>	<u>5,000U</u>
Operating income	<u>\$ 20,000</u>	<u>\$ 24,000</u>	<u>\$ 4,000U</u>

Using a flexible budget, Dale's total sales-volume variance is

- \$4,000 unfavorable.
- \$6,000 favorable.
- \$16,000 favorable.
- \$20,000 unfavorable.

121. CSO: 1C1b LOS: 1C1h

Of the following pairs of variances found in a flexible budget report, which pair is **most likely** to be related?

- Material price variance and variable overhead efficiency variance.
- Labor rate variance and variable overhead efficiency variance.
- Material usage variance and labor efficiency variance.
- Labor efficiency variance and fixed overhead volume variance.



122. *CSO: 1C1b LOS: 1C1e*  
 An advantage of using a flexible budget compared to a static budget is that in a flexible budget
- shortfalls in planned production are clearly presented.
  - standards can easily be changed to adjust to changing circumstances.
  - fixed cost variances are more clearly presented.
  - budgeted costs for a given output level can be compared with actual costs for the same level of output.
123. *CSO: 1C1c LOS: 1C1i*  
 The benefits of management by exception reporting include all of the following **except** a reduction in
- reports production costs.
  - information overload.
  - reliance on advance planning.
  - unfocused management actions.
124. *CSO: 1C1d LOS: 1C1j*  
 Lee manufacturing uses a standard cost system with overhead applied based on direct labor hours. The manufacturing budget for the production of 5,000 units for the month of June included 10,000 hours of direct labor at \$15 per hour, \$150,000. During June, 4,500 units were produced, using 9,600 direct labor hours, incurring \$39,360 of variable overhead, and showing a variable overhead efficiency variance of \$2,400 unfavorable. The standard variable overhead rate per direct labor hour was
- \$3.85.
  - \$4.00.
  - \$4.10.
  - \$6.00.
125. *CSO: 1C1d LOS: 1C1k*  
 MinnOil performs oil changes and other minor maintenance services (e.g., tire pressure checks) for cars. The company advertises that all services are completed within 15 minutes for each service. On a recent Saturday, 160 cars were serviced resulting in the following labor variances: rate, \$19 unfavorable; efficiency, \$14 favorable. If MinnOil's standard labor rate is \$7 per hour, determine the actual wage rate per hour and the actual hours worked.
- |    | <u>Wage Rate</u> | <u>Hours Worked</u> |
|----|------------------|---------------------|
| a. | \$6.55           | 42.00.              |
| b. | \$6.67           | 42.71.              |
| c. | \$7.45           | 42.00.              |
| d. | \$7.50           | 38.00.              |

126. *CSO: 1C1e LOS: 1C11*

A company applies variable overhead based upon direct labor hours and has a variable overhead efficiency variance that is \$25,000 favorable. A possible cause of this variance is that

- a. higher skilled labor was used.
- b. electricity rates were lower than expected.
- c. less supplies were used than anticipated.
- d. less units of finished goods were produced.

127. *CSO: 1C1e LOS: 1C1s*

A company has a raw material price variance that is unfavorable. An analysis of this variance indicates that the company's only available supplier of one of its raw materials unexpectedly raised the price of the material. The action management should take regarding this situation should be to

- a. negatively evaluate the performance of the purchasing manager.
- b. negatively evaluate the performance of the production manager.
- c. change the raw material price standard.
- d. ask the production manager to lower the material usage standard to compensate for higher material costs.

128. *CSO: 1C1e LOS: 1C1s*

The following information is from the accounting records of St. Charles Enterprises.

	Static	
	<u>Budget</u>	<u>Actual</u>
Sales volume (units)	<u>82,000</u>	<u>75,000</u>
Selling price/unit	\$ 15.00	\$ 15.00
Variable cost/unit	9.00	9.25
Fixed cost	280,000	285,000

A staff assistant performed a comparison of budget and actual data, and calculated an unfavorable operating income variance of \$65,750. The assistant concluded that performance did not meet expectations because there was an unfavorable variance in operating income. Which one of the following is the **best** evaluation of this preliminary conclusion?

- a. Both the conclusion and the variance calculation are correct.
- b. The conclusion is incorrect, but the variance calculation is informative.
- c. The conclusion is correct, but the variance calculation could be more informative.
- d. Both the conclusion and the variance calculation are incorrect.

129. CSO: 1C1e LOS: 1C1s

For a given time period, a company had a favorable material quantity variance, a favorable direct labor efficiency variance, and a favorable fixed overhead volume variance. Of the following, the one factor that could **not** have caused all three variances is

- a. the purchase of higher quality materials.
- b. the use of lower-skilled workers.
- c. the purchase of more efficient machinery.
- d. an increase in production supervision.

130. CSO: 1C1e LOS: 1C1a

Marten Company has a cost-benefit policy to investigate any variance that is greater than \$1,000 or 10% of budget, whichever is larger. Actual results for the previous month indicate the following.

	<u>Budget</u>	<u>Actual</u>
Raw material	\$100,000	\$89,000
Direct labor	50,000	54,000

The company should investigate

- a. neither the material variance nor the labor variance.
- b. the material variance only.
- c. the labor variance only.
- d. both the material variance and the labor variance.

131. CSO: 1C1e LOS: 1B1s

A company has a direct labor price variance that is favorable. Of the following, the **most** serious concern the company may have about this variance is that

- a. the circumstances giving rise to the favorable variance will not continue in the future.
- b. the production manager may not be using human resources as efficiently as possible.
- c. the cause of the favorable variance may result in other larger unfavorable variances in the value-chain.
- d. actual production is less than budgeted production.

132. CSO: 1C1e LOS: 1C1k

Frisco Company recently purchased 108,000 units of raw material for \$583,200. Three units of raw materials are budgeted for use in each finished good manufactured, with the raw material standard set at \$16.50 for each completed product. Frisco manufactured 32,700 finished units during the period just ended and used 99,200 units of raw material. If management is concerned about the timely reporting of variances in an effort to improve cost control and bottom-line performance, the materials purchase price variance should be reported as

- a. \$6,050 unfavorable.
- b. \$9,920 favorable.
- c. \$10,800 unfavorable.
- d. \$10,800 favorable.

133. CSO: 1C1e LOS: 1C1k

Christopher Akers is the chief executive officer of SBL Inc., a masonry contractor. The financial statements have just arrived showing a \$3,000 loss on the new stadium job that was budgeted to show a \$6,000 profit. Actual and budget information relating to the materials for the job are as follows.

	<u>Actual</u>	<u>Budget</u>
Bricks - number of bundles	3,000	2,850
Bricks - cost per bundle	\$7.90	\$8.00

Which one of the following is a **correct** statement regarding the stadium job for SBL?

- a. The price variance was favorable by \$285.
- b. The price variance was favorable by \$300.
- c. The efficiency variance was unfavorable by \$1,185.
- d. The flexible budget variance was unfavorable by \$900.

134. *CSO: 1C1e LOS: 1C1k*

A company isolates its raw material price variance in order to provide the earliest possible information to the manager responsible for the variance. The budgeted amount of material usage for the year was computed as follows.

$$150,000 \text{ units of finished goods} \times 3 \text{ pounds/unit} \times \$2.00/\text{pound} = \$900,000.$$

Actual results for the year were the following.

Finished goods produced	160,000 units
Raw materials purchased	500,000 pounds
Raw materials used	490,000 pounds
Cost per pound	\$2.02

The raw material price variance for the year was

- a. \$9,600 unfavorable.
- b. \$9,800 unfavorable.
- c. \$10,000 unfavorable.
- d. \$20,000 unfavorable.

135. *CSO: 1C1e LOS: 1C1l*

Lee Manufacturing uses a standard cost system with overhead applied based on direct labor hours. The manufacturing budget for the production of 5,000 units for the month of May included the following information.

Direct labor (10,000 hours at \$15 per hour)	\$150,000
Variable overhead	30,000
Fixed overhead	80,000

During May, 6,000 units were produced and the direct labor efficiency variance was \$1,500 unfavorable. Based on this information, the actual number of direct labor hours used in May was

- a. 9,900 hours.
- b. 10,100 hours.
- c. 11,900 hours.
- d. 12,100 hours.

136. *CSO: 1C1e LOS: 1C1k*

At the beginning of the year, Douglas Company prepared the following monthly budget for direct materials.

<u>Units produced and sold</u>	<u>10,000</u>	<u>15,000</u>
Direct material	\$15,000	\$22,500

At the end of the month, the company's records showed that 12,000 units were produced and sold and \$20,000 was spent for direct materials. The variance for direct materials is

- a. \$2,000 favorable.
- b. \$2,000 unfavorable.
- c. \$5,000 favorable.
- d. \$5,000 unfavorable.

137. *CSO: 1C1e LOS: 1C1k*

Randall Company uses standard costing and flexible budgeting and is evaluating its direct labor. The total budget variance can usually be broken down into two other variances identified as the

- a. direct labor rate variance and direct labor efficiency variance.
- b. direct labor cost variance and the direct labor volume variance.
- c. direct labor rate variance and direct labor volume variance.
- d. direct labor cost variance and direct labor efficiency variance.

138. *CSO: 1C1e LOS: 1C1k*

Richter Company has an unfavorable materials efficiency (usage) variance for a particular month. Which one of the following is **least** likely to be the cause of this variance?

- a. Inadequate training of the direct labor employees.
- b. Poor performance of the shipping employees.
- c. Poor design of the production process or product.
- d. Poor quality of the raw materials.

139. *CSO: 1C1e LOS: 1C1k*

A company had a total labor variance of \$15,000 favorable and a labor efficiency variance of \$18,000 unfavorable. The labor price variance was

- a. \$3,000 favorable.
- b. \$3,000 unfavorable.
- c. \$33,000 favorable.
- d. \$33,000 unfavorable.

140. *CSO: 1C1e LOS: 1C1r*  
 Cordell Company uses a standard cost system. On January 1 of the current year, Cordell budgeted fixed manufacturing overhead cost of \$600,000 and production at 200,000 units. During the year, the firm produced 190,000 units and incurred fixed manufacturing overhead of \$595,000. The production volume variance for the year was
- \$5,000 unfavorable.
  - \$10,000 unfavorable.
  - \$25,000 unfavorable.
  - \$30,000 unfavorable.
141. *CSO: 1C1e LOS: 1C1r*  
 Highlight Inc. uses a standard cost system and applies factory overhead to products on the basis of direct labor hours. If the firm recently reported a favorable direct labor efficiency variance, then the
- variable overhead spending variance must be favorable.
  - variable overhead efficiency variance must be favorable.
  - fixed overhead volume variance must be unfavorable.
  - direct labor rate variance must be unfavorable.
142. *CSO: 1C1e LOS: 1C1r*  
 Harper Company's performance report indicated the following information for the past month.
- |   |             |
|---|-------------|
| Actual total overhead                             | \$1,600,000 |
| Budgeted fixed overhead                           | 1,500,000   |
| Applied fixed overhead at \$3 per labor hour      | 1,200,000   |
| Applied variable overhead at \$.50 per labor hour | 200,000     |
| Actual labor hours                                | 430,000     |
- Harper's total overhead spending variance for the month was
- \$100,000 favorable.
  - \$115,000 favorable.
  - \$185,000 unfavorable.
  - \$200,000 unfavorable.

143. *CSO: IC1e LOS: IC1r*

The JoyT Company manufactures Maxi Dolls for sale in toy stores. In planning for this year, JoyT estimated variable factory overhead of \$600,000 and fixed factory overhead of \$400,000. JoyT uses a standard costing system, and factory overhead is allocated to units produced on the basis of standard direct labor hours. The denominator level of activity budgeted for this year was 10,000 direct labor hours, and JoyT used 10,300 actual direct labor hours.

Based on the output accomplished during this year, 9,900 standard direct labor hours should have been used. Actual variable factory overhead was \$596,000, and actual fixed factory overhead was \$410,000 for the year. Based on this information, the variable overhead spending variance for JoyT for this year was

- a. \$24,000 unfavorable.
- b. \$2,000 unfavorable.
- c. \$4,000 favorable.
- d. \$22,000 favorable.

144. *CSO: IC1e LOS: IC1r*

A company has a fixed overhead volume variance that is \$10,000 unfavorable. The **most** likely cause for this variance is that

- a. the production supervisory salaries were greater than planned.
- b. the production supervisory salaries were less than planned.
- c. more was produced than planned.
- d. less was produced than planned.

145. *CSO: IC1e LOS: IC1r*

When using a flexible budgeting system, the computation for the variable overhead spending variance is the difference between

- a. actual variable overhead and the previously budgeted amount.
- b. the previously budgeted amount and actual inputs times the budgeted rate.
- c. the amount applied to work-in-process and actual variable overhead.
- d. actual variable overhead and actual inputs times the budgeted rate.



146. CSO: 1C1e LOS: 1C1s

Fortune Corporation's Marketing Department recently accepted a rush order for a nonstock item from a valued customer. The Marketing Department filed the necessary paperwork with the Production Department, which complained greatly about the lack of time to do the job the right way. Nevertheless, the Production Department accepted the manufacturing commitment and filed the required paperwork with the Purchasing Department for the needed raw materials. A purchasing clerk temporarily misplaced the paperwork. By the time the paperwork was found, it was too late to order from the company's regular supplier. A new supplier was located, and that vendor quoted a very attractive price. The materials arrived and were rushed into production, bypassing the normal inspection processes (as directed by the Production Department supervisor) to make up for lost time. Unfortunately, the goods were of low quality and created considerable difficulty for Fortune's assembly-line personnel. Which of the following **best** indicates the responsibility for the materials usage variance in this situation?

- a. Purchasing.
- b. Purchasing and Marketing.
- c. Marketing and Production.
- d. Purchasing, Marketing, and Production.

147. CSO: 1C1e LOS: 1C1s

Johnson Inc. has established per unit standards for material and labor for its production department based on 900 units normal production capacity as shown below.

3 lbs. of direct materials @ \$4 per lb.	\$12
1 direct labor hour @ \$15 per hour	<u>15</u>
Standard cost per unit	<u>\$27</u>

During the year 1,000 units were produced. The accounting department has charged the production department supervisor with the following unfavorable variances.

<u>Materials Quantity Variance</u>		<u>Material Price Variance</u>	
Actual usage	3,300 lbs.	Actual cost	\$12,600
Standard usage	3,000 lbs.	Standard cost	12,000
Unfavorable	300 lbs.	Unfavorable	\$600

Bob Sterling, the production supervisor, has received a memorandum from his boss stating that he did not meet the established standards for material prices and quantity and corrective action should be taken. Sterling is very unhappy about the situation and is preparing to reply to the memorandum explaining the reasons for his dissatisfaction. All of the following are valid reasons for Sterling's dissatisfaction **except** that the

- a. material price variance is the responsibility of the purchasing department.
- b. cause of the unfavorable material usage variance was the acquisition of substandard material.
- c. standards have not been adjusted to the engineering changes.
- d. variance calculations fail to properly reflect that actual production exceeded normal production capacity.

148. *CSO: 1C1e LOS: 1C1s*  
During the month of May, Tyler Company experienced a significant unfavorable material efficiency variance in the production of its single product at one of Tyler's plants. Which one of the following reasons would be **least** likely to explain why the unfavorable variance arose?
- Inferior materials were purchased.
  - Actual production was lower than planned production.
  - Workers used were less-skilled than expected.
  - Replacement production equipment had just been installed.

149. *CSO: 1C2a LOS: 1C2a*  
Sara Bellows, manager of the telecommunication sales team, has the following department budget.

Billings - long distance	\$350,000
Billings - phone card	75,000
Billings - toll free	265,000

Her responsibility center is **best** described as a

- cost center.
  - revenue center.
  - profit center.
  - investment center.
150. *CSO: 1C2a LOS: 1C2b*  
The production manager of the Super T-shirt Company is responsible for the activity of her department and the costs associated with production. Super T adheres to a responsibility centered budget process, and the manager's performance is measured by how well she performs to budget. Recently, the dark horse team won the local college basketball tournament. As a result, the sales department, which operates as a profit center, received an order for 10,000 t-shirts, but only if they could be delivered in three days. The production manager said she could meet the schedule, but only by incurring overtime pay that would cause her to be over budget for hourly wages paid. What would be the **best** course of action for the sales department and the production manager to undertake in this case?
- Accept the order and overrun the production manager's budget.
  - Refuse the overtime and produce only what the production department is capable of while staying within the budget.
  - Accept the order and ignore the effect on the production department budget when conducting the performance review.
  - Charge the overtime to the sales department's budget.

151. *CSO: 1C2a LOS: 1C2f*  
Most firms allocate corporate and other support costs to divisions and departments for all of the following reasons **except** to
- remind profit-center managers that earnings must be adequate to cover some share of the indirect costs.
  - stimulate profit-center managers to put pressure on central managers to control service costs.
  - create competition between divisions and departments, and their managers.
  - fix accountability and evaluate profit centers.
152. *CSO: 1C2a LOS: 1C2f*  
Which one of the following allocation approaches will ensure that the production departments do not underestimate their planned usage of service at the start of the budget period as well as make the service departments cost efficient?
- The use of actual rates and actual hours for both fixed and variable costs.
  - Budgeted rates and standard hours allowed for output attained for variable costs and budgeted rates and capacity available for fixed costs.
  - The use of rates and quantities based on long-term historical averages for both variable and fixed costs.
  - The use of a budgeted lump-sum amount based on estimates provided by the production departments for both variable and fixed costs.
153. *CSO: 1C2b LOS: 1C2h*  
Which one of the following is an **incorrect** description of transfer pricing?
- It measures the value of goods or services furnished by a profit center to other responsibility centers within a company.
  - If a market price exists, this price may be used as a transfer price.
  - It measures exchanges between a company and external customers.
  - If no market price exists, the transfer price may be based on cost.

154. *CSO: 1C2b LOS: 1C2i*

Manhattan Corporation has several divisions that operate as decentralized profit centers. At the present time, the Fabrication Division has excess capacity of 5,000 units with respect to the UT-371 circuit board, a popular item in many digital applications. Information about the circuit board follows.

Market price	\$48
Variable selling/distribution costs on external sales	5
Variable manufacturing cost	21
Fixed manufacturing cost	10

Manhattan's Electronic Assembly Division wants to purchase 4,500 circuit boards either internally, or else use a similar board in the marketplace that sells for \$46. The Electronic Assembly Division's management feels that if the first alternative is pursued, a price concession is justified, given that both divisions are part of the same firm. The **best** process to determine the price ultimately charged by the Fabrication Division to the Assembly Division for the circuit board is to

- establish the price by top management.
- establish the price by an arbitration committee.
- establish the price through negotiations between the Fabrication's and Electronic Assembly's Division management.
- set the price equal to the price that would be charged if the Fabrication Department had no excess capacity.

155. *CSO: 1C2b LOS: 1C2i*

Happy Time Industries uses segment reporting for all of its decentralized divisions. It has several products that are transferred from one division to other divisions. Happy Time wants to motivate the manager of the selling division to produce efficiently. Assuming the following methods are available, the **optimal** transfer pricing method should be a

- cost-based transfer price that uses actual amounts.
- cost-based transfer price that uses budgeted amounts.
- variable cost-based transfer price that uses actual amounts.
- market-based transfer price.

156. *CSO: 1C2b LOS: 1C2k*

Morrison's Plastics Division, a profit center, sells its products to external customers as well as to other internal profit centers. Which one of the following circumstances would justify the Plastics Division selling a product internally to another profit center at a price that is below the market-based transfer price?

- The buying unit has excess capacity.
- The selling unit is operating at full capacity.
- Routine sales commissions and collection costs would be avoided.
- The profit centers' managers are evaluated on the basis of unit operating income.

157. CSO: 1C2b LOS: 1C2i

With respect to a firm's transfer pricing policy, an advantage of using a dual pricing arrangement is that it

- a. provides an incentive for the supplying subunit to control costs.
- b. exposes the supplying subunit to the discipline of market prices.
- c. promotes goal congruence between the supplying and buying subunits of the firm.
- d. simplifies tax calculations when the buying and supplying subunits are taxed in different jurisdictions.

158. CSO: 1C2b LOS: 1C2j

Manhattan Corporation has several divisions that operate as decentralized profit centers. At the present time, the Fabrication Division has excess capacity of 5,000 units with respect to the UT-371 circuit board, a popular item in many digital applications. Information about the circuit board follows.

Market price	\$48
Variable selling/distribution costs on external sales	5
Variable manufacturing cost	21
Fixed manufacturing cost	10

Manhattan's Electronic Assembly Division wants to purchase 4,500 circuit boards either internally, or else use a similar board in the marketplace that sells for \$46. The Electronic Assembly Division's management feels that if the first alternative is pursued, a price concession is justified, given that both divisions are part of the same firm. To optimize the overall goals of Manhattan, the minimum price to be charged for the board from the Fabrication Division to the Electronic Assembly Division should be

- a. \$21.
- b. \$26.
- c. \$31.
- d. \$46.

159. CSO: 1C2b LOS: 1C2k

Kern Manufacturing has several divisions and evaluates performance using segment income. Since sales include transfers to other divisions, Kern has established a price for internal sales as cost plus 10%. Red Division has requested 10,000 units of Green Division's product. Green Division is selling its product externally at a 60% markup over cost. The corporate policy will encourage the Green Division to

- a. transfer the product to the Red Division because all costs are being covered and the division will earn a 10% profit.
- b. reject the sale to the Red Division because it does not provide the same markup as external sales.
- c. accept the sale to the Red Division if it is operating at full capacity and the sale will contribute to fixed costs.
- d. transfer the product to the Red Division if it does not require the Green Division to give up any external sales.

160. *CSO: 1C3b LOS: 1C3q*  
Consider the following categories of performance measures.

- I. Profitability measures.
- II. Customer-satisfaction measures.
- III. Efficiency, quality, and time measures.
- IV. Innovation measures.

A cruise line operates on a national scale in a very competitive marketplace. In view of this information, which measures should the company use in the evaluation of its managers?

- a. I only.
- b. I and II.
- c. II and III.
- d. I, II, III, and IV.

161. *CSO: 1C3b LOS: 1C3a*  
All of the following are considered appropriate goals for measuring a division manager's efficiency for a budgeting period **except**

- a. budgeted operating income.
- b. a targeted share of the market.
- c. earnings per share projections.
- d. a reduction in the organizational structure (fewer employees doing a given amount of work).

162. *CSO: 1C3b LOS: 1C3a*  
David Burke is manager of claims processing for Continental Health Care System. His performance is evaluated using various measures agreed upon in advance with Diane Lewis, general manager. Lewis asked Burke to recommend several measures to evaluate the performance of his unit next year. Which one of the following performance measures would likely have the **least** positive effect on Burke's motivation and performance?

- a. Processing cost per claim.
- b. Average processing time per claim.
- c. Percentage of claims processed accurately the first time.
- d. Total dollar amount of claims processed per month.

163. *CSO: 1C3b LOS: 1C3a*  
Paul Cooper, shipping manager for DFG Distributors, is responsible for managing the staff and all related transportation equipment to fill orders for bakery products from local retailers and deliver the products to those retailers. Which one of the following groups of three performance measures **most** likely would result in the highest level of goal congruence?
- Labor cost per order; transportation cost per order; number of orders completed per day.
  - The percentage of orders filled on time; the percentage of orders filled accurately; average cost to fill and deliver an order.
  - Customer satisfaction; elapsed time to complete an order; percentage of orders filled accurately.
  - Orders completed per employee per day; employee injuries per hour worked; number of vehicle accidents per year.
164. *CSO: 1C3b LOS: 1C3a*  
P.C. Programs Inc. produces software for individual users and small businesses. Rita Morgan manages the customer hot line department for the firm and is responsible for answering customer questions related to software products produced by all divisions of the firm. For purposes of promoting goal congruence, which one of the following would be the **least** appropriate measure of her performance?
- Average time to provide an answer or solution to a customer.
  - Number of calls to the hot line for each new release of software.
  - Average time a customer is on hold.
  - Number of customer complaints due to incorrect responses given to customers.
165. *CSO: 1C3b LOS: 1C3a*  
Which one of the following should be used for evaluating the performance of the Repair and Maintenance Department that repairs production equipment in a firm devoted to making keyboards for computers?
- The variance between the firm's budgeted and actual net income.
  - The total factory overhead variances.
  - The fixed overhead volume variances.
  - The response time and degree of satisfaction among the production departments.

166. *CSO: 1C3b LOS: 1C3a*

Albert Hathaway recently joined Brannen University as the chief information officer of the University Computing Services Department. His assigned task is to help reduce the recurrent problem of cost overruns due to uncontrolled computer usage by the user community, while at the same time not curtailing the use of information technology for research and teaching. To ensure goal congruence, which one of the following algorithms should be used to allocate the cost of the University Computing Services Department to other departments within the university?

- a. Actual rate times actual hours of computer usage.
- b. Actual rate times budgeted hours of computer usage.
- c. Budgeted rate times actual hours of computer usage.
- d. Budgeted rate times budgeted hours of computer usage.

167. *CSO: 1C3d LOS: 1C3i*

For several years, Northern Division of Marino Company has maintained a positive residual income. Northern is currently considering investing in a new project that will lower the division's overall return on investment (ROI) but increase its residual income. What is the relationship between the expected rate of return on the new project, the firm's cost of capital, and the division's current ROI?

- a. The expected rate of return on the new project is higher than the division's current return on investment, but lower than the firm's cost of capital.
- b. The firm's cost of capital is higher than the expected rate of return on the new project, but lower than the division's current return on investment.
- c. The division's current return on investment is higher than the expected rate of return on the new project, but lower than the firm's cost of capital.
- d. The expected rate of return on the new project is higher than the firm's cost of capital, but lower than the division's current return on investment.



168. CSO: 1C3d LOS: 1C3f

KHD Industries is a multidivisional firm that evaluates its managers based on the return on investment (ROI) earned by their divisions. The evaluation and compensation plans use a targeted ROI of 15% (equal to the cost of capital) and managers receive a bonus of 5% of basic compensation for every one-percentage point that the division's ROI exceeds 15%. David Evans, manager of the Consumer Products Division, has made a forecast of the division's operations and finances for next year that indicates the ROI would be 24%. In addition, new short-term programs were identified by the Consumer Products Division and evaluated by the finance staff as follows.

<u>Program</u>	<u>Projected ROI</u>
A	13%
B	19%
C	22%
D	31%

**Assuming no restrictions on expenditures, what is the optimal mix of new programs that would add value to KHD Industries?**

- a. A, B, C, and D.
- b. B, C, and D only.
- c. C and D only.
- d. D only.

169. CSO: 1C3d LOS: 1C3f

Performance results for four geographic divisions of a manufacturing company are shown below.

<u>Division</u>	<u>Target Return on Investment</u>	<u>Actual Return on Investment</u>	<u>Return on Sales</u>
A	18%	18.1%	8%
B	16	20.0	8
C	14	15.8	6
D	12	11.0	9

The division with the **best** performance is

- a. Division A.
- b. Division B.
- c. Division C.
- d. Division D.

170. *CSO: 1C3d LOS: 1C3f*  
Vincent Hospital has installed a new computer system. The system was designed and constructed based on the anticipated number of hours of usage required by the various hospital departments according to projections made by the departmental managers. Virtually all of the operating costs of the system are fixed. What would be the **most** systematic and rational manner in which to allocate the new computer system costs to the various hospital departments?
- To each department equally.
  - By the anticipated number of hours of usage.
  - By actual usage by each department.
  - By the revenue generated in each department.
171. *CSO: 1C3d LOS: 1C3i*  
Oakmont Company has two divisions, Household Appliances and Construction Equipment. The manager of the Household Appliances Division is evaluated on the basis of return on investment (ROI). The manager of the Construction Equipment Division is evaluated on the basis of residual income. The cost of capital has been 12% and the return on investment has been 16% for the two divisions. Each manager is currently considering a project with a 14% rate of return. According to the current evaluation system for managers, which manager(s) would have incentive to undertake the project?
- Both managers would have incentive to undertake the project.
  - Neither manager would have incentive to undertake the project.
  - The manager of the Household Appliances Division would have incentive to undertake the project while the manager of the Construction Equipment Division would not have incentive to undertake the project.
  - The manager of the Construction Equipment Division would have incentive to undertake the project while the manager of the Household Appliances Division would not have incentive to undertake the project.
172. *CSO: 1C3e LOS: 1C3g*  
A company is concerned that its divisional managers are not making decisions that are in the **best** interests of the overall corporation. In order to prevent this, the company should use a performance evaluation system that focuses on
- flexible budget variances.
  - operating income.
  - controllable costs.
  - residual income.

173. *CSO: 1C3q LOS: 1C3l*  
To insure that a divisional vice president places appropriate focus on both the short-term and the long-term objectives of the division, the **best** approach would be to evaluate the vice president's performance by using
- return on investment (ROI) which permits easy and quick comparisons to other similar divisions.
  - residual income since it will eliminate the rejection of capital investments that have a return less than ROI but greater than the cost of capital.
  - division segment margin or profit margin.
  - financial and nonfinancial measures, including the evaluation of quality, customer satisfaction, and market performance.
174. *CSO: 1C3h LOS: 1C3m*  
The balanced scorecard provides an action plan for achieving competitive success by focusing management attention on critical success factors. Which one of the following is **not** one of the competitive success factors commonly focused upon in the balanced scorecard?
- Competitor business strategies.
  - Financial performance measures.
  - Internal business processes.
  - Employee innovation and learning.
175. *CSO: 1C3h LOS: 1C3m*  
Which one of the following statements about a balanced scorecard is **incorrect**?
- It seeks to address the problems associated with traditional financial measures used to assess performance.
  - The notion of value chain analysis plays a major role in the drawing up of a balanced scorecard.
  - It relies on the perception of the users with regard to service provided.
  - It is directly derived from the scientific management theories.

#### **Section D: Cost Management**

176. *CSO: 1D1a LOS: 1D1a*  
Manchester Airlines is in the process of preparing a contribution margin income statement that will allow a detailed look at its variable costs and profitability of operations. Which one of the following cost combinations should be used to evaluate the variable cost per flight of the company's Boston-Las Vegas flights?  
1D1a
- Flight crew salary, fuel, and engine maintenance.
  - Fuel, food service, and airport landing fees.
  - Airplane depreciation, baggage handling, and airline marketing.
  - Communication system operation, food service, and ramp personnel.

177. *CSO: 1D1a LOS: 1D1a*  
Which one of the following items would **not** be considered a manufacturing cost?

- a. Cream for an ice cream maker.
- b. Sales commissions for a car manufacturer.
- c. Plant property taxes for an ice cream maker.
- d. Tires for an automobile manufacturer.

178. *CSO: 1D1a LOS: 1D1a*  
Taylor Corporation is determining the cost behavior of several items in order to budget for the upcoming year. Past trends have indicated the following dollars were spent at three different levels of output.

	<u>Unit Levels</u>		
	<u>10,000</u>	<u>12,000</u>	<u>15,000</u>
Cost A	\$25,000	\$29,000	\$35,000
Cost B	10,000	15,000	15,000
Cost C	15,000	18,000	22,500

In establishing a budget for 14,000 units, Taylor should treat Costs A, B, and C, respectively, as

- a. semivariable, fixed, and variable.
- b. variable, fixed, and variable.
- c. semivariable, semivariable, and semivariable.
- d. variable, semivariable, and semivariable.

179. *CSO: 1D1a LOS: 1D1a*  
Which one of the following refers to a cost that remains the same as the volume of activity decreases within the relevant range?

- a. Average cost per unit.
- b. Variable cost per unit.
- c. Unit fixed cost.
- d. Total variable cost.

180. *CSO: 1D1a LOS: 1D1a*

Fowler Co. provides the following summary of its total budgeted production costs at three production levels.

	<u>Volume in Units</u>		
	<u>1,000</u>	<u>1,500</u>	<u>2,000</u>
Cost A	\$1,420	\$2,130	\$2,840
Cost B	\$1,550	\$2,200	\$2,900
Cost C	\$1,000	\$1,000	\$1,000
Cost D	\$1,630	\$2,445	\$3,260

The cost behavior of each of the Costs A through D, respectively, is

- semi-variable, variable, fixed, and variable.
- variable, semi-variable, fixed, and semi-variable.
- variable, fixed, fixed, and variable.
- variable, semi-variable, fixed, and variable.

181. *CSO: 1D1a LOS: 1D1a*

Roberta Johnson is the manager of SleepWell Inn, one of a chain of motels located throughout the United States. An example of an operating cost at SleepWell that is semivariable is

- the security guard's salary.
- electricity.
- postage for reservation confirmations.
- local yellow pages advertising.

182. *CSO: 1D1a LOS: 1D1b*

The marketing manager of Ames Company has learned the following about a new product that is being introduced by Ames. Sales of this product are planned at \$100,000 for the first year. Sales commission expense is budgeted at 8% of sales plus the marketing manager's incentive budgeted at an additional ½%. The preparation of a product brochure will require 20 hours of marketing salaried staff time at an average rate of \$100 per hour, and 10 hours, at \$150 per hour, for an outside illustrator's effort. The variable marketing cost for this new product will be

- \$8,000.
- \$8,500.
- \$10,000.
- \$10,500.

183. *CSO: 1D1a LOS: 1D1c*  
Indirect and common costs often make up a significant portion of the cost of a product. All of the following are reasons for indirect cost allocation to cost objects **except** to
- reduce total costs identified with products.
  - measure income and assets for external reporting purposes.
  - justify costs for reimbursement purposes.
  - provide information for economic decision making.
184. *CSO: 1D1a LOS: 1D1a*  
The relevant range refers to the activity levels over which
- cost relationships hold constant.
  - costs fluctuate.
  - production varies.
  - relevant costs are incurred.
185. *CSO: 1D1a LOS: 1D1a*  
Cell Company has discovered that the cost of processing customer invoices is strictly variable within the relevant range. Which one of the following statements concerning the cost of processing customer invoices is **incorrect**?
- The total cost of processing customer invoices will increase as the volume of customer invoices increases.
  - The cost per unit for processing customer invoices will decline as the volume of customer invoices increases.
  - The cost of processing the 100th customer invoice will be the same as the cost of processing the first customer invoice.
  - The average cost per unit for processing a customer invoice will equal the incremental cost of processing one more customer invoice.
186. *CSO: 1D1a LOS: 1D1a*  
When identifying fixed and variable costs, which one of the following is a typical assumption concerning cost behavior?
- General and administrative costs are assumed to be variable costs.
  - Cost behavior is assumed to be realistic for all levels of activity from zero to maximum capacity.
  - Total costs are assumed to be linear when plotted on a graph.
  - The relevant time period is assumed to be five years.

187. CSO: 1D1a LOS: 1D1a

Lar Company has found that its total electricity cost has both a fixed component and a variable component within the relevant range. The variable component seems to vary directly with the number of units produced. Which one of the following statements concerning Lar's electricity cost is **incorrect**?

- a. The total electricity cost will increase as production volume increases.
- b. The total electricity cost per unit of production will increase as production volume increases.
- c. The variable electricity cost per unit of production will remain constant as production volume increases.
- d. The fixed electricity cost per unit of production will decline as production volume increases.

188. CSO: 1D1b LOS: 1D1e

Kimber Company has the following unit cost for the current year.

Raw material	\$20.00
Direct labor	25.00
Variable manufacturing overhead	10.00
Fixed manufacturing overhead	<u>15.00</u>
Total unit cost	<u>\$70.00</u>

Fixed manufacturing cost is based on an annual activity level of 8,000 units. Based on these data, the total manufacturing cost expected to be incurred to manufacture 9,000 units in the current year is

- a. \$560,000.
- b. \$575,000.
- c. \$615,000.
- d. \$630,000.

189. *CSO: 1D1b LOS: 1D1a*

A review of Plunkett Corporation's accounting records for last year disclosed the following selected information.

Variable costs	
Direct materials used	\$ 56,000
Direct labor	179,100
Manufacturing overhead	154,000
Selling costs	108,400
Fixed costs	
Manufacturing overhead	267,000
Selling costs	121,000
Administrative costs	235,900

In addition, the company suffered a \$27,700 uninsured factory fire loss during the year. What were Plunkett's product costs and period costs for last year?

	<u>Product</u>	<u>Period</u>
a.	\$235,100	\$914,000.
b.	\$497,500	\$651,600.
c.	\$656,100	\$493,000.
d.	\$683,800	\$465,300.

190. *CSO: 1D1b LOS: 1D1e*

Normal costing systems are said to offer a user several distinct benefits when compared with actual costing systems. Which one of the following is **not** a benefit associated with normal costing systems?

- a. More timely costing of jobs and products.
- b. A smoothing of product costs throughout the period.
- c. Improved accuracy of job and product costing.
- d. A more economical way of attaching overhead to a job or product.



191. CSO: 1D1b LOS: 1D1e

From the following budgeted data, calculate the budgeted indirect cost rate that would be used in a normal costing system.

Total direct labor hours	250,000
Direct costs	\$10,000,000
Total indirect labor hours	50,000
Total indirect-labor-related costs	\$ 5,000,000
Total indirect non-labor related costs	\$ 7,000,000

- a. \$20.
- b. \$28.
- c. \$40.
- d. \$48.

192. CSO: 1D1c LOS: 1D1e

Merlene Company uses a standard cost accounting system. Data for the last fiscal year are as follows.

	<u>Units</u>
Beginning inventory of finished goods	100
Production during the year	700
Sales	750
Ending inventory of finished goods	50

	<u>Per Unit</u>
Product selling price	\$200
Standard variable manufacturing cost	90
Standard fixed manufacturing cost	20*

Budgeted selling and administrative costs (all fixed) \$45,000

\*Denominator level of activity is 750 units for the year.

There were no price, efficiency, or spending variances for the year, and actual selling and administrative expenses equaled the budget amount. Any volume variance is written off to cost of goods sold in the year incurred. There are no work-in-process inventories.

The amount of operating income earned by Merlene for the last fiscal year using variable costing was

- a. \$21,500.
- b. \$22,500.
- c. \$28,000.
- d. \$31,000.

193. CSO: 1D1c LOS: 1D1e

Loyal Co. produces three types of men's undershirts: T-shirts, V-neck shirts, and athletic shirts. In the Folding and Packaging Department, operations costing is used to apply costs to individual units, based on the standard time allowed to fold and package each type of undershirt. The standard time to fold and package each type of undershirt is as follows.

T-shirt	40 seconds per shirt
V-neck shirt	40 seconds per shirt
Athletic shirt	20 seconds per shirt

During the month of April, Loyal produced and sold 50,000 T-shirts, 30,000 V-neck shirts, and 20,000 athletic shirts. If costs in the Folding and Packaging Department were \$78,200 during April, how much folding and packaging cost should be applied to each T-shirt?

- a. \$.52134.
- b. \$.6256.
- c. \$.7820.
- d. \$.8689.

194. CSO: 1D1d LOS: 1D1g

Dremmon Corporation uses a standard cost accounting system. Data for the last fiscal year are as follows.

	<u>Units</u>
Beginning inventory of finished goods	100
Production during the year	700
Sales	750
Ending inventory of finished goods	50
	<u>Per Unit</u>
Product selling price	\$200
Standard variable manufacturing cost	90
Standard fixed manufacturing cost	20*

Budgeted selling and administrative costs (all fixed) \$45,000

\*Denominator level of activity is 750 units for the year.

There were no price, efficiency, or spending variances for the year, and actual selling and administrative expenses equaled the budget amount. Any volume variance is written off to cost of goods sold in the year incurred. There are no work-in-process inventories.

Assuming that Dremmon used absorption costing, the amount of operating income earned in the last fiscal year was

- \$21,500.
- \$27,000.1D1d
- \$28,000.
- \$30,000.

195. CSO: 1D1d LOS: 1D1g

Chassen Company, a cracker and cookie manufacturer, has the following unit costs for the month of June.

<u>Variable manufacturing cost</u>	<u>Variable marketing cost</u>	<u>Fixed manufacturing cost</u>	<u>Fixed marketing cost</u>
\$5.00	\$3.50	\$2.00	\$4.00

A total of 100,000 units were manufactured during June of which 10,000 remain in ending inventory. Chassen uses the first-in, first-out (FIFO) inventory method, and the 10,000 units are the only finished goods inventory at month-end. Using the full absorption costing method, Chassen's finished goods inventory value would be

- \$50,000.
- \$70,000.
- \$85,000.
- \$145,000.

196. *CSO: 1D1d LOS: 1D1g*

Consider the following situation for Weisman Corporation for the prior year.

- The company produced 1,000 units and sold 900 units, both as budgeted.
- There were no beginning or ending work-in-process inventories and no beginning finished goods inventory.
- Budgeted and actual fixed costs were equal, all variable manufacturing costs are affected by volume of production only, and all variable selling costs are affected by sales volume only.
- Budgeted per unit revenues and costs were as follows.

	<u>Per Unit</u>
Sales price	\$100
Direct materials	30
Direct labor	20
Variable manufacturing costs	10
Fixed manufacturing costs	5
Variable selling costs	12
Fixed selling costs (\$3,600 total)	4
Fixed administrative costs (\$1,800 total)	2

The operating income for Weisman for the prior year using absorption costing was

- a. \$13,600.
- b. \$14,200.
- c. \$15,300.
- d. \$15,840.

197. *CSO: 1D1d LOS: 1D1f*

When comparing absorption costing with variable costing, the difference in operating income can be explained by the difference between the

- a. units sold and the units produced, multiplied by the unit sales price.
- b. ending inventory in units and the beginning inventory in units, multiplied by the budgeted fixed manufacturing cost per unit.
- c. ending inventory in units and the beginning inventory in units, multiplied by the unit sales price.
- d. units sold and the units produced, multiplied by the budgeted variable manufacturing cost per unit.

198. CSO: 1D1d LOS: 1D1g

Mill Corporation had the following unit costs for the recently concluded calendar year.

	<u>Variable</u>	<u>Fixed</u>
Manufacturing	\$8.00	\$3.00
Nonmanufacturing	\$2.00	\$5.50

Inventory for Mill's sole product totaled 6,000 units on January 1 and 5,200 units on December 31. When compared to variable costing income, Mill's absorption costing income is

- a. \$2,400 lower.
- b. \$2,400 higher.
- c. \$6,800 lower.
- d. \$6,800 higher.

199. CSO: 1D1d LOS: 1D1f

Which of the following correctly shows the treatment of (1) factory insurance, (2) direct labor, and (3) finished goods shipping costs under absorption costing and variable costing?

	<u>Absorption Costing</u>		<u>Variable Costing</u>	
	<u>Product Cost</u>	<u>Period Cost</u>	<u>Product Cost</u>	<u>Period Cost</u>
a.	1, 2	3	2	1, 3.
b.	2	1, 3	1, 2	3.
c.	1, 2	3	1	2, 3.
d.	1	2, 3	2, 3	1.

200. *CSO: 1D1d LOS: 1D1g*

Troughton Company manufactures radio-controlled toy dogs. Summary budget financial data for Troughton for the current year are as follows.

Sales (5,000 units at \$150 each)	\$750,000
Variable manufacturing cost	400,000
Fixed manufacturing cost	100,000
Variable selling and administrative cost	80,000
Fixed selling and administrative cost	150,000

Troughton uses an absorption costing system with overhead applied based on the number of units produced, with a denominator level of activity of 5,000 units. Underapplied or overapplied manufacturing overhead is written off to cost of goods sold in the year incurred. The \$20,000 budgeted operating income from producing and selling 5,000 toy dogs planned for this year is of concern to Trudy George, Troughton's president. She believes she could increase operating income to \$50,000 (her bonus threshold) if Troughton produces more units than it sells, thus building up the finished goods inventory. How much of an increase in the number of units in the finished goods inventory would be needed to generate the \$50,000 budgeted operating income?

- a. 556 units.
- b. 600 units.
- c. 1,500 units.
- d. 7,500 units.

201. *CSO: 1D1e LOS: 1D1f*

If a manufacturing company uses variable costing to cost inventories, which of the following costs are considered inventoriable costs?

- a. Only raw material, direct labor, and variable manufacturing overhead costs.
- b. Only raw material, direct labor, variable and fixed manufacturing overhead costs.
- c. Only raw material, direct labor, variable manufacturing overhead and variable selling and administrative costs.
- d. Only raw material and direct labor costs.

202. *CSO: 1C1e LOS: 1D1f*

Xylon Company uses direct (variable) costing for internal reporting and absorption costing for the external financial statements. A review of the firm's internal and external disclosures will likely find

- a. a difference in the treatment of fixed selling and administrative costs.
- b. a higher inventoriable unit cost reported to management than to the shareholders.
- c. a contribution margin rather than gross margin in the reports released to shareholders.
- d. internal income figures that vary closely with sales and external income figures that are influenced by both units sold and productive output.

203. CSO: 1D1e LOS: 1D1g

Bethany Company has just completed the first month of producing a new product but has not yet shipped any of this product. The product incurred variable manufacturing costs of \$5,000,000, fixed manufacturing costs of \$2,000,000, variable marketing costs of \$1,000,000, and fixed marketing costs of \$3,000,000.

If Bethany uses the variable cost method to value inventory, the inventory value of the new product would be

- a. \$5,000,000.
- b. \$6,000,000.
- c. \$8,000,000.
- d. \$11,000,000.

204. CSO: 1D1e LOS: 1D1g

Consider the following situation for Donaldson Company for the prior year.

- The company produced 1,000 units and sold 900 units, both as budgeted.
- There were no beginning or ending work-in-process inventories and no beginning finished goods inventory.
- Budgeted and actual fixed costs were equal, all variable manufacturing costs are affected by volume of production only, and all variable selling costs are affected by sales volume only.
- Budgeted per unit revenues and costs were as follows.

	<u>Per Unit</u>
Sales price	\$100
Direct materials	30
Direct labor	20
Variable manufacturing costs	10
Fixed manufacturing costs	5
Variable selling costs	12
Fixed selling costs (\$3,600 total)	4
Fixed administrative costs (\$1,800 total)	2

Assuming that Donaldson uses variable costing, the operating income for the prior year was

- a. \$13,600.
- b. \$14,200.
- c. \$14,800.
- d. \$15,300.

205. *CSO: 1D1e LOS: 1D1g*

During the month of May, Robinson Corporation sold 1,000 units. The cost per unit for May was as follows.

	<u>Cost Per Unit</u>
Direct materials	\$ 5.50
Direct labor	3.00
Variable manufacturing overhead	1.00
Fixed manufacturing overhead	1.50
Variable administrative costs	.50
Fixed administrative costs	<u>3.50</u>
Total	<u>\$15.00</u>

May's income using absorption costing was \$9,500. The income for May, if variable costing had been used, would have been \$9,125. The number of units Robinson produced during May was

- a. 750 units.
- b. 925 units.
- c. 1,075 units.
- d. 1,250 units.

206. *CSO: 1D1e LOS: 1D1f*

Which one of the following is the **best** reason for using variable costing?

- a. Fixed factory overhead is more closely related to the capacity to produce than to the production of specific units.
- b. All costs are variable in the long term.
- c. Variable costing is acceptable for income tax reporting purposes.
- d. Variable costing usually results in higher operating income than if a company uses absorption costing.

207. *CSO: 1D1e LOS: 1D1f*

Dawn Company has significant fixed overhead costs in the manufacturing of its sole product, auto mufflers. For internal reporting purposes, in which one of the following situations would ending finished goods inventory be higher under direct (variable) costing rather than under absorption costing?

- a. If more units were produced than were sold during a given year.
- b. If more units were sold than were produced during a given year.
- c. In all cases when ending finished goods inventory exists.
- d. None of these situations.



208. *CSO: 1D1f LOS: 1D1j*  
The primary purpose for allocating common costs to joint products is to determine
- the selling price of a by-product.
  - whether or not one of the joint products should be discontinued.
  - the variance between budgeted and actual common costs.
  - the inventory cost of joint products for financial reporting.
209. *CSO: 1D1f LOS: 1D1j*  
The distinction between joint products and by-products is largely dependent on
- historical costs.
  - prime costs.
  - market value.
  - salvage value.
210. *CSO: 1D1f LOS: 1D1j*  
In a production process where joint products are produced, the **primary** factor that will distinguish a joint product from a by-product is the
- relative total sales value of the products.
  - relative total volume of the products.
  - relative ease of selling the products.
  - accounting method used to allocate joint costs.
211. *CSO: 1D1f LOS: 1D11*  
All of the following are methods of allocating joint costs to joint products **except**
- physical quantities method.
  - net realizable value method.
  - separable production cost method.
  - gross market value method.

212. *CSO: 1D1f LOS: 1D11*

Tucariz Company processes Duo into two joint products, Big and Mini. Duo is purchased in 1,000 gallon drums for \$2,000. Processing costs are \$3,000 to process the 1,000 gallons of Duo into 800 gallons of Big and 200 gallons of Mini. The selling price is \$9 per gallon for Big and \$4 per gallon for Mini. Big can be processed further into 600 gallons of Giant if \$1,000 of additional processing costs are incurred. Giant can be sold for \$17 per gallon. If the net-realizable-value method were used to allocate costs to the joint products, the total cost of producing Giant would be

- a. \$5,600.
- b. \$5,564.
- c. \$5,520.
- d. \$4,600.

213. *CSO: 1D1f LOS: 1D11*

Tucariz Company processes Duo into two joint products, Big and Mini. Duo is purchased in 1,000 gallon drums for \$2,000. Processing costs are \$3,000 to process the 1,000 gallons of Duo into 800 gallons of Big and 200 gallons of Mini. The selling price is \$9 per gallon for Big and \$4 per gallon for Mini. If the sales value at splitoff method is used to allocate joint costs to the final products, the per gallon cost (rounded to the nearest cent) of producing Big is

- a. \$5.63 per gallon.
- b. \$5.00 per gallon.
- c. \$4.50 per gallon.
- d. \$3.38 per gallon.

214. *CSO: 1D1f LOS: 1D11*

Tempo Company produces three products from a joint process. The three products are sold after further processing as there is no market for any of the products at the split-off point. Joint costs per batch are \$315,000. Other product information is shown below.

	<u>Product A</u>	<u>Product B</u>	<u>Product C</u>
Units produced per batch	20,000	30,000	50,000
Further processing and marketing cost per unit	\$ .70	\$3.00	\$1.72
Final sales value per unit	5.00	6.00	7.00

If Tempo uses the net realizable value method of allocating joint costs, how much of the joint costs will be allocated to each unit of Product C?

- a. \$2.10.
- b. \$2.65.
- c. \$3.15.
- d. \$3.78.

215. *CSO: 1D1f LOS: 1D11*

Fitzpatrick Corporation uses a joint manufacturing process in the production of two products, Gummo and Xylo. Each batch in the joint manufacturing process yields 5,000 pounds of an intermediate material, Valdene, at a cost of \$20,000. Each batch of Gummo uses 60% of the Valdene and incurs \$10,000 of separate costs. The resulting 3,000 pounds of Gummo sells for \$10 per pound. The remaining Valdene is used in the production of Xylo which incurs \$12,000 of separable costs per batch. Each batch of Xylo yields 2,000 pounds and sells for \$12 per pound. Fitzpatrick uses the net realizable value method to allocate the joint material costs. The company is debating whether or not to process Xylo further into a new product, Zinten, which would incur an additional \$4,000 in costs and sell for \$15 per pound. If Zinten is produced, income would increase by

- a. \$2,000.
- b. \$5,760.
- c. \$14,000.
- d. \$26,000.

216. *CSO: 1D2a LOS: 1D2c*

Darden Manufacturing, a calendar-year corporation, had \$17,000 of spoilage during April that production management characterized as abnormal. The spoilage was incurred on Job No. 532, that was sold three months later for \$459,000. Which of the following correctly describes the impact of the spoilage on Darden's unit manufacturing cost for Job No. 532 and on the year's operating income?

- |    | <u>Unit Manufacturing Cost</u> | <u>Operating Income</u>          |
|----|--------------------------------|----------------------------------|
| a. | Increase.                      | No effect.                       |
| b. | Increase.                      | Decrease.                        |
| c. | No effect.                     | Decrease.                        |
| d. | No effect.                     | Not enough information to judge. |

217. CSO: 1D2a LOS: 1D2b

Baldwin Printing Company uses a job order costing system and applies overhead based on machine hours. A total of 150,000 machine hours have been budgeted for the year. During the year, an order for 1,000 units was completed and incurred the following.

Direct material costs	\$1,000
Direct labor costs	1,500
Actual overhead	1,980
Machine hours	450

The accountant calculated the inventory cost of this order to be \$4.30 per unit. The annual budgeted overhead in dollars was

- a. \$577,500.
- b. \$600,000.
- c. \$645,000.
- d. \$660,000.

218. CSO: 1D2a LOS: 1D2b

John Sheng, cost accountant at Starlet Company, is developing departmental factory overhead application rates for the company's tooling and fabricating departments. The budgeted overhead for each department and the data for one job are shown below.

	<u>Departments</u>	
	<u>Tooling</u>	<u>Fabricating</u>
Supplies	\$ 850	\$ 200
Supervisors' salaries	1,500	2,000
Indirect labor	1,200	4,880
Depreciation	1,000	5,500
Repairs	<u>4,075</u>	<u>3,540</u>
Total budgeted overhead	<u>\$8,625</u>	<u>\$16,120</u>
Total direct labor hours	460	620
Direct labor hours on Job #231	12	3

Using the departmental overhead application rates, total overhead applied to Job #231 in the Tooling and Fabricating Departments will be

- a. \$225.
- b. \$303.
- c. \$537.
- d. \$671.

219. CSO: 1D2b LOS: 1D2b

Mack Inc. uses a weighted-average process costing system. Direct materials and conversion costs are incurred evenly during the production process. During the month of October, the following costs were incurred.

Direct materials	\$39,700
Conversion costs	70,000

The work-in-process inventory as of October 1 consisted of 5,000 units, valued at \$4,300, that were 20% complete. During October, 27,000 units were transferred out. Inventory as of October 31 consisted of 3,000 units that were 50% complete. The weighted-average inventory cost per unit completed in October was

- a. \$3.51.
- b. \$3.88.
- c. \$3.99.
- d. \$4.00.

220. CSO: 1D2b LOS: 1D2b

During December, Krause Chemical Company had the following selected data concerning the manufacture of Xyzine, an industrial cleaner.

<u>Production Flow</u>	<u>Physical Units</u>
Completed and transferred to the next department	100
Add: Ending work-in-process inventory	<u>10</u> (40% complete as to conversion)
Total units to account for	110
Less: Beginning work-in-process inventory	<u>20</u> (60% complete as to conversion)
Units started during December	<u>90</u>

All material is added at the beginning of processing in this department, and conversion costs are added uniformly during the process. The beginning work-in-process inventory had \$120 of raw material and \$180 of conversion costs incurred. Material added during December was \$540 and conversion costs of \$1,484 were incurred. Krause uses the weighted-average process-costing method. The total raw material costs in the ending work-in-process inventory for December is

- a. \$120.
- b. \$72.
- c. \$60.
- d. \$36.

221. *CSO: 1D2b LOS: 1D2c*

A company that uses a process costing system inspects its goods at the 60% stage of completion. If the firm's ending work-in-process inventory is 80% complete, how would the firm account for its normal and abnormal spoilage?

- a. Both normal and abnormal spoilage costs would be added to the cost of the good units completed during the period.
- b. Both normal and abnormal spoilage costs would be written off as an expense of the period.
- c. Normal spoilage costs would be added to the cost of the good units completed during the period; in contrast, abnormal spoilage costs would be written off as a loss.
- d. Normal spoilage costs would be allocated between the cost of good units completed during the period and the ending work-in-process inventory. In contrast, abnormal spoilage costs would be written off as a loss.

222. *CSO: 1D2b LOS: 1D2c*

When considering normal and abnormal spoilage, which one of the following is theoretically the **best** accounting method for spoilage in a process-costing system?

- a. Both normal and abnormal spoilage cost should be charged to a separate expense account.
- b. Normal spoilage cost should be charged to good units and abnormal spoilage cost should be charged to a separate expense account.
- c. Both normal and abnormal spoilage costs should be charged to good units.
- d. Normal spoilage costs should be charged to a separate expense account and abnormal spoilage cost should be charged to good units.

223. CSO: 1D2b LOS: 1D2b

Southwood Industries uses a process costing system and inspects its goods at the end of manufacturing. The inspection as of June 30 revealed the following information for the month of June.

Good units completed	16,000
Normal spoilage (units)	300
Abnormal spoilage (units)	100

Unit costs were: materials, \$3.50; and conversion costs, \$6.00. The number of units that Southwood would transfer to its finished goods inventory and the related cost of these units are

	<u>Units Transferred</u>	<u>Cost</u>
a.	16,000	\$152,000.
b.	16,000	\$154,850.
c.	16,000	\$155,800.
d.	16,300	\$154,850.

224. CSO: 1D2b LOS: 1D2f

Colt Company uses a weighted-average process cost system to account for the cost of producing a chemical compound. As part of production, Material B is added when the goods are 80% complete. Beginning work-in-process inventory for the current month was 20,000 units, 90% complete. During the month, 70,000 units were started in process, and 65,000 units were completed. There were no lost or spoiled units. If the ending inventory was 60% complete, the total equivalent units for Material B for the month was

- a. 65,000 units.
- b. 70,000 units.
- c. 85,000 units.
- d. 90,000 units.

225. CSO: 1D2b LOS: 1D2b

Oster Manufacturing uses a weighted-average process costing system and has the following costs and activity during October.

Materials	\$40,000
Conversion cost	<u>32,500</u>
Total beginning work-in-process inventory	<u>\$72,500</u>

Materials	\$ 700,000
Conversion cost	<u>617,500</u>
Total production costs - October	<u>\$1,317,500</u>

Production completed	60,000 units
Work-in-process, October 31	20,000 units

All materials are introduced at the start of the manufacturing process, and conversion cost is incurred uniformly throughout production. Conversations with plant personnel reveal that, on average, month-end in-process inventory is 25% complete. Assuming no spoilage, how should Oster's October manufacturing cost be assigned?

	<u>Production Completed</u>	<u>Work-in-Process</u>
a.	\$1,042,500	\$347,500.
b.	\$1,095,000	\$222,500.
c.	\$1,155,000	\$235,000.
d.	\$1,283,077	\$106,923.

226. CSO: 1D2b LOS: 1D2f

San Jose Inc. uses a weighted-average process costing system. All materials are introduced at the start of manufacturing, and conversion cost is incurred evenly throughout production. The company started 70,000 units during May and had the following work-in-process inventories at the beginning and end of the month.

May 1            30,000 units, 40% complete

May 31           24,000 units, 25% complete

Assuming no spoilage or defective units, the total equivalent units used to assign costs for May are

	<u>Materials</u>	<u>Conversion Cost</u>
a.	70,000	70,000.
b.	82,000	82,000.
c.	100,000	70,000.
d.	100,000	82,000.



227. CSO: 1D2b LOS: 1D2b

During December, Krause Chemical Company had the following selected data concerning the manufacture of Xyzine, an industrial cleaner.

<u>Production Flow</u>	<u>Physical Units</u>
Completed and transferred to the next department	100
Add: Ending work-in-process inventory	<u>10</u> (40% complete as to conversion)
Total units to account for	110
Less: Beginning work-in-process inventory	<u>20</u> (60% complete as to conversion)
Units started during December	<u>90</u>

All material is added at the beginning of processing in this department, and conversion costs are added uniformly during the process. The beginning work-in-process inventory had \$120 of raw material and \$180 of conversion costs incurred. Material added during December was \$540 and conversion costs of \$1,484 were incurred. Krause uses the weighted-average process-costing method. The total conversion cost assigned to units transferred to the next department in December was

- a. \$1,664.
- b. \$1,600.
- c. \$1,513.
- d. \$1,484.

228. CSO: 1D2b LOS: 1D2f

During December, Krause Chemical Company had the following selected data concerning the manufacture of Xyzine, an industrial cleaner.

<u>Production Flow</u>	<u>Physical Units</u>
Completed and transferred to the next department	100
Add: Ending work-in-process inventory	<u>10</u> (40% complete as to conversion)
Total units to account for	110
Less: Beginning work-in-process inventory	<u>20</u> (60% complete as to conversion)
Units started during December	<u>90</u>

All material is added at the beginning of processing in this department, and conversion costs are added uniformly during the process. The beginning work-in-process inventory had \$120 of raw material and \$180 of conversion costs incurred. Material added during December was \$540 and conversion costs of \$1,484 were incurred. Krause uses the first-in, first-out (FIFO) process-costing method. The equivalent units of production used to calculate conversion costs for December was

- a. 110 units.
- b. 104 units.
- c. 100 units.
- d. 92 units.

229. CSO: 1D2b LOS: 1D2f

Jones Corporation uses a first-in, first-out (FIFO) process costing system. Jones has the following unit information for the month of August.

	<u>Units</u>
Beginning work-in-process inventory, 100% complete for materials, 75% complete for conversion cost	10,000
Units completed and transferred out	90,000
Ending work-in-process inventory, 100% complete for materials, 60% complete for conversion costs	8,000

The number of equivalent units of production for conversion costs for the month of August is

- a. 87,300.
- b. 88,000.
- c. 92,300.
- d. 92,700.

230. CSO: 1D2b LOS: 1D2f

Waller Co. uses a weighted-average process-costing system. Material B is added at two different points in the production of shirms, 40% is added when the units are 20% completed, and the remaining 60% of Material B is added when the units are 80% completed. At the end of the quarter, there are 22,000 shirms in process, all of which are 50% completed. With respect to Material B, the ending shirms in process represent how many equivalent units?

- a. 4,400 units.
- b. 8,800 units.
- c. 11,000 units.
- d. 22,000 units.

231. CSO: 1D2c LOS: 1D2a

When using activity-based costing techniques, which one of the following departmental activities would be expected to use machine hours as a cost driver to allocate overhead costs to production?

- a. Plant cafeteria.
- b. Machine setups.
- c. Material handling.
- d. Robotics painting.

232. *CSO: 1D2c LOS: 1D2a*  
A company is considering the implementation of an activity-based costing and management program. The company
- should focus on manufacturing activities and avoid implementation with service-type functions.
  - would probably find a lack of software in the marketplace to assist with the related recordkeeping.
  - would normally gain added insights into causes of cost.
  - would likely use fewer cost pools than it did under more traditional accounting methods.
233. *CSO: 1D2c LOS: 1D2a*  
All of the following are likely to be used as a cost allocation base in activity-based costing **except** the
- number of different materials used to manufacture the product.
  - units of materials used to manufacture the product.
  - number of vendors supplying the materials used to manufacture the product.
  - cost of materials used to manufacture the product.

234. CSO: 1D2c LOS: 1D2h

Pelder Products Company manufactures two types of engineering diagnostic equipment used in construction. The two products are based upon different technologies, x-ray and ultra-sound, but are manufactured in the same factory. Pelder has computed the manufacturing cost of the x-ray and ultra-sound products by adding together direct materials, direct labor, and overhead cost applied based on the number of direct labor hours. The factory has three overhead departments that support the single production line that makes both products. Budgeted overhead spending for the departments is as follows.

<u>Department</u>			
<u>Engineering design</u>	<u>Material handling</u>	<u>Setup</u>	<u>Total</u>
\$6,000	\$5,000	\$3,000	<u>\$14,000</u>

Pelder's budgeted manufacturing activities and costs for the period are as follows.

<u>Activity</u>	<u>Product</u>	
	<u>X-Ray</u>	<u>Ultra-Sound</u>
Units produced and sold	50	100
Direct materials used	\$5,000	\$8,000
Direct labor hours used	100	300
Direct labor cost	\$4,000	\$12,000
Number of parts used	400	600
Number of engineering changes	2	1
Number of product setups	8	7

The budgeted cost to manufacture one ultra-sound machine using the activity-based costing method is

- a. \$225.
- b. \$264.
- c. \$293.
- d. \$305.

235. CSO: 1D2c LOS: 1D2h

The Chocolate Baker specializes in chocolate baked goods. The firm has long assessed the profitability of a product line by comparing revenues to the cost of goods sold. However, Barry White, the firm's new accountant, wants to use an activity-based costing system that takes into consideration the cost of the delivery person. Listed below are activity and cost information relating to two of Chocolate Baker's major products.

	<u>Muffins</u>	<u>Cheesecake</u>
Revenue	\$53,000	\$46,000
Cost of goods sold	26,000	21,000
<u>Delivery Activity</u>		
Number of deliveries	150	85
Average length of delivery	10 Minutes	15 Minutes
Cost per hour for delivery	\$20.00	\$20.00

Using activity-based costing, which one of the following statements is **correct**?

- a. The muffins are \$2,000 more profitable.
- b. The cheesecakes are \$75 more profitable.
- c. The muffins are \$1,925 more profitable.
- d. The muffins have a higher profitability as a percentage of sales and, therefore, are more advantageous.

236. CSO: 1D2c LOS: 1D2h

Atmel Inc. manufactures and sells two products. Data with regard to these products are given below.

	<u>Product A</u>	<u>Product B</u>
Units produced and sold	30,000	12,000
Machine hours required per unit	2	3
Receiving orders per product line	50	150
Production orders per product line	12	18
Production runs	8	12
Inspections	20	30

Total budgeted machine hours are 100,000. The budgeted overhead costs are shown below.

Receiving costs	\$ 450,000
Engineering costs	300,000
Machine setup costs	25,000
Inspection costs	<u>200,000</u>
Total budgeted overhead costs	<u>\$ 975,000</u>

Using activity-based costing, the per unit overhead cost allocation of receiving costs for product A is

- a. \$3.75.
- b. \$10.75.
- c. \$19.50.
- d. \$28.13.

237. CSO: 1D2c LOS: 1D2h

A profitable company with five departments uses plantwide overhead rates for its highly diversified operation. The firm is studying a change to either allocating overhead by using departmental rates or using activity-based costing (ABC). Which one of these two methods will likely result in the use of a greater number of cost allocation bases and more accurate costing results?

	<u>Greater Number of Allocation Bases</u>	<u>More Accurate Costing Results</u>
a.	Departmental	Departmental.
b.	Departmental	ABC.
c.	ABC	Departmental.
d.	ABC	ABC.

238. *CSO: 1D3a LOS: 1D3e*  
In practice, items such as wood screws and glue used in the production of school desks and chairs would **most** likely be classified as
- direct labor.
  - factory overhead.
  - direct materials.
  - period costs.
239. *CSO: 1D3b LOS: 1D3c*  
Young Company is beginning operations, and is considering three alternative ways in which to allocate manufacturing overhead to individual units produced. Young can use a plantwide rate, departmental rates, or activity based costing. Young will produce many types of products in its single plant, and not all products will be processed through all departments. In which one of the following independent situations would reported net income for the first year be the same regardless of which overhead allocation method had been selected?
- All production costs approach those costs that were budgeted.
  - The sales mix does not vary from the mix that was budgeted.
  - All manufacturing overhead is a fixed cost.
  - All ending inventory balances are zero.
240. *CSO: 1D3b LOS: 1D3d*  
The **most** important criterion in accurate cost allocations is
- using a simple allocation method.
  - allocating fixed and variable costs by using the same allocation base.
  - using homogeneous cost pools.
  - using multiple drivers for each cost pool.



241. CSO: 1D3b LOS: 1D3g

Cynthia Rogers, the cost accountant for Sanford Manufacturing, is preparing a management report which must include an allocation of overhead. The budgeted overhead for each department and the data for one job are shown below.

	<u>Department</u>		
	<u>Tooling</u>	<u>Fabricating</u>	
Supplies	\$ 690	\$ 80	
Supervisor's salaries	1,400	1,800	
Indirect labor	1,000	4,000	
Depreciation	1,200	5,200	
Repairs	<u>4,400</u>	<u>3,000</u>	
Total budgeted overhead	<u>\$8,690</u>	<u>\$14,080</u>	1D3d
Total direct labor hours	440	640	
Direct labor hours on Job #231	10	2	

Using the departmental overhead application rates, and allocating overhead on the basis of direct labor hours, overhead applied to Job #231 in the Tooling Department would be

- a. \$44.00
- b. \$197.50
- c. \$241.50
- d. \$501.00.

242. CSO: 1D3b LOS: 1D3g

Patterson Corporation expects to incur \$70,000 of factory overhead and \$60,000 of general and administrative costs next year. Direct labor costs at \$5 per hour are expected to total \$50,000. If factory overhead is to be applied per direct labor hour, how much overhead will be applied to a job incurring 20 hours of direct labor?

- a. \$28.
- b. \$120.
- c. \$140.
- d. \$260.

243. CSO: 1D3c LOS: 1D3f

Henry Manufacturing, which uses direct labor hours to apply overhead to its product line, undertook an extensive renovation and modernization program two years ago. Manufacturing processes were reengineered, considerable automated equipment was acquired, and 60% of the company's nonunion factory workers were terminated.

Which of the following statements would apply to the situation at Henry?

- I. The company's factory overhead rate has likely increased.
- II. The use of direct labor hours seems to be appropriate.
- III. Henry will lack the ability to properly determine labor variances.
- IV. Henry has likely reduced its ability to quickly cut costs in order to respond to economic downturns.

- a. I, II, III, and IV.
- b. I and IV only.
- c. II and IV only.
- d. I and III only.

244. CSO: 1D3c LOS: 1D3h

Jones Tax Company has three divisions - Compliance, Tax Planning, and Financial Consulting. Based on the divisional data presented below, which one of the allocation bases for common company expenses would likely have the **least** negative behavioral impact on the Financial Consulting Division manager?

	<u>Compliance</u>	<u>Tax Planning</u>	<u>Financial Consulting</u>
Revenues	\$4,500,000	\$6,000,000	\$4,500,000
Variable expenses	1,500,000	3,750,000	2,250,000
No. of employees	68	76	56

- a. Revenues.
- b. Contribution margin.
- c. Equal sharing.
- d. Number of employees.

245. CSO: 1D3c LOS: 1D3g

Atmel Inc. manufactures and sells two products. Data with regard to these products are given below.

	<u>Product A</u>	<u>Product B</u>
Units produced and sold	30,000	12,000
Machine hours required per unit	2	3
Receiving orders per product line	50	150
Production orders per product line	12	18
Production runs	8	12
Inspections	20	30

Total budgeted machine hours are 100,000. The budgeted overhead costs are shown below.

Receiving costs	\$450,000
Engineering costs	300,000
Machine setup costs	25,000
Inspection costs	<u>200,000</u>
Total budgeted overhead	<u>\$975,000</u>

The cost driver for engineering costs is the number of production orders per product line. Using activity-based costing, the engineering cost per unit for Product B would be

- a. \$4.00.
- b. \$10.00.
- c. \$15.00.
- d. \$29.25.

246. CSO: 1D3d LOS: 1D3p

When allocating costs from one department to another, a dual-rate cost-allocation method may be used. The dual-rate cost-allocation method is **most** useful when

- a. two or more cost pools are to be allocated.
- b. two or more departments' costs are to be allocated.
- c. two or more products are produced.
- d. costs are separated into variable-cost and fixed-cost subpools.

247. CSO: 1D3d LOS: 1D3p

The management of ROX Company wishes to encourage all other departments to use the legal department, as circumstances warrant. To accomplish this, legal department costs should be

- a. allocated to users on the basis of the actual cost of hours used.
- b. allocated to users on the basis of the budgeted cost of actual hours used.
- c. allocated to users on the basis of standard cost for the type of service provided.
- d. absorbed as a corporate expense.

248. *CSO: 1D3d LOS: 1D3o*

Boston Furniture Company manufactures several steel products. It has three production departments, Fabricating, Assembly, and Finishing. The service departments include Maintenance, Material Handling, and Designing. Currently, the company does not allocate service department costs to the production departments. John Baker, who has recently joined the company as the new cost accountant, believes that service department rates should be developed and charged to the production departments for services requested. If the company adopts this new policy, the production department managers would be **least** likely to

- a. request an excessive amount of service.
- b. replace outdated and inefficient systems.
- c. refrain from using necessary services.
- d. be encouraged to control costs.

249. *CSO: 1D3d LOS: 1D3p*

Cotton Company has two service departments and three operating departments. In allocating service department costs to the operating departments, which of the following three methods (direct, step-down, reciprocal) will result in the same amount of service department costs being allocated to each operating department, regardless of the order in which the service department costs are allocated?

- a. Direct and reciprocal methods only.
- b. Step-down and reciprocal methods only.
- c. Direct and step-down methods only.
- d. Direct method only.

250. *CSO: 1D3d LOS: 1D3p*

Wilcox Industrial has two support departments, the Information Systems Department and the Personnel Department, and two manufacturing departments, the Machining Department and the Assembly Department. The support departments service each other as well as the two production departments. Company studies have shown that the Personnel Department provides support to a greater number of departments than the Information Systems Department. Which one of the following departmental allocations is present in the reciprocal method of departmental allocation? The costs of the

- a. Assembly Department are allocated to the Information Systems Department and the Personnel Department.
- b. Information Systems Department are allocated to the Machining Department and the costs of the Machining Department are allocated to the Assembly Department.
- c. Personnel Department are allocated solely to the Information Systems Department.
- d. Information Systems Department are allocated to the Personnel Department, Machining Department, and Assembly Department.

251. *CSO: 1D3d LOS: 1D3p*

Wilcox Industrial has two support departments, the Information Systems Department and the Personnel Department, and two manufacturing departments, the Machining Department and the Assembly Department. The support departments service each other as well as the two production departments. Company studies have shown that the Personnel Department provides support to a greater number of departments than the Information Systems Department. If Wilcox uses the step-down method of departmental allocation, which one of the following cost allocations would **not** occur? Some of the costs of the

- a. Personnel Department would be allocated to the Information Systems Department.
- b. Information Systems Department would be allocated to the Personnel Department.
- c. Personnel Department would be allocated to the Assembly Department.
- d. Personnel Department would be allocated to the Assembly Department and the Machining Department.

252. *CSO: 1D3d LOS: 1D3p*

Render Inc. has four support departments (maintenance, power, human resources, and legal) and three operating departments. The support departments provide services to the operating departments as well as to the other support departments. The method of allocating the costs of the support departments that **best** recognizes the mutual services rendered by support departments to other support departments is the

- a. direct allocation method.
- b. dual-rate allocation method.
- c. step-down allocation method.
- d. reciprocal allocation method.

253. CSO: 1D3d LOS: 1D3p

Logo Inc. has two data services departments (the Systems Department and the Facilities Department) that provide support to the company's three production departments (Machining Department, Assembly Department, and Finishing Department). The overhead costs of the Systems Department are allocated to other departments on the basis of computer usage hours. The overhead costs of the Facilities Department are allocated based on square feet occupied (in thousands). Other information pertaining to Logo is as follows.

<u>Department</u>	<u>Overhead</u>	<u>Computer Usage Hours</u>	<u>Square Feet Occupied</u>
Systems	\$200,000	300	1,000
Facilities	100,000	900	600
Machining	400,000	3,600	2,000
Assembly	550,000	1,800	3,000
Finishing	620,000	<u>2,700</u>	<u>5,000</u>
		<u>9,300</u>	<u>11,600</u>

If Logo employs the direct method of allocating service department costs, the overhead of the Systems Department would be allocated by dividing the overhead amount by

- 1,200 hours.
- 8,100 hours.
- 9,000 hours.
- 9,300 hours.

254. CSO: 1D3d LOS: 1D3p

Adam Corporation manufactures computer tables and has the following budgeted indirect manufacturing cost information for next year.

	<u>Support Departments</u>		<u>Operating Departments</u>		<u>Total</u>
	<u>Maintenance</u>	<u>Systems</u>	<u>Machining</u>	<u>Fabrication</u>	
Budgeted overhead	\$360,000	\$95,000	\$200,000	\$300,000	\$955,000
Support work furnished					
From Maintenance		10%	50%	40%	100%
From Systems	5%		45%	50%	100%

If Adam uses the step-down method, beginning with the Maintenance Department, to allocate support department costs to production departments, the total overhead (rounded to the nearest dollar) for the Machining Department to allocate to its products would be

- \$415,526.
- \$422,750.
- \$442,053.
- \$445,000.

255. CSO: 1D3d LOS: 1D3p

Wilcox Industrial has two support departments, the Information Systems Department and the Personnel Department, and two manufacturing departments, the Machining Department and the Assembly Department. The support departments service each other as well as the two production departments. Company studies have shown that the Personnel Department provides support to a greater number of departments than does the Information Systems Department. If Wilcox uses the direct method of departmental allocation, which one of the following cost allocations would occur? Some of the costs of the

- a. Personnel Department would be allocated to the Information Systems Department.
- b. Machining Department would be allocated to the Information Systems Department.
- c. Information Systems Department would be allocated to the Assembly Department.
- d. Assembly Department would be allocated to the Machining Department.

256. CSO: 1D3d LOS: 1D3p

Logo Inc. has two data services departments (the Systems Department and the Facilities Department) that provide support to the company's three production departments (Machining Department, Assembly Department, and Finishing Department). The overhead costs of the Systems Department are allocated to other departments on the basis of computer usage hours. The overhead costs of the Facilities Department are allocated based on square feet occupied (in thousands). Other information pertaining to Logo is as follows.

<u>Department</u>	<u>Overhead</u>	<u>Computer Usage Hours</u>	<u>Square Feet Occupied</u>
Systems	\$200,000	300	1,000
Facilities	100,000	900	600
Machining	400,000	3,600	2,000
Assembly	550,000	1,800	3,000
Finishing	620,000	<u>2,700</u>	<u>5,000</u>
		<u>9,300</u>	<u>11,600</u>

Logo employs the step-down method of allocating service department costs and begins with the Systems Department. Which one of the following correctly denotes the amount of the Systems Department's overhead that would be allocated to the Facilities Department and the Facilities Department's overhead charges that would be allocated to the Machining Department?

- |    | <u>Systems to Facilities</u> | <u>Facilities to Machining</u> |
|----|------------------------------|--------------------------------|
| a. | \$0                          | \$20,000.                      |
| b. | \$19,355                     | \$20,578.                      |
| c. | \$20,000                     | \$20,000.                      |
| d. | \$20,000                     | \$24,000.                      |

257. CSO: 1D3d LOS: 1D3p

Adam Corporation manufactures computer tables and has the following budgeted indirect manufacturing cost information for next year.

	<u>Support Departments</u>		<u>Operating Departments</u>		<u>Total</u>
	<u>Maintenance</u>	<u>Systems</u>	<u>Machining</u>	<u>Fabrication</u>	
Budgeted overhead	\$360,000	\$95,000	\$200,000	\$300,000	\$955,000
Support work furnished					
From Maintenance		10%	50%	40%	100%
From Systems	5%		45%	50%	100%

If Adam uses the direct method to allocate support department costs to production departments, the total overhead (rounded to the nearest dollar) for the Machining Department to allocate to its products would be

- a. \$418,000.
- b. \$422,750.
- c. \$442,053.
- d. \$445,000.

258. CSO: 1D4a LOS: 1D4e

Presario Inc. recently installed just-in-time production and purchasing systems. If Presario's experience is similar to that of other companies, Presario will likely

- a. reduce the number of suppliers with which it does business.
- b. increase the size of individual orders of raw materials.
- c. increase the dollar investment in finished goods inventory.
- d. be less reliant on sales orders as a "trigger" mechanism for production runs.

259. CSO: 1D4d LOS: 1D4g

According to the theory of constraints, all of the following activities help to relieve the problem of a bottleneck in operations **except**

- a. eliminating idle time at the bottleneck operation.
- b. reducing setup time at the bottleneck operation.
- c. shifting products that do not have to be made on bottleneck machines to non-bottleneck machines.
- d. increasing the efficiency of operations at non-bottleneck machines.



260. *CSO: 1D4d LOS: 1D4h*  
 When demand for a product or products exceeds production capacity, which one of the following is the first step that managers should take?
- Spend money to eliminate the bottleneck.
  - Focus their efforts on constraint identification.
  - Change the throughput of operations.
  - Apply activity-based management to solve the problem.

261. *CSO: 1D5a LOS: 1D5c*  
 A company desires to prepare two sets of financial statements. Conventional financial statements would be prepared along with a set that is totally consistent with value-chain analysis. How would customer service costs be treated in the two statements?

	<u>Conventional Financial Statements</u>	<u>Value-Chain Financial Statements</u>
a.	Inventoriable cost	Product cost.
b.	Inventoriable cost	Non-product cost.
c.	Noninventoriable cost	Product cost.
d.	Noninventoriable cost	Non-product cost.

262. *CSO: 1D5a LOS: 1D5b*  
 Which one of the following lists of functions is in proper value chain order?
- Research and development, marketing, and customer services.
  - Production, marketing, and production design.
  - Production design, distribution, and marketing.
  - Research and development, customer service, and distribution.

263. *CSO: 1D5b LOS: 1D5d*  
 Consider the following manufacturing-related activities.

- Conducting the final assembly of wooden furniture.
- Moving completed production to the finished goods warehouse.
- Painting newly-manufactured automobiles.
- Setting up a machine related to a new production run.
- Reworking defective goods to bring them up to quality standards.

The activities that would be classified as value-added activities are

- II, III, IV, and V only.
- I, IV, and V only.
- I, III, and V only.
- I and III only.

264. *CSO: 1D5c LOS: 1D5e*  
From the perspective of the management accountant, which one of the following represents a **major** disadvantage of business process reengineering?
- The focus is, to a large extent, on short-term results.
  - It often results in a decreased use of centralized data bases.
  - Internal control mechanisms are often disassembled.
  - It results in heavier maintenance for legacy systems.
265. *CSO: 1D5f LOS: 1D5h*  
Retail Partners Inc., which operates eight discount store chains, is seeking to reduce the costs of its purchasing activities through reengineering and a heavier use of electronic data interchange (EDI). Which of the following benchmarking techniques would be appropriate in this situation?
- A comparison of the purchasing costs and practices of each of Retail Partners' store chains to identify their internal "best in class."
  - A comparison of the practices of Retail Partners to those of Discount City, another retailer, whose practices are often considered "best in class."
  - A comparison of the practices of Retail Partners to those of Capital Airways, an international airline, whose practices are often considered "best in class."
  - An in-depth review of a retail trade association publication on successful electronic data interchange applications.
- II and IV only.
  - I and II only.
  - I and IV only.
  - I, II, III, and IV.
266. *CSO: 1D5f LOS: 1D5h*  
All of the following are examples of benchmarking standards **except**
- the performance of the unit during the previous year.
  - the best performance of the unit in comparable past periods.
  - a comparison with a similar unit within the same company.
  - the best performance of a competitor with a similar operation.

267. CSO: 1D5g LOS: 1D5m

Leese Inc. has the following quality financial data for its most recent fiscal year.

Rework costs	\$110,000
Warranty repair costs	280,000
Product line inspection	95,000
Design engineering	300,000
Supplier evaluation	240,000
Labor training	150,000
Product testing	65,000
Breakdown maintenance	70,000
Product scrap	195,000
Cost of returned goods	180,000
Customer support	35,000
Product liability claims	80,000

The total amount of prevention costs that should be reported in a Cost of Quality report for the year is

- a. \$390,000.
- b. \$450,000.
- c. \$690,000.
- d. \$755,000.

268. CSO: 1D5g LOS: 1D5l

When measuring the cost of quality, the cost of inspecting incoming raw materials is a(n)

- a. prevention cost.
- b. appraisal cost.
- c. internal failure cost.
- d. external failure cost.

269. CSO: 1D5g LOS: 1D5l

In measuring the cost of quality, which one of the following is considered an appraisal cost?

- a. Rework cost.
- b. Product testing cost.
- c. Warranty claims cost.
- d. Equipment maintenance cost.

270. *CSO: 1D5g LOS: 1D5l*  
External failure costs include all of the following costs **except** those related to
- lost sales and lost customers.
  - warranty obligations.
  - product liability suits.
  - product field testing.

271. *CSO: 1D5g LOS: 1D5l*  
When evaluating the cost of quality in an organization, which one of the following would be considered an internal failure cost?
- The cost to rework defective units.
  - The cost to inspect units produced.
  - The warranty repair costs.
  - Product testing.

### **Section E: Internal Controls**

272. *CSO: 1E1a LOS: 1E1b*  
When assessing a company's internal control structure policies and procedures, the primary consideration is whether they
- prevent management override.
  - relate to the control environment.
  - reflect management's philosophy and operating style.
  - affect the financial statement assertions.

273. *CSO: 1E1b LOS: 1E1g*  
The basic concepts implicit in internal accounting controls include the following.
- The cost of the system should not exceed benefits expected to be attained.
  - The overall impact of the control procedure should not hinder operating efficiency.

Which one of the following recognizes these two factors?

- Limitations.
- Management responsibility.
- Methods of data processing.
- Reasonable assurance.

274. CSO: 1E1b LOS: 1E1j

Which one of the following functions performed in an organization is a violation of internal control?

- a. A mail clerk opening the mail compares the check received with the source document accompanying the payment, noting the amount paid, then forwards the checks daily (along with a listing of the cash receipts) to the Cashier for deposit.
- b. A mail clerk opening the mail compares the check received with the source document accompanying the payment, noting the amount paid, then forwards the source documents that accompany the payments (along with a listing of the cash receipts) to Accounts Receivable, on a daily basis, for posting to the subsidiary ledger.
- c. At the end of the week the Cashier prepares a deposit slip for all of the cash receipts received during the week.
- d. The General Ledger clerk compares the summary journal entry, received from the Cashier for cash receipts applicable to outstanding accounts, with the batch total for posting to the Subsidiary Ledger by the Accounts Receivable clerk.

275. CSO: ED1b LOS: 1E1i

In order to properly segregate duties, which function within the computer department should be responsible for reprocessing the errors detected during the processing of data?

- a. Department manager.
- b. Systems analyst.
- c. Computer programmer.
- d. Data control group.

276. CSO: 1E1b LOS: 1E1i

Which one of the following methods, for the distribution of employees' paychecks, would provide the **best** internal control for the organization?

- a. Delivery of the paychecks to each department supervisor, who in turn would distribute paychecks directly to the employees in his/her department.
- b. Direct deposit in each employee's personal bank account.
- c. Distribution of paychecks directly to each employee by a representative of the Human Resource department.
- d. Distribution of paychecks directly to each employee by the payroll manager.

277. *CSO: 1E1b LOS: 1E1g*  
Which one of the following would be **most** effective in deterring the commission of fraud?
- Policies of strong internal control, segregation of duties, and requiring employees to take vacations.
  - Policies of strong internal control and punishments for unethical behavior.
  - Employee training, segregation of duties, and punishment for unethical behavior.
  - Hiring ethical employees, employee training, and segregation of duties.
278. *CSO: 1E1a LOS: 1E1t*  
A public corporation that must meet the provisions of the Foreign Corrupt Practices Act of 1977 should have a compliance program that includes all of the following steps **except**
- an authorized and properly signed agreement that it will abide by the Act.
  - documentation of the corporation's existing internal accounting control systems.
  - a cost/benefit analysis of the controls and the risks that are being minimized.
  - a system of quality checks to evaluate the internal accounting control system.
279. *CSO: 1E1a LOS: 1E1t*  
The principal impetus for the enactment of the Foreign Corrupt Act by the U.S. Congress was to
- discourage unethical behavior by foreigners employed by U.S. firms.
  - promote the mandates issued by the United Nations with regard to global trade between its member nations.
  - prevent the bribery of foreign officials by U.S. firms seeking to do business overseas.
  - require mandatory documentation of the evaluation of internal controls by the independent auditors.
280. *CSO: 1E2a LOS: 1E2a*  
Which one of the following statements, regarding internal auditing responsibility and authority, is **incorrect**?
- Internal auditors are expected to comply with standards of professional conduct.
  - The understandability of audit reports is the responsibility of internal auditors.
  - Follow-up on actions noted in audit findings is not required of internal auditors.
  - Internal auditors are responsible to service the organization.

281. *CSO: 1E2a LOS: 1E2b*  
Which one of the following accounting and management techniques is **least** likely to assist internal auditors in appraising the efficiency with which resources are being used by respective profit centers?
- a. Cost Variance Analysis.
  - b. Flexible Budgets.
  - c. Activity-based management.
  - d. Joint cost allocations.
282. *CSO: 1E2b LOS: 1E2e*  
If a corporation may be violating federal and state laws governing environmental concerns, which one of the following types of audit will **best** assist in ascertaining whether such situations may exist?
- a. Operational audit.
  - b. Compliance Audit.
  - c. Financial audit.
  - d. Management Audit.
283. *CSO: 1E2b LOS: 1E2e*  
Which one of the following types of audits would be **most** likely to focus on objectives related to the efficient use of resources?
- a. Compliance audit.
  - b. Information systems audit.
  - c. Independent audit.
  - d. Operational audit.
284. *CSO: 1E2b LOS: 1E2e*  
When an internal auditor expresses an opinion as to the efficiency and effectiveness of an entity's activities and makes recommendations for improvements, the auditor is conducting a(n)
- a. financial statement audit of a public company.
  - b. financial statement audit of a municipality.
  - c. compliance audit.
  - d. operational audit.

285. *CSO: 1E3a LOS: 1E3b*  
A computer virus is different from a “Trojan Horse” because the virus can
- corrupt data.
  - alter programming instructions.
  - replicate itself.
  - erase executable files.
286. *CSO: 1E3a LOS: 1E3c*  
In situations where it is crucial that data be entered correctly into an accounting information system, the **best** method of data control would be to use
- key verification.
  - compatibility tests.
  - limit checks.
  - reasonableness tests.
287. *CSO: 1E3b LOS: 1E3c*  
The **most** appropriate control to verify that a user is authorized to execute a particular on-line transaction is a
- password.
  - challenge/response system.
  - compatibility check.
  - closed-loop verification.
288. *CSO: 1E3c LOS: 1E3d*  
In securing the client/server environment of an information system, a principal disadvantage of using a single level sign-on password is the danger of creating a(n)
- trap door entry point.
  - single point of failure.
  - administrative bottleneck.
  - lock-out of valid users.



289. *CSO: 1E3c LOS: 1E3e*  
Which one of the following represents a weakness in the internal control system of an electronic data processing system?
- The data control group reviews and tests procedures and handles the reprocessing of errors detected by the computer.
  - The accounts receivable clerk prepares and enters data into the computer system and reviews the output for errors.
  - The systems analyst designs new systems and supervises testing of the system.
  - The computer operator executes programs according to operating instructions and maintains custody of programs and data files.
290. *CSO: 1E3c LOS: 1E3i*  
Confidential data can be securely transmitted over the internet by using
- single-use passwords.
  - firewalls.
  - encryption.
  - digital signatures.
291. *CSO: 1E3c LOS: 1E3i*  
All of the following are examples of encryption techniques used for computer security **except**
- public key.
  - private key.
  - primary key.
  - authentication key.

292. *CSO: 1E3a LOS: 1E3k*

The data entry staff of National Manufacturing Inc. has responsibility for converting all of the plant's shipping information to computerized records. The information flow begins when the shipping department sends a copy of a shipping order to the data entry staff. A data entry operator scans the shipping order information onto a hand-held data storage device. Verification clerks then check the computerized record with the original shipping orders. When a given batch of files has been reviewed and corrected, as necessary, the information is uploaded to the company's mainframe system at the home office.

The **most** effective way to visualize and understand this set of activities would be through the use of a

- a. program flowchart.
- b. decision table.
- c. document flowchart.
- d. Gantt chart.

293. *CSO: 1E3e LOS: 1E3n*

When attempting to restore computing facilities at an alternate site following a disaster, which one of the following should be restored first?

- a. Online system.
- b. Batch system.
- c. Operating system.
- d. Decision support system.

## CMA Part 1 – Financial Planning, Performance and Control

### Answers to Examination Practice Questions

#### Section A: External Financial Reporting Decisions

1. Correct answer d. The annual report to shareholders is prepared in accordance with generally accepted accounting principles and is designed to provide information that is pertinent to investors and other external users. Managers responsible for operating activities use internal reports designed to provide information about various aspects of internal functions that measure the effectiveness and efficiency of operations.
2. Correct answer b. Decreases in current liabilities such as accounts payable and income taxes payable are deducted from net income when determining cash flow indicating that cash was used to decrease the balances in these accounts.
3. Correct answer a. Firms are required to present reconciliations of the beginning and ending balances of their shareholder accounts; this is accomplished by presenting a Statement of Shareholders' Equity.
4. Correct answer b. A company's solvency is best represented by the amount of cash that can be generated internally rather than having to borrow from outside sources. This is shown on the Cash Flow Statement as flows from operating activities.
5. Correct answer d. The Income Statement is used to determine a firm's profitability and past performance can be evaluated using prior period income statements. All of the other characteristics listed can be determined from the Statement of Financial Position.
6. Correct answer a. The purpose of the Income Statement is to provide a summary of a firm's operating activities for a period of time.
7. Correct answer c. Bertram's Cash Paid for Dividends is \$12,000 as calculated below.  
$$\begin{array}{rcl} \$100,000 + \$40,000 - \$8,000 + \$5,000 - X & = & \$125,000 \\ \$137,000 - X & = & \$125,000 \\ X & = & \underline{\$12,000} \end{array}$$
8. Correct answer b. Shareholders' Equity is presented on the Statement of Financial Position (Balance Sheet) while all the other elements listed are components of the Income Statement.
9. Correct answer d. The payment of dividends is a financing activity and should be presented as a cash outflow in that section of the Cash Flow Statement.
10. Correct answer b. The Cash Flow Statement does not have an "equity activities" section; equity transactions are presented as financing activities.
11. Correct answer b. Available-for-sale securities are considered an investment, and therefore the sale would be presented as an investing activity on the statement of cash flows.

12. Correct answer d. The form of the Cash Flow Statement is prescribed as Operating Activities, Investing Activities, and Financing Activities.
13. Correct answer d. This transaction would be presented as a non-cash financing and investing activity as the full amount of the acquisition cost was mortgaged.
14. Correct answer a. Changes in current assets and current liabilities are presented as operating activities on the Cash Flow Statement. The other transactions listed are investing or financing activities.
15. Correct answer a. The quality of the earnings reported for the enterprise cannot be determined from the Income Statement and is therefore a limitation of that statement. All of the other characteristics listed refer to limitations of the Statement of Financial Position.
16. Correct answer b. The two methods used to calculate the cash flow from operating activities are the direct method and the indirect method. The indirect method is used more frequently than the direct method.
17. Correct answer a. The direct method of calculating cash flow from operating activities presents major classes of operating cash receipts less major classes of operating cash disbursements.
18. Correct answer c. The sale of a fixed asset for less than book value will decrease net profit as the loss on the sale will be recognized on the Income Statement.
19. Correct answer b. Whether a lease is treated as a capital lease or an operating lease has no effect on a firm's accounts receivable turnover. All other measures listed would be affected by the change to the recording of the lease.
20. Correct answer a. Bailey's net income of \$100,000 is a cash flow from operating activities. The sale of receivables for \$125,000 is an investing activity while the issuance of company stock is a financing activity.
21. Correct answer a. Deltech's \$5,000 acquisition of a productive asset is an outflow for investing activities while the bank loan is an inflow for financing activities.
22. Correct answer a. Atwater's cash flow for investing activities is \$300,000 for the purchase of Trillium stock. Both the payment of dividends and the repurchase of Atwater stock are financing activities.
23. Correct answer b. The interest paid on the bank loan (\$250,000) should be included as an operating activity on Carlson's cash flow statement. The dividend payment is a financing activity and the equipment purchase is an investment activity.
24. Correct answer c. The Financing Section of Barber's Cash Flow Statement should include the dividend payment and the repurchase of Barber's stock for a total of \$600,000.
25. Correct answer b. Kristina's cash flow from financing activities should be \$720,000 (\$800,000 inflow from the issuance of common stock less the \$80,000 payment of dividends).

26. Correct answer c. Kristina's cash flow from investing activities should be \$1,300,000 (\$2,800,000 from the sale of receivables less the \$1,500,000 land acquisition).
27. Correct answer c. Doran's net cash flow from operating activities is \$1,018,000 as shown below.

Net income	\$ 920,000
Depreciation expense	+ 110,000
Increase in payables	+ 45,000
Increase in receivables	- 73,000
Increase in tax liability	+ 16,000
Cash flow	<u>\$1,018,000</u>

28. Correct answer d. James should include the total value of the sale (\$150,000) in the Investing Activities Section of the Cash Flow Statement.
29. Correct answer c. Madden's net cash flow from operating activities is \$83,000 as shown below.

Net income	\$82,000
Decrease in receivables	+ 6,000
Increase in inventory	-12,000
Depreciation expense	+20,000
Decrease in payables	- 3,000
Gain on equipment sale	<u>-10,000</u>
Cash flow	<u>\$83,000</u>

30. Correct answer a. Kristina's net cash flow from operating activities is \$1,700,000.

Net income	\$2,000,000
Increase in receivables	- 300,000
Decrease in inventory	+ 100,000
Increase in payables	+ 200,000
Depreciation expense	+ 400,000
Gain on securities sale	<u>- 700,000</u>
Cash flow	<u>\$1,700,000</u>

31. Correct answer d. A change in estimate for bad debts should be treated as affecting on the period of the change. Changes in estimates are viewed as normal recurring corrections and retrospective treatment is prohibited.
32. Correct answer b. Finer Foods' change in inventory method should be presented on a retrospective basis to maintain consistency and comparability.

### Section B: Planning, Budgeting and Forecasting

33. Correct answer b. Cerawell has no control over the actions of its competitors; it can only respond to these actions, e.g., increase the company's research and development efforts. Cerawell has some control over the other alternatives presented.

34. Correct answer d. Budget preparation forces management planning, can provide performance criteria, and promotes communication and coordination within an organization. However, a budget cannot control unauthorized expenditures – these are usually caused by weak internal controls.
35. Correct answer d. Participation in budget preparation at all levels promotes acceptance of budgets and allows those who have to implement plans to participate in the planning process.
36. Correct answer d. Those closest to operations should participate in budget development as they are most knowledgeable and can supply reliable information on which to base the budget.
37. Correct answer c. A budget that is not supported by top management has very little chance of success as subordinates will attach little importance to the budget and will focus on what management does consider important.
38. Correct answer d. One of the few advantages of top-down budgeting is that it is less time-consuming than participatory budgeting as there is little need for discussion and compromise.
39. Correct answer d. Standard costing traces direct costs to a cost object. As a result, standard costs are most often stated as unit costs. Budgeted costs are generally presented as total costs as one of the objectives of budgeting is to forecast the overall financial condition.
40. Correct answer d. The involvement of all those affected in the development of standard costs is the team development approach. The alternative answers presented generally include those who are not operationally involved.
41. Correct answer d. Ideal standards are those achieved under ideal working conditions and are, therefore, difficult to achieve under realistic working conditions. Practical standards are developed under actual working conditions and are, therefore, a better motivating target for manufacturing personnel.
42. Correct answer d. The price agreed upon by the purchasing manager and the appropriate level of company management is the most reasonable selection as it takes into consideration actual experience and future plans for requiring the component.
43. Correct answer d. Standards that reflect current experience are realistic and will provide the best information for decision making.
44. Correct answer b. The fact that Michigan's budgeting process was based on a bottom-up philosophy would indicate that standards were being set by those with operational knowledge. This is inconsistent with the consultant's findings that labor standards are too tight.
45. Correct answer c. Simple regression analysis estimates the relationship between the dependent variable and one independent variable while multiple regression analysis estimates the relationship between the dependent variable and two or more independent variables.
46. Correct answer c. Using linear regression, there are three criteria for selecting the independent variable: economic plausibility, goodness of fit, and the slope of the regression line.

47. Correct answer d. With a significant change in labor productivity, the labor rate is no longer “purchasing” the same amount of product. Therefore, there is a significant impact on the reliability of the model.

48. Correct answer d.

$$\begin{aligned} \text{Sales (S)} &= \$10,000 + \$2.50A \quad (A = \$1,000) \\ &= \$10,000 + \$2.50 (\$1,000) \\ &= \$10,000 + \$2,500 \\ &= \underline{\$12,500} \end{aligned}$$

49. Correct answer c.

$$\begin{aligned} Y &= 1.54X + 5.23 \\ &= 1.54 (10) + 5.23 \\ &= 15.4 + 5.23 \\ &= \underline{20.63} \end{aligned}$$

50. Correct answer b. Learning curve analysis is a function that shows how labor hours per unit decline as units of production increase due to workers learning and becoming better at their jobs.

51. Correct answer a. In the cumulative average-time learning model, the cumulative average time per unit declines by a constant percentage each time the cumulative quantity of units produced doubles.

Unit 1	10,000 hrs.	
Unit 2	8,000 hrs.	(10,000 x .80)
Unit 4	6,400 hrs.	(8,000 x .80)
Unit 8	<u>5,120 hrs.</u>	(6,400 x .80)

52. Correct answer d. In the cumulative average-time learning model, the cumulative average time per unit declines by a constant percentage each time the cumulative quantity of units produced doubles.

53. Correct answer d.

$$\begin{aligned} \text{Average hrs. for 20 units} &= \frac{(5,000 + 3,000)}{20 \text{ units}} \\ \text{Average hrs. for 10 units} &= \frac{5,000}{10 \text{ units}} \\ &= 400 \text{ hours} \div 500 \text{ hours} \\ &= \underline{80\% \text{ Learning rate}} \end{aligned}$$

54. Correct answer b. Cumulative direct labor hours = 8 units x 5,120 hours\*  
= 40,960 hours

\* Unit 1 10,000 hrs.  
Unit 2 8,000 hrs. (10,000 x .80)  
Unit 4 6,400 hrs. (8,000 x .80)  
Unit 8 5,120 hrs. (6,400 x .80)

55. Correct answer b.

Unit 4	\$9,800 cost	(\$14,000 x .70)
Unit 8	\$6,860 cost	(\$9,800 x .70)

$$\begin{aligned} \text{Total Cost} &= 8 \text{ units} \times \$6,860 \text{ cost per unit} \\ &= \underline{\$54,880} \end{aligned}$$

56. Correct answer c. Learning curve =  $16 \text{ hours} \div 20 \text{ hours}$   
 = 80%

Hours per batch:	Batch 4	12.80 hours	(16 hours x .80)
	Batch 8	10.24 hours	(12.80 hours x .80)

Average hrs. Units 201-400 =  $(400 \text{ units} \times 10.24) - (200 \text{ units} \times 12.80)$   
 =  $4,096 - 2,560$   
 =  $1,536 \text{ hours} \div 200 \text{ units}$   
 = 7.68 hours

57. Correct answer b.	<u>Units</u>	<u>Average cost/unit</u>	
	4	\$9,800	(\$14,000 x .70)
	8	<u>\$6,860</u>	(\$9,800 x .70)

58. Correct answer a. Total hours for next 7 units = 8 unit total hours – first unit hours  
 =  $(8 \times 5,120^*) - 10,000$   
 =  $40,960 - 10,000$   
 = 30,960 hours

\* Unit 1 10,000 hrs.  
 Unit 2 8,000 hrs. (10,000 x .80)  
 Unit 4 6,400 hrs. (8,000 x .80)  
 Unit 8 5,120 hrs. (6,400 x .80)

59. Correct answer a.	Batch 1	= $800 \div 4 \text{ units}$	= 200 per unit
	Batch 2	= $(800 \times .9) \div 4 \text{ units}$	= 180 per unit
	Batch 4	= $(1,440 \times .9) \div 8 \text{ units}$	= 162 per unit

Hours for next 12 units =  $(16 \times 162) - 800 \text{ for first 4 units}$   
 =  $2,592 - 800$   
 = 1,792 hours

60. Correct answer a.	Unit 4	\$9,800	(\$14,000 x .70)
	Unit 8	\$6,860	(\$9,800 x .70)

Cost of next 7 units =  $(8 \times \$6,860) - \$20,000 \text{ for first unit}$   
 =  $\$54,880 - \$20,000$   
 = \$34,880

61. Correct answer a.  
 Expected value =  $(.2 \times \$60,000) + (.3 \times \$30,000) + (.3 \times \$10,000) - (.2 \times \$4,000)$   
 =  $\$12,000 + \$9,000 + \$3,000 - \$800$   
 = \$23,200



62. Correct answer b.

$$\begin{array}{lcl} \text{Plan 1 expected value} & = (\$300,000 \times .4) + (\$240,000 \times .6) & = \$264,000 \\ \text{Plan 2 expected value} & = (\$370,000 \times .4) + (\$180,000 \times .6) & = \underline{\$256,000} \\ & \text{Plan 1 is greater by} & \underline{\underline{\$ 8,000}} \end{array}$$

63. Correct answer d. Recommend Vendor S which has the least cost (initial purchase plus the cost of failure) as shown below.

$$\begin{array}{lcl} \text{Vendor P} & = (100,000 \times \$35) + [(100,000 \times .10) \times (\$35 + \$25)] & = \$4.1 \text{ million} \\ \text{Vendor Q} & = (100,000 \times \$37) + [(100,000 \times .06) \times (\$37 + \$25)] & = \$4.072 \text{ million} \\ \text{Vendor R} & = (100,000 \times \$39) + [(100,000 \times .03) \times (\$39 + \$25)] & = \$4.092 \text{ million} \\ \text{Vendor S} & = (100,000 \times \$40) + [(100,000 \times .01) \times (\$40 + \$25)] & = \$4.065 \text{ million} \end{array}$$

64. Correct answer c. For both actions, the \$650,000 is sunk cost and should not be considered.

$$\begin{array}{lcl} \text{Expected value of investing} & = .6 (\$15.0 \text{ mil} - \$9.5 \text{ mil}) + .4 (\$2.0 \text{ mil} - \$9.5 \text{ mil}) \\ & = \$3.3 \text{ mil} - \$3.0 \text{ mil} \\ & = \underline{\underline{\$300,000}} \end{array}$$

$$\text{Value of not investing} = \underline{\underline{(\$100,000)}} \text{ additional costs to be paid}$$

65. Correct answer d. Ranking is B: \$34,000, C: \$30,000, A: \$26,000 calculated as follows.

$$\begin{array}{lcl} \text{Investment A} & = .3 (-\$20,000) + .1 (-\$10,000) + .3 (\$30,000) + .2 (\$70,000) + .1 (\$100,000) \\ & = -\$6,000 + -\$1,000 + \$9,000 + \$14,000 + \$10,000 \\ & = \underline{\underline{\$26,000}} \\ \text{Investment B} & = .2 (-\$20,000) + .2 (-\$10,000) + .2 (\$30,000) + .2 (\$70,000) + .2 (\$100,000) \\ & = -\$4,000 + -\$2,000 + \$6,000 + \$14,000 + \$20,000 \\ & = \underline{\underline{\$34,000}} \\ \text{Investment C} & = .3 (-\$20,000) + .1 (-\$10,000) + .2 (\$30,000) + .3 (\$70,000) + .1 (\$100,000) \\ & = -\$6,000 + -\$1,000 + \$6,000 + \$21,000 + \$10,000 \\ & = \underline{\underline{\$30,000}} \end{array}$$

66. Correct answer c.

$$\begin{array}{lcl} \text{Increased units sold} & = .1 (15,000) + .35 (30,000) + .1 (45,000) + .25 (60,000) + .2 (75,000) \\ & = 1,500 + 10,500 + 4,500 + 15,000 + 15,000 \\ & = 46,500 \text{ units} \\ \text{Increased profit} & = [46,500 \times (\$5.20 - \$3.20)] - \$40,000 \\ & = \$93,000 - \$40,000 \\ & = \underline{\underline{\$53,000}} \end{array}$$

67. Correct answer b.

$$\begin{array}{lcl} \text{Expected return} & = .1 (-.20) + .2 (.05) + .4 (.15) + .2 (.20) + .1 (.30) \\ & = -.02 + .01 + .06 + .04 + .03 \\ & = \underline{\underline{.12 \text{ or } 12\%}} \end{array}$$

68. Correct answer a. Alternative #1 has the highest expected value as shown below.

$$\begin{aligned}\text{Alternative \#1} &= .1(\$50,000) + .2(\$75,000) + .4(\$100,000) + .3(\$150,000) \\ &= \underline{\$105,000}\end{aligned}$$

$$\begin{aligned}\text{Alternative \#2} &= .1(\$50,000) + .2(\$75,000) + .45(\$100,000) + .25(\$150,000) \\ &= \$102,500\end{aligned}$$

$$\begin{aligned}\text{Alternative \#3} &= .1(\$50,000) + .2(\$75,000) + .4(\$100,000) + .3(\$125,000) \\ &= \$97,500\end{aligned}$$

$$\begin{aligned}\text{Alternative \#4} &= .1(\$150,000) + .2(\$100,000) + .4(\$75,000) + .3(\$50,000) \\ &= \$80,000\end{aligned}$$

69. Correct answer c. Recommend purchasing 12,000 based on expected demand of 11,400.

$$\begin{aligned}\text{Expected demand} &= .1(8,000) + .4(10,000) + .3(12,000) + .2(15,000) \\ &= 11,400\end{aligned}$$

70. Correct answer b. Incorporating non-financial as well as financial measures is beneficial to an organization. The other alternatives given are disadvantages or misuses of traditional budgets.

71. Correct answer c. A financial budget consists of the capital expenditure budget, the cash budget detailing inflows, outflows, and borrowing needs, and the balance sheet. These statements combined with the budgeted income statement produce the Statement of Cash Flows.

72. Correct answer d. The production budget and the purchases budget must be completed before the cost of goods sold budget can be completed. An administrative budget may also be dependent on the planned sales and manufacturing activity and is generally completed after all production revenues and costs have been budgeted.

73. Correct answer c. The revenue or sales budget provides the foundation for a master budget and is therefore prepared first. The production budget is dependent on the amount of projected sales and the direct material budget is based on the forecasted production quantity.

74. Correct answer c. The zero-based budgeting approach looks at operations as if they were just beginning and requires justification for all revenues and expenditures.

75. Correct answer a. Flexible budgets are based on actual output rather than comparing output to a static budget. Flexible budgets make it easier to identify realistic positive and negative variances.

76. Correct answer d. Flexible budgets are based on the output actually achieved and therefore provide a realistic comparison of budgeted and actual revenue and costs.

77. Correct answer d. Flexible budgets are based on the output actually achieved or expected rather than a static amount. Therefore, the required labor for the expected increase in business can be calculated.

78. Correct answer a. Netco's sales will decrease by \$1,050,000 as shown below.

Item 1 =	(200,000 x .8) x (\$50 x 1.1)	=	
=	160,000 x \$55	=	\$ 8,800,000
Item 2 =	(160,000 x .75) x \$10	=	1,200,000
Item 3 =	(300,000 x 1.05) x \$30	=	<u>9,450,000</u>
	Total sales revenue		\$19,450,000
	Original budget		<u>-20,500,000</u>
	Revenue decrease		<u>\$-1,050,000</u>

79. Correct answer b. Hannon's budget for purchased inventory should be \$540,000.

August	\$728,000 ÷ 1.3	=	\$560,000 x .75	=	\$420,000
September	\$624,000 ÷ 1.3	=	\$480,000 x .25	=	<u>120,000</u>
					<u>\$540,000</u>

80. Correct answer c. Streeter should produce 78,000 units as shown below.

Production for 2 <sup>nd</sup> quarter	72,000 x .5	=	36,000
Production for 3 <sup>rd</sup> quarter	84,000 x .5	=	<u>42,000</u>
Production			<u>78,000</u>

81. Correct answer c. Ming should plan to produce 7,133 units next fiscal year.

$$\begin{aligned} \text{Sales} - \text{Beg. Inventory} + \text{Ending Inventory} \\ 6,300 - 470 + 590 &= 6,420 \text{ units} \\ \text{To cover 10\% scrap} &= 6,420 \div .9 = \underline{7,133 \text{ units}} \end{aligned}$$

82. Correct answer b. Savior's production budget for the first quarter is 71,700 units.

Daily sales	=	67,500 ÷ (360 ÷ 4)	=	750 units sold per day
10 days' sales	=	750 x 10 days	=	7,500 units for ending inventory
Production	=	67,500 + 7,500 - (3,500 - 200)	=	<u>71,700 units</u>

83. Correct answer d. Streeter should produce 86,000 units as shown below.

$$\begin{aligned} \text{Ending inventory} &= (72,000 \times .5) - 8,000 = 28,000 \text{ units} \\ \text{Production} &= 72,000 - 28,000 + (84,000 \times .5) = \underline{86,000 \text{ units}} \end{aligned}$$

84. Correct answer a. Rombus should produce 3,700 units as shown below.

$$\begin{aligned} \text{Production} &= \text{Sales} - \text{Beg. Inventory} + \text{Ending inventory} \\ &= 4,000 - 900 + 600 \\ &= \underline{3,700 \text{ units}} \end{aligned}$$

85. Correct answer c. The cost of one laminated putter head is \$52 calculated as follows.

Production	=	8,200 – 300 + 100	=	8,000 forged units
Direct labor	=	8,000 x .25 hrs.	=	2,000 hours for forged units
	=	2,000 x 1.0 hrs.	=	2,000 hours for laminated units
Variable O/H/hr.	=	\$25,000 ÷ 4,000 hrs.	=	\$6.25/hr.
Fixed O/H/hr.	=	\$15,000 ÷ 4,000 hrs.	=	\$3.75/hr.
Laminated putter head cost:				
		Steel		\$ 5.00
		Copper		15.00
		Direct labor		22.00
		Variable overhead		6.25
		Fixed overhead		<u>3.75</u>
		Total cost		<u>\$52.00</u>

86. Correct answer c. The units to be purchased in February total 6,100 units as shown below.

February unit sales	=	(\$66,000 + \$44,000) ÷ \$20	=	5,500 units
March unit sales	=	\$150,000 ÷ \$20	=	7,500 units
February purchase	=	(5,500 x .7) + (7,500 x .3)	=	<u>6,100 units</u>

87. Correct answer b. Stevens should purchase \$675,000 of Geo and \$300,000 of Clio.

Production components	=	20,000 first period + (20,000 x .25) second period	=	25,000
Pounds of Geo	=	(25,000 x 2 lbs.) – 5,000 inventory	=	45,000 lbs.
Cost of Geo	=	45,000 x \$15	=	<u>\$675,000</u>
Pounds of Clio	=	(25,000 x 1.5 lbs.) – 7,500 inventory	=	30,000 lbs.
Cost of Clio	=	30,000 x \$10	=	<u>\$300,000</u>

88. Correct answer d. The amount that should be budgeted for direct labor is \$105,000.

Cost of production	=	\$400,000 - \$10,000 + \$25,000	=	\$415,000
Cost of Direct labor + O/H	=	\$415,000 - \$100,000 material	=	\$315,000
Cost of Direct labor	=	\$315,000 ÷ 3*	=	<u>\$105,000</u>

\*Overhead = 2 x direct labor

89. Correct answer d. McFadden's expected shipping costs total \$20,800 as shown below.

Shipping costs	=	(9,600 lbs. x \$.50/lb.) + \$16,000 fixed cost
	=	<u>\$20,800</u>

90. Correct answer a. Swan needs to purchase 85,000 yards of fabric as shown below.

$$\begin{array}{rcl} \text{Sales} - \text{Ending Inventory} + \text{Beginning Inventory} & = & \\ 90,000 - 25,000 + 20,000 & = & \underline{85,000 \text{ yards}} \end{array}$$

91. Correct answer a. Manoli should purchase goods totaling \$40,820 as shown below.

$$\begin{array}{rcl} \text{November:} & \$58,000 \times .65 & = \\ & \$37,700 \times .70 & = & \$26,390 \\ \text{December:} & \$74,000 \times .65 & = \\ & \$48,100 \times .30 & = & \underline{\$14,430} \\ & \text{Total purchases} & & \underline{\underline{\$40,820}} \end{array}$$

92. Correct answer c. The company should purchase 8,700 pounds of material as shown below.

$$\begin{array}{rcl} \text{Units to be completed} & = & 2,000 - 250 + 325 & = & 2,075 \\ \text{Pounds required} & = & 2,075 \text{ units} \times 4 \text{ lbs.} & = & 8,300 \\ \text{Pounds purchased} & = & 8,300 - 400 + 800 & = & \underline{8,700} \end{array}$$

93. Correct answer d. The number of shoes to be purchased is 404,000 as shown below.

$$\begin{array}{rcl} \text{Dolls to be completed} & = & 200,000 - 12,000 + 15,000 & = & 203,000 \\ \text{Shoes needed} & = & 203,000 \times 2 & = & 406,000 \\ \text{Shoes purchased} & = & 406,000 - 20,000 + 18,000 & = & \underline{404,000} \end{array}$$

94. Correct answer c. The budget for Maker's July purchases is \$364,500 as shown below.

$$\begin{array}{rcl} \text{July:} & \$600,000 \times .60 & = \\ & \$360,000 \times .85 & = & \$306,000 \\ \text{August:} & \$650,000 \times .60 & = \\ & \$390,000 \times .15 & = & \underline{58,500} \\ & \text{Total purchases} & & \underline{\underline{\$364,500}} \end{array}$$

95. Correct answer b. Beginning finished goods inventory would have been produced in a prior period and, therefore, should not be included on a projected schedule of cost of goods manufactured.

96. Correct answer d. Freight charges paid for the delivery of raw materials are generally associated with the cost of making a product and not included as part of overhead.

97. Correct answer a. Valley's predetermined overhead application rate is \$2.09.

$$\begin{array}{l} (\text{Indirect material} + \text{Indirect labor} + \text{Utilities}) \div \text{Production} \\ (\$1,000 + \$10,000 + \$12,000) \div 11,000 = \underline{\underline{\$2.09}} \end{array}$$

98. Correct answer b. Scurry's cost of goods sold is \$600,000 as shown below.

$$\begin{array}{l} \text{Beg. finished goods} + \text{Cost of goods manufactured} - \text{Ending finished goods} \\ \$100,000 + \$700,000 - \$200,000 = \underline{\underline{\$600,000}} \end{array}$$

99. Correct answer a. Tut's selling and administrative costs total \$652,760 as shown below.

Variable costs	$(\$18.60 \times .90) \times \$24,000$	=	\$401,760
Step costs	$(\$85,000 \div 17) \times 15$	=	75,000
Fixed costs		=	<u>176,000</u>
	Total costs		<u>\$652,760</u>

100. Correct answer c. Granite's accounts receivable balance will be \$146,000 as shown below.

May A/R balance	=	15% of March + 40% of April
	=	.15 (\$280,000) + .4 (\$260,000)
	=	<u>\$146,000</u>

101. Correct answer a. The employee taxes withheld and due to be remitted in July is the only item listed that actually affects cash flows in the month of July.

102. Correct answer c. The expected cash collections for Brown total \$108,000.

Cash collections	=	$\$8,000 + [(\$72,000 \div .6) \times .5] + (\$100,000 \times .4)$
	=	$\$8,000 + \$60,000 + \$40,000$
	=	<u>\$108,000</u>

103. Correct answer c. Cooper's cash balance will increase \$112,500 as shown below.

Opening balance	\$100,000	February A/R	+800,000
A/R balance	+300,000	February A/P	- 425,000
A/P balance	- 500,000	February Other	- 175,000
January A/R	+700,000	March A/R*	+200,000
January A/P	- 350,000	March A/P**	- 112,500
January Other	- 150,000	March Other	<u>- 175,000</u>
		Cash balance	\$212,500
		Less opening	<u>100,000</u>
		Cash increase	<u>\$112,500</u>

\* \$500,000 x .4

\*\* \$225,000 x .5

104. Correct answer b. Planned net accounts receivable balance as of December 31 is \$294,000:

November	$(\$480,000 \times .8 \times .25) =$	\$96,000
December	$(\$450,000 \times .8 \times .55) =$	<u>\$198,000</u>
Total AR as of December		<u>\$294,000</u>

105. Correct answer a. Wallstead's April cash collections total \$343,000 as shown below.

March discounted collections	=	$(\$370,000 \times .5) \times .98$	=	\$181,300
March undiscounted collections	=	$\$370,000 \times .3$	=	111,000
February collections	=	$\$340,000 \times .15$	=	<u>51,000</u>
		Total collections		<u>\$343,000</u>

106. Correct answer a. Tip-Top's first quarter collections total \$811,000 as shown below.

Collectible sales first quarter	=	$\$855,000 \times .95$	=	\$812,250
Daily collectible sales	=	$\$812,250 \div 90 \text{ days}$	=	\$9,025
40 days of sales	=	$\$9,025 \times 40 \text{ days}$	=	\$361,000
Total collections	=	$\$361,000 + \$450,000^*$	=	<u>\$811,000</u>

\*Net A/R from last quarter

107. Correct answer b. Monroe will need to borrow \$70,000 as shown below.

	<u>January</u>	<u>February</u>
Opening balance	\$ 30,000	\$ 0
Plus collections	200,000	200,000
Less purchases*	210,000	240,000
Less other expenses	<u>20,000</u>	<u>20,000</u>
Closing balance	\$ 0	\$-60,000

$$\text{Required borrowing} = \$60,000 + \$10,000 = \underline{\underline{\$70,000}}$$

\*January = Feb. sales  $\$350,000 \times .6$   
 February = March sales  $\$400,000 \times .6$

108. Correct answer c. Prudent's May cash receipts budget is \$735,000 as shown below.

Collections from April sales	=	$(\$700,000 \times .8) \times .25$	=	\$140,000
May cash sales	=	$\$750,000 \times .2$	=	150,000
May A/R collections	=	$(\$750,000 \times .8) \times .70$	=	420,000
Sale of equipment				<u>25,000</u>
		Total cash collections		<u>\$735,000</u>

109. Correct answer b. ANNCO's January cash collections total \$174,500 as shown below.

November sales collections	=		=	\$ 49,500
December sales collections	=	$(\$162,000 \div .9) \times .6$	=	108,000
January sales collections	=	$\$170,000 \times .1$	=	<u>17,000</u>
		Total cash collections		<u>\$174,500</u>

110. Correct answer c. Brooke's February cash balance is \$232,500 as shown below.

	January		February
Opening balance	\$200,000		\$ 55,000
Accounts receivable	300,000 (Dec.)		420,000 (700,000 x .6)
Accounts receivable	280,000 (700,000 x .4)		320,000 (800,000 x .4)
Accounts payable	400,000 (Dec.)		175,000 (350,000 x .5)
Accounts payable	175,000 (350,000 x .5)		212,500 (425,000 x .5)
Other expense	<u>150,000</u>		<u>175,000</u>
Cash balance	\$ 55,000		<u>\$232,500</u>

111. Correct answer c. Health Foods' March cash receipts total \$242,000 as shown below.

March cash sales	=	$\$250,000 \times .6$	=	\$150,000
March sales collections	=	$(\$250,000 \times .4 \times .5)$	=	50,000
February sales collections	=	$(\$240,000 \times .4 \times .3)$	=	28,800
January sales collections	=	$(\$220,000 \times .4 \times .15)$	=	<u>13,200</u>
		Total cash collections		<u>\$242,000</u>

112. Correct answer c. The company will need to borrow \$11,000 in January as shown below.

Opening balance	\$ 24,900	
January collections	86,000	(\$32,000 + \$54,000)
January expenses	<u>106,500</u>	
Closing balance	\$ 4,400	
Less minimum balance	<u>15,000</u>	
Borrowing need	\$ 10,600	rounded to <u>\$11,000</u>

113. Correct answer b. Johnsen's budgeted cash receipts total \$684,500 as shown below.

September cash sales	=	$(\$800,000 \times .3)$	=	\$240,000
September sales collections	=	$(\$800,000 \times .7 \times .2)$	=	112,000
August sales collections	=	$(\$650,000 \times .7 \times .5)$	=	227,500
July sales collections	=	$(\$600,000 \times .7 \times .25)$	=	<u>105,000</u>
		Total cash collections		<u>\$684,500</u>



114. Correct answer c. Mountain Mule will need to borrow \$10,000 as shown below.

	January	February	March
Opening balance	\$85,000	\$60,000	\$ 0
Collections	---	---	60,000
Purchases	---	35,000	40,000
Operating expenses	<u>25,000</u>	<u>25,000</u>	<u>25,000</u>
Closing balance	\$60,000	\$ 0	\$ -5,000

With required balance of \$5,000 and negative cash of \$5,000, need to borrow \$10,000.

### Section C: Performance Management

115. Correct answer b. A static budget is based on the level of output planned at the start of the budget period and does not change no matter what the level of actual output. Comparison of actual activities to static budget levels is difficult and often misleading.
116. Correct answer b. If a company experiences an increase in sales volume, the actual revenue will be greater than the master budget revenue (favorable variance) and the actual costs will be greater than the master budget costs (unfavorable variances).
117. Correct answer b. The use of a standard cost system has several benefits but they are generally based on quantitative factors and not qualitative characteristics.
118. Correct answer a. For flexible budgets, variable costs are given per unit so that comparisons can be readily made at various levels of output. Fixed costs are expected to remain the same over the relevant range and, therefore, are given in total.
119. Correct answer d. Flexible budgets are preferable for both planning purposes and performance reporting as the flexible budget can be based on the actual amount of output and then compared to the actual revenue and costs.
120. Correct answer c. The sales-volume variance is \$16,000 favorable as shown below.

	<u>Flexible Budget</u>	<u>Static Budget</u>
Units	100,000	80,000
Sales dollars	\$200,000	\$160,000
Variable costs	120,000	96,000
Fixed costs	<u>40,000</u>	<u>40,000</u>
Operating income	<u>\$ 40,000</u>	<u>\$ 24,000</u>

Sales volume variance = \$40,000 - \$24,000 = \$16,000 F

121. Correct answer c. Efficiency variances are sometimes referred to as usage variances and measure quantity used. Material usage and labor efficiency (usage) are likely to be related, e.g., poor quality material will likely cause excess usage and require additional labor.
122. Correct answer d. A static budget is based on projected output while a flexible budget is based on actual output. As a result, the actual cost of the actual output can be compared to the budgeted cost for the actual output.
123. Correct answer c. The use of management by exception reporting requires the same amount of advanced planning as any other type of variance reporting. The time savings of management by exception arises in potentially investigating fewer variances.
124. Correct answer b. The standard variable overhead rate per direct labor hour is \$4.00 calculated as follows.

Standard hours/unit	=	10,000 hours ÷ 5,000 units		
	=	2 hours/unit		
Standard hours for output	=	4,500 units x 2 hours		
	=	9,000 hours		
VOH efficiency variance: (9,000 – 9,600) x R	=		=	-\$2,400
		-600R	=	-\$2,400
		R	=	<u>\$4.00</u>

125. Correct answer d. The actual wage rate per hour is \$7.50 and the actual hours worked equals 38 as shown below.

Actual hours:	(X – 40) x \$7	=	-14	
	X – 40	=	-2	
	X	=	<u>38 hours</u>	
Wage rate:	(X - \$7) x 38	=	19	
	X - \$7	=	.50	
	X	=	<u>\$7.50</u>	

126. Correct answer a. If variable overhead is applied on the basis of direct labor hours and overhead spending is \$25,000 less than expected, it means that labor was very efficient, e.g., highly skilled labor.
127. Correct answer c. With a single supplier, the purchasing manager should not be held responsible for the price variance. The standard material price should be increased.
128. Correct answer c. The conclusion regarding the operating income is correct but the variance information could be more specific, e.g., lower sales, higher variable cost, and higher fixed costs all contributed to the operating income variance.
129. Correct answer b. The use of lower-skilled labor is not likely to lead to a favorable direct labor efficiency variance but is more likely to cause this variance to be unfavorable. Lower-skilled labor could also affect the material quantity variance negatively.

130. Correct answer b. The material variance should be investigated since it is \$11,000 which is greater than 10% of the budget (\$100,000 x .1). The direct labor variance is \$4,000 which is less than 10% of budget (\$50,000 x .1) so it would not be investigated under the company policy.
131. Correct answer c. A favorable direct labor price variance could indicate that lower-skilled labor is being used that what was planned. This could lead to unfavorable labor use and material usage variances that more than offset the favorable price variance.
132. Correct answer d. Frisco's purchase price variance is \$10,800 F calculated as follows.

$$\begin{array}{l}
 \text{Price per unit purchased: } \$583,200 \div 108,000 = \$5.40 \\
 \text{Standard price per unit: } \$16.50 \div 3 = \$5.50 \\
 \text{Purchase price variance } (\$5.50 - \$5.40) \times 108,000 = \underline{\underline{\$10,800 \text{ F}}}
 \end{array}$$

133. Correct answer b. SBL's material price variance is \$300 F as shown below.

$$\begin{array}{l}
 \text{Price variance} = (\text{Actual price} - \text{Standard price}) \times \text{Actual quantity} \\
 = (\$7.90 - \$8.00) \times 3,000 \\
 = \underline{\underline{\$300 \text{ F}}}
 \end{array}$$

134. Correct answer c. The raw material price variance (purchase price variance) is \$10,000 U as shown below.

$$\begin{array}{l}
 \text{Price variance} = (\text{Actual price} - \text{Standard price}) \times \text{Actual quantity} \\
 = (\$2.02 - \$2.00) \times 500,000 \\
 = \underline{\underline{\$10,000 \text{ U}}}
 \end{array}$$

135. Correct answer d. The actual direct labor hours used by Lee Manufacturing is 12,100 calculated as follows.

$$\begin{array}{l}
 \text{Efficiency variance: } (\text{Actual quantity} - \text{Standard quantity}) \times \text{Standard price} \\
 \text{Standard quantity} = 6,000 \text{ units} \times 2 \text{ hours per unit} \\
 = 12,000 \text{ hours} \\
 \text{Actual hours: } (X - 12,000) \times \$15 = \$1,500 \\
 \qquad \qquad \qquad X - 12,000 = 100 \\
 \qquad \qquad \qquad X = \underline{\underline{12,100}}
 \end{array}$$

136. Correct answer b. Douglas' direct material variance is \$2,000 U as shown below.

$$\begin{array}{l}
 \text{Material standard price/unit} = \$15,000 \div 10,000 \\
 = \$1.50 \\
 \text{Material variance} = (\$1.50 \times 12,000) - \$20,000 \\
 = \$18,000 - \$20,000 \\
 = \underline{\underline{\$2,000 \text{ U}}}
 \end{array}$$

137. Correct answer a. The rate variance will show how the price paid for direct labor varies from the standard price. The efficiency variance shows how the number of direct labor hours used varies from the standard number of direct labor hours.

138. Correct answer b. Employees in the Shipping Department have nothing to do with the amount of material used in the production process. All of the other answers could affect the quantity of material used.

139. Correct answer c. The company had a favorable labor price of \$33,000 as shown below.

$$\begin{aligned} X - \$18,000 &= \$15,000 \\ X &= \underline{\underline{\$33,000 F}} \end{aligned}$$

140. Correct answer d. Cordell's production volume variance is \$30,000 U as shown below.

$$\begin{aligned} \text{Standard fixed cost per unit} &= \$600,000 \div 200,000 \\ &= \$3 \text{ per unit} \\ \text{Product volume variance} &= (190,000 - 200,000) \times \$3 \\ &= \underline{\underline{\$30,000 U}} \end{aligned}$$

141. Correct answer b. If variable overhead is applied on the basis of direct labor hours and the number of direct labor hours used is favorable, then the variable overhead efficiency (usage) variance must also be favorable.

142. Correct answer b. Harper's total overhead spending variance is \$115,000 favorable calculated as follows.

$$\begin{aligned} \text{Variable overhead} &= \text{Actual total overhead} - \text{Fixed overhead} \\ &= \$1,600,000 - \$1,500,000 \\ &= \$100,000 \\ \text{Spending variance} &= (\text{Input} \times \text{Standard rate}) - \text{Actual variable overhead} \\ &= (430,000 \times \$0.50) - \$100,000 \\ &= \underline{\underline{\$115,000 F}} \end{aligned}$$

143. Correct answer d. JoyT's variable overhead spending variance is \$22,000 favorable calculated as follows.

$$\begin{aligned} \text{Spending variance} &= (\text{Input} \times \text{Standard rate}) - \text{Actual variable overhead} \\ &= (10,300 \times \$60^*) - \$596,000 \\ &= \underline{\underline{\$22,000 F}} \end{aligned}$$

$$*\$600,000 \div 10,000$$

144. Correct answer d. A fixed overhead volume variance is dependent on quantity, above or below the planned quantity. An unfavorable volume variance means that production was less than planned.

145. Correct answer d. The spending variance is the difference between actual and budgeted rates times the actual base input.
146. Correct answer d. All the departments bear some responsibility for the usage variance: Marketing because the rush order was accepted, Purchasing because of the delay in ordering the materials, and Production for bypassing the normal inspection process.
147. Correct answer d. The materials quantity variance does reflect the fact that 1,000 units were produced rather than the planned 900 units. By indicating the standard usage is 3,000 (3 per unit), the standard usage for the actual output is compared with the actual material usage.
148. Correct answer b. Unfavorable material usage variances are generally caused by inferior materials or lower-skilled workers. Unfavorable usage variances shown that more material than the standard quantity was used; this is not likely to be caused by lower-than-planned production.
149. Correct answer b. A sales team is generally only accountable for sales dollars; this type of responsibility center is, therefore, a revenue center.
150. Correct answer d. If the Sales Department operates as a profit center and accepts a rush order, it should incur the extra cost of the rush order. The overtime required should not be charged to the Production Department as the manager would then be inclined to reject the order as not beneficial to the department goals.
151. Correct answer b. If corporate and support costs are being allocated to divisions and departments, there is very little incentive for central managers to control costs no matter how much pressure they receive from profit-center managers.
152. Correct answer b. The use of budgeted rates and standard hours ensures that all departments know what rates will be charged and how many hours will be charged. This allows usage to be properly planned and encourages service providers to be efficient.
153. Correct answer c. A transfer price is the price one business unit charges for a product or service supplied to another business unit of the same organization. This pricing structure does not apply to external customers.
154. Correct answer c. The management of the two divisions should negotiate the transfer price. Negotiation is most likely to ensure that both managers are satisfied with the resultant price.
155. Correct answer d. A market-based transfer price will motivate the manager of the selling division to be efficient in order to earn the greatest profit or contribution margin.
156. Correct answer c. Selling the product internally allows the division to avoid paying sales commissions and incurring the cost of collections thus justifying a transfer price that is lower than the market price. Other costs such as promotion and advertising might also be avoided.
157. Correct answer c. Dual pricing promotes goal congruence, e.g., the selling division receives full cost plus markup price which allows the division to earn a profit while the buying division pays the market price and is no worse off than if purchasing from an outside vendor. The organization as a whole is unaffected by the internal transfers.

158. Correct answer a. Since the Fabrication Division has excess capacity, the minimum price to be charged would be \$21 to cover the variable manufacturing costs. The selling and distribution costs will be avoided, and the fixed costs will be incurred whether or not the 4,500 units are sold to the Electronic Assembly Division.
159. Correct answer d. As long as Green Division has excess capacity and does not have to turn down any sales at a 60% markup, Green will transfer product to Red Division at cost plus 10%.
160. Correct answer d. The company should use all the categories of performance measurement to ensure that it remains competitive and profitable.
161. Correct answer c. Earnings per share depend not only on net income but also on the number of shares outstanding. Managers generally have no control over the number of shares issued and should not be measured on earnings per share.
162. Correct answer d. Measuring performance on the total dollars processed would lead to paying attention to those claims with the greatest dollar value and ignoring smaller claims, not a good process for customer satisfaction.
163. Correct answer b. Cooper is expected to fill and deliver orders accurately at the least cost to the company. Measuring his performance on the percentage of on-time and accurate orders plus the cost to fill and deliver orders would result in Cooper pursuing the proper goals.
164. Correct answer b. Morgan is responsible for assisting customers accurately and quickly. The number of calls received regarding a new product should be the concern of the product developers; this might affect Morgan's staff's ability to shorten customer "hold" time but is not her responsibility.
165. Correct answer d. The Repair and Maintenance Department is expected to keep the production equipment in good working order to facilitate keyboard production. If the production departments are satisfied, it is a good indication that Repair and Maintenance is doing a good job.
166. Correct answer c. A budgeted rate should be established so that all departments know in advance how much they will be charged for actual usage. Using this rate also encourages cost control in the Computer Department.
167. Correct answer d. In order to increase residual income, the expected return on the new project must be higher than the cost of capital (required rate of return) but lower than the current return on investment.
168. Correct answer b. All projects with a projected ROI that is greater than the required rate of return (cost of capital) would add value to KHD Industries. Without capital restrictions, Projects B, C, and D should be selected.
169. Correct answer b. Division B has the highest actual return on investment and 8% return on sales, the second highest return. The division with the highest return on sales actually failed to meet its target return on investment.
170. Correct answer b. Since the system was constructed on the basis of the anticipated number of hours of usage, it is reasonable to base the allocation on the same measure.

171. Correct answer d. As long as the project return is above the cost of capital, the manager of the Construction Equipment Division will accept the project. The manager of the Household Appliances Division, measured on the basis of ROI, will not accept a projected rate of return of 14% when the current ROI of the division is 16%.
172. Correct answer d. Using residual income as a performance measure means that a business unit should continue to expand as long as projects earn a return in excess of the required rate of return.
173. Correct answer d. To focus on both long-term and short-term objectives, a variety of performance measures should be used. Using a single measure such as ROI can cause negative actions such as rejecting projects that meet the hurdle but might adversely affect the division's rate of return.
174. Correct answer a. The four perspectives of the balanced scorecard include options b, c, and d plus the customer perspective. Competitor business strategies are not included.
175. Correct answer d. The balanced scorecard is not based on scientific management theory but is a flexible means of translating a company's strategy into a comprehensive set of performance measures.

#### **Section D: Cost Management**

176. Correct answer b. The variable costs per flight would include fuel, food service, and landing fees. Other costs mentioned such as salaries, depreciation, marketing, and communications would not vary with individual flights.
177. Correct answer b. Sales commissions on cars would be part of the cost of the car dealership, not the manufacturer. Options a and d are direct material costs while option c would be charged to manufacturing overhead.
178. Correct answer a. Cost A appears to be semi-variable or mixed as it varies between quantities but does not vary consistently so a portion must be fixed and a portion variable. Cost B is fixed in the relevant range (14,000 units) and Cost C varies consistently for all quantities and therefore must be variable.
179. Correct answer b. The variable cost per unit would remain the same as the volume decreases. All other costs listed would change with a change in volume.
180. Correct answer d. Cost A is variable as it is consistently \$1.42 per unit for each quantity. Cost B is semi-variable as it varies between quantities but not consistently so a portion must be fixed. Cost C is fixed as it is the same for all quantities. Cost D, like Cost A, is variable at \$1.63 per unit.
181. Correct answer b. The cost of electricity could be semi-variable with a fixed monthly charge plus a per unit charge for usage. All other costs listed are either fixed (a and d) or variable (c).
182. Correct answer b. The variable marketing cost would include the 8% sales commission plus the ½% manager's incentive,  $8.5\% \times \$100,000 = \$8,500$ .
183. Correct answer a. The allocation of indirect costs to cost objects would increase total costs identified with products rather than reduce total costs identified.

184. Correct answer a. The relevant range is the band of activity or volume over which certain cost relationships such as fixed costs remain valid.
185. Correct answer b. If a cost is strictly variable within the relevant range, the unit cost will be consistently the same and will not increase or decrease with a change in volume.
186. Correct answer c. One of the basic assumptions of cost behavior is that a cost can be approximated by a linear cost function within the relevant range. A linear cost function is one in which the graph of total costs versus the level of activity is a straight line.
187. Correct answer b. The variable per unit component of Lar's electricity cost will remain constant over the relevant range and not change with an increase or decrease in volume.
188. Correct answer c. Kimber's total manufacturing cost will be \$615,000 as shown below.

Variable cost:	9,000 units x (\$20 + \$25 + \$10)	=	\$495,000
Fixed cost:	8,000 units x \$15	=	<u>120,000</u>
	Total manufacturing cost		<u>\$615,000</u>

189. Correct answer c. Plunkett's product costs were \$656,100 and the period costs were \$493,000, as shown below.

	<u>Product Costs</u>		<u>Period Costs</u>
Direct material	\$ 56,000	Variable selling	\$108,400
Direct labor	179,100	Fixed selling	121,000
Variable overhead	154,000	Administrative	235,900
Fixed overhead	<u>267,000</u>	Fire loss	<u>27,700</u>
Total product costs	<u>\$656,100</u>	Total period costs	<u>\$493,000</u>

190. Correct answer c. The only difference between actual costing and normal costing is that actual costing uses actual indirect-cost rates while normal costing uses budgeted indirect cost rates. Therefore, normal costing does not improve the accuracy of job or product costing.
191. Correct answer d. The budgeted indirect cost rate would be \$48 as shown below.

$$(\$5,000,000 + \$7,000,000) \div 250,000 = \underline{\$48 \text{ per hour}}$$



192. Correct answer b. Merlene's operating income is \$22,500 calculated as follows.

Sales (750 x \$200)	\$150,000
COGS (750 x \$90)	<u>67,500</u>
Contribution	82,500
Fixed period costs	15,000
Selling & administrative	<u>45,000</u>
Operating income	<u>\$ 22,500</u>

193. Correct answer d. The cost applied to each T-shirt is \$.8689 calculated as follows.

Total seconds used	=	(50,000 + 30,000) (40) + (20,000 x 20)
	=	3,600,000
Cost per second	=	\$78,200 ÷ 3,600,000
	=	\$.0217222
Cost per T-shirt	=	40 x \$.0217222
	=	<u>\$.868888</u>

194. Correct answer a. Dremmon's operating income was \$21,500 calculated as follows.

Sales (750 x \$200)	\$150,000
COGS [750 x (\$90 + \$20)]	82,500
Underapplied fixed cost (50 x \$20)	1,000
Selling & administrative	<u>45,000</u>
Operating income	<u>\$ 21,500</u>

195. Correct answer b. Chassen's finished goods inventory would total \$70,000 as absorption costing includes both variable (\$5.00) and fixed (\$2.00) manufacturing costs (\$7.00 x 10,000 units).

196. Correct answer c. Weisman's operating income using absorption costing was \$15,300 calculated as follows.

Sales (900 x \$100)	\$90,000
COGS [900 x (\$30 + \$20 + \$10 + \$5)]	58,500
Variable selling (900 x \$12)	10,800
Fixed selling	3,600
Fixed administrative	<u>1,800</u>
Operating income	<u>\$15,300</u>

197. Correct answer b. The difference between variable and absorption costing is the treatment of fixed manufacturing overhead. All fixed manufacturing overhead is expensed during the period using variable resulting in lower operating income. The difference is the fixed manufacturing overhead that is included in inventory when using absorption costing.

198. Correct answer a. Mill's absorption costing income would be \$2,400 lower than variable income because 800 units that had been previously inventoried were sold. These 800 units times \$3.00 of fixed manufacturing overhead unit cost accounts for the \$2,400.

199. Correct answer a. Absorption costing would include factory insurance and direct labor as product costs, expensing only shipping costs as period costs. Variable costing would include only direct labor as product cost and expense the other two costs.
200. Correct answer c. Fixed manufacturing overhead is applied to each product at the rate of \$20 ( $\$100,000 \div 5,000$ ). If Troughton manufactures an additional 1,500 units, fixed manufacturing overhead would be over-applied by \$30,000 ( $1,500 \times \$20$ ). As stated in the problem, the company would reduce the cost of goods sold by the amount of over-applied overhead, thus increasing operating income by \$30,000 to the desired \$50,000.
201. Correct answer a. Variable costing, also call direct costing, includes all variable manufacturing costs in inventory, e.g., direct materials, direct labor, and variable overhead.
202. Correct answer d. Xylon's internal income figures would vary closely with sales because fixed overhead costs are treated as period costs when using variable costing. Under absorption costing, all overhead costs are attached to the units produced; there, some fixed costs are inventoried for those units produced but not sold.
203. Correct answer a. The value of Bethany's inventory is \$5,000,000, equal to the variable manufacturing cost.
204. Correct answer c. Donaldson's operating income based on variable costing is \$14,800 calculated as follows.

Sales (900 x \$100)	\$90,000
COGS [900 x (\$30 + \$20 + \$10)]	54,000
Fixed manufacturing (1,000 x \$5)	5,000
Variable selling (900 x \$12)	10,800
Fixed selling	3,600
Fixed administrative	<u>1,800</u>
Operating income	<u>\$14,800</u>

205. Correct answer d. Robinson produced 1,250 units based on the difference between the variable costing income and absorption costing income.

Income difference	\$9,500 - \$9,125	=	\$375
Units of fixed O/H	\$375 ÷ \$1.50	=	250 inventory units
Units produced	1,000 sales + 250 inventory	=	<u>1,250 units</u>

206. Correct answer a. Using variable costing, fixed overhead is treated as a period cost rather than a product costs that becomes part of inventory. It can be argued that this is more appropriate as the fixed costs of equipment, space, etc. should not be inventoried but expensed annually.
207. Correct answer d. Because fixed manufacturing overhead is included in inventory, finished goods inventory will be higher under absorption costing than when using variable costing where fixed manufacturing is expensed.

208. Correct answer d. The allocation of common costs to joint products is for financial reporting purposes, basically inventory costing and computing the cost of goods sold.
209. Correct answer c. By-products have a lower sales value than do joint or main products.
210. Correct answer a. Joint products generally have a higher sales value than by-products.
211. Correct answer c. Separable production cost method is not a method for allocating joint costs.
212. Correct answer a. The total costs for producing Giant are \$5,600 calculated as follows.

Joint cost allocation:	<u>Giant</u>	<u>Mini</u>	<u>Total</u>
Sales value	\$10,200	\$800	\$11,000
Less further processing	<u>1,000</u>	<u>--</u>	<u>1,000</u>
Net realizable value	\$ 9,200	\$800	\$10,000
% allocation	92%	8%	
Giant joint cost:	\$5,000 x 92%	\$4,600	
Cost to process further		<u>1,000</u>	
Total cost		<u>\$5,600</u>	

213. Correct answer a. The per gallon cost of Big is \$5.63 calculated as follows.

Joint cost allocation:	<u>Big</u>	<u>Mini</u>	<u>Total</u>
Sales value	\$7,200	\$800	\$8,000
% allocation	90%	10%	
Cost per unit of Big	90% x \$5,000 =	\$4,500	
	\$4,500 ÷ 800 =	<u>\$5.625 /unit</u>	

214. Correct answer d. The joint cost per unit of Product C is \$3.78 calculated as follows.

Net realizable value:			
Product A	20,000 x (\$5.00 - \$.70)	=	\$ 86,000
Product B	30,000 x (\$6.00 - \$3.00)	=	90,000
Product C	50,000 x (\$7.00 - \$1.72)	=	<u>264,000</u>
Total			\$440,000
Product C allocation	\$264,000 ÷ \$440,000	=	60%
	\$315,000 x 60%	=	\$189,000
Unit joint cost	\$189,000 ÷ 50,000	=	<u>\$3.78</u>

215. Correct answer a. If Zinten is produced, income would increase by \$2,000 calculated as follows.

$$\begin{aligned}
 \text{Change in income:} &= \text{Xylo} - \text{Zinten sales differential} - \text{Additional cost} \\
 &= [2,000 \times (\$15 - \$12)] - \$4,000 \\
 &= \$6,000 - \$4,000 \\
 &= \underline{\$2,000}
 \end{aligned}$$

216. Correct answer c. Abnormal spoilage is spoilage that should not arise under efficient production conditions and is written off as a loss in the period in which it is detected. Therefore, there would be no effect on the unit manufacturing cost of Job 532 but operating income would decrease.

217. Correct answer b. Baldwin's annual budgeted overhead is \$600,000 calculated as follows.

$$\begin{aligned}
 \text{Overhead cost per unit} & \$4.30 - (\$1,000 \div 1,000) - (\$1,500 \div 1,000) = \$1.80 \\
 \text{Overhead hours per unit} & 450 \div 1,000 = .45 \text{ hr.} \\
 \text{Overhead budget per unit} & \$1.80 \div .45 = \$4.00 \\
 \text{Total overhead budget} & 150,000 \times \$4.00 = \underline{\$600,000}
 \end{aligned}$$

218. Correct answer b. Total overhead applied to Job #231 is \$303 as shown below.

$$\begin{aligned}
 \text{Tooling overhead/hr.} & \$8,625 \div 460 \text{ hours} = \$18.75 \\
 \text{Fabricating overhead/hr.} & \$16,120 \div 620 \text{ hours} = \$26.00 \\
 \text{Job \#231 overhead} & (\$18.75 \times 12) + (\$20.00 \times 3) = \underline{\$303.00}
 \end{aligned}$$

219. Correct answer d. The weighted average inventory cost per unit completed in October is \$4.00 calculated as follows.

$$\begin{aligned}
 \text{Equivalent units:} & \text{Units transferred out} & 27,000 \\
 & \text{Ending inventory (3,000 x .5)} & \underline{1,500} \\
 & \text{Total} & 28,500 \\
 \\ 
 \text{Cost incurred:} & \$4,300 + \$39,700 + \$70,000 = & \$114,000 \\
 \text{Unit cost:} & \$114,000 \div 28,500 = & \underline{\$4.00/\text{unit}}
 \end{aligned}$$

220. Correct answer c. The total raw material cost in ending inventory is \$60 calculated as follows. Since material is added at the beginning of the manufacturing process, all units are 100% complete with regard to material.

$$\begin{aligned}
 \text{Material cost} &= \$120 + \$540 \\
 &= \$660 \\
 \text{Unit cost} &= \$660 \div 110 \text{ units} \\
 &= \$6.00 \\
 \text{EI raw material} &= \$6.00 \times 10 \text{ units} \\
 &= \underline{\$60}
 \end{aligned}$$

221. Correct answer d. Normal spoilage is allocated to the units produced during the period while abnormal spoilage is treated as a period cost.

222. Correct answer b. Normal spoilage should be part of the normal cost of manufacturing goods and should be charged to good units produced. Abnormal spoilage, not a part of normal operations, should be expensed as a period cost when detected.

223. Correct answer b. Southwood would transfer 16,000 units to finished goods inventory at a cost of \$154,850 as shown below.

$$\begin{aligned}
 \text{Inventory cost} &= \text{Cost of good units} + \text{Cost of normal spoilage} \\
 &= [16,000 \times (\$3.50 + \$6.00)] + \{300 \times (\$3.50 + \$6.00)\} \\
 &= \$152,000 + \$2,850 \\
 &= \underline{\underline{\$154,850}}
 \end{aligned}$$

224. Correct answer a. The 65,000 units that were started and completed during the month represent the equivalent units for Material B. Material B was previously added to the beginning work-in-process and the ending work-in-process had not yet reached 80% where Material B would have been added.

225. Correct answer c. Oster's October manufacturing cost should be assigned \$1,155,000 to production completed and \$235,000 to work-in-process inventory calculated as follows.

$$\begin{aligned}
 \text{Material at 100\%} &= (\$700,000 + \$40,000) \div (60,000 + 20,000) \\
 &= \$740,000 \div 80,000 \\
 &= \$9.25/\text{unit} \\
 \text{Equivalent conversion units} &= 60,000 + (20,000 \times .25) \\
 &= 65,000 \text{ units} \\
 \text{Conversion cost} &= (\$32,500 + \$617,500) \div 65,000 \\
 &= \$10/\text{unit} \\
 \text{Cost of production} &= 60,000 \times (\$9.25 + \$10) \\
 &= \underline{\underline{\$1,155,000}} \\
 \text{Cost of work-in-process} &= (20,000 \times \$9.25) + (5,000 \times \$10) \\
 &= \underline{\underline{\$235,000}}
 \end{aligned}$$

226. Correct answer d. The equivalent units used to assign material costs is 100,000 consisting of the 30,000 in beginning inventory and the 70,000 units started during the month. The equivalent units used to assign conversion costs is 82,000 consisting of 12,000 units (30,000 x 40%) in beginning inventory and the 70,000 units started during the month.

227. Correct answer b. The total conversion cost transferred to the next department is \$1,600 calculated as follows.

Equivalent conversion units	=	100 + (10 x 40%)	
	=	104 units	
Conversion costs	=	\$180 + \$1,484	
	=	\$1,664	
Unit conversion cost	=	\$1,664 ÷ 104	
	=	\$16	
Cost transferred	=	\$1,664 – (4 x \$16)*	
	=	<u>\$1,600</u>	

\*Ending work-in-process equivalent units

228. Correct answer d. Krause's equivalent units for conversion costs total 92 calculated as follows.

Beginning WIP Inventory:	20 units x (100% - 60%)	=	8 units
December units – Ending WIP:	90 units – [10 x (100% - 40%)	=	84 units
Total			<u>92 units</u>

229. Correct answer a. Jones' equivalent units for conversion costs total 87,300 calculated as follows.

Units started in August (X):	=	10,000 + X – 8,000 = 90,000
	=	88,000 units
Plus Beginning WIP Inv.	=	10,000 x (100% - 75%)
	=	2,500 units
Less Ending WIP Inv.	=	8,000 x (100% - 60%)
	=	3,200 units
Total Equivalent Units	=	88,000 + 2,500 - 3,200
	=	<u>87,300 units</u>

230. Correct answer b. Waller's equivalent units for material in ending work-in-process inventory total 8,800 as shown below.

$$22,000 \text{ units} \times 40\% \text{ material} = \underline{8,800 \text{ units}}$$

231. Correct answer d. Robotics painting would be machine-based and would logically be allocated to products on the basis of machine hours. The other three options would more appropriately be allocated on the basis of direct labor or charged to overhead.

232. Correct answer c. Activity-based costing is an approach to costing that focuses on cost drivers. It uses these drivers to assign costs to products and services. As a result, a company would normally gain insight into the causes of cost.

233. Correct answer d. Using activity-based costing, the cost of materials is one of the costs that needs to be allocated based on the cost driver, e.g., the number of units used per product.

234. Correct answer b. Using activity-based costing, the cost to manufacture one ultrasound machine is \$264 calculated as follows.

Cost per engineering change:	$\$6,000 \div (2 + 1)$	=	\$2,000
Material handling per part:	$\$5,000 \div (400 + 600)$	=	\$5
Cost per product setup:	$\$3,000 \div (8 + 7)$	=	\$200
Ultrasound direct material ( $\$8,000 \div 100$ )			\$ 80
Ultrasound direct labor ( $\$12,000 \div 100$ )			120
Material handling [ $(600 \div 100) \times \$5$ ]			30
Engineering change ( $\$2,000 \div 100$ )			20
Setups [ $(\$200 \div 100) \times 7$ ]			<u>14</u>
Manufacturing cost			<u>\$264</u>

235. Correct answer c. The muffins are \$1,925 more profitable as shown below.

Cost of muffin delivery:	$[(150 \times 10) \div 60] \times \$20$	=	\$500
Cost of cheesecake delivery:	$[(85 \times 15) \div 60] \times \$20$	=	\$425
Muffin profit:	$\$53,000 - \$26,000 - \$500$	=	\$26,500
Cheesecake profit:	$\$46,000 - \$21,000 - \$425$	=	<u>24,575</u>
Profit difference			<u>\$ 1,925</u>

236. Correct answer a. The per unit overhead cost allocation of receiving costs for product A is \$3.75 as shown below.

Receiving costs per order:	$\$450,000 \div (50 + 150)$	=	\$2,250
Per unit of Product A:	$(50 \times \$2,250) \div 30,000$	=	<u>\$3.75</u>

237. Correct answer d. Activity-based costing generally uses a greater number of allocation bases or cost drivers and therefore results in more accurate costing.
238. Correct answer b. Since it is difficult to assign quantities and costs of items such as screws and glue to specific products, they are generally charged to factory overhead.
239. Correct answer d. Only in the situation where all overhead costs were expensed, e.g., zero inventory balances, would the reported net income be the same.
240. Correct answer c. Homogenous cost pools are those in which all of the costs have the same or similar cause-and-effect or benefits received relationship with the cost allocation base.

241. Correct answer b. The Tool Department overhead applied to Job #231 is \$197.50 calculated as follows.

Tooling overhear per hour:	$\$8,690 \div 440 \text{ hrs.}$	=	\$19.75
Job #231 overhead:	$\$19.75 \times 10 \text{ hrs.}$	=	<u>\$197.50</u>

242. Correct answer c. The overhead applied to a job incurring 20 hours of direct labor is \$140 as shown below.

Total budgeted direct labor hours:	$\$50,000 \div \$5$	=	10,000 hrs.
Overhead cost/direct labor hour:	$\$70,000 \div 10,000$	=	\$7 per hr.
Overhead cost for 20 hours:	$20 \times \$7$	=	<u>\$140</u>

243. Correct answer b. Statements I and IV would apply. The factory overhead rate is likely increased as expenses such as depreciation have increased. The increase in automation makes it more difficult to respond to economic changes as the company cannot simply layoff or hire workers. Statements II and III are incorrect as machine hours would be more appropriate and Haney will still be able to calculate labor variances.

244. Correct answer d. Allocation on the basis of the number of employees would have the least negative impact on the Financial Consulting Division as the division has only 28% of the total employees while it has 30% of revenues and 30% of variable expenses.

245. Correct answer c. The engineering cost per unit of Product B is \$15 calculated as follows.

Engineering cost per order:	$\$300,000 \div (12 + 18)$	=	\$10,000
Engineering cost per Product B:	$\$10,000 \times 18$	=	\$180,000
Cost per unit of Product B:	$\$180,000 \div 12,000$	=	<u>\$15.00</u>

246. Correct answer d. The dual-rate cost-allocation method classifies costs in each cost pool into two subcost pools, a variable-cost subpool and a fixed cost subpool, with each of these subpools having a different cost allocation base.

247. Correct answer d. If the cost of legal services is allocated on the basis of usage, departments will be very careful about usage. To encourage usage, the cost should be absorbed as a corporate expense.

248. Correct answer a. Allocating service department costs to production departments is most likely to cause production managers to be more careful about the use of services and not request excessive service.

249. Correct answer a. Depending on the step-down sequence used, different allocation of support departments to operating departments will result. Therefore, the correct response is direct and reciprocal methods only.

250. Correct answer d. The reciprocal method of departmental allocation explicitly includes the mutual services provided among all support departments. Therefore, the Information Systems Department would be allocated all users including the Personnel Department.



251. Correct answer b. The general step-down sequence begins with the support department that renders the greatest amount of service. There, the Personnel Department would be first and the Information Systems Department would not be allocated to the Personnel Department.
252. Correct answer d. The reciprocal allocation method allocates costs by explicitly including the mutual services provided among support departments and allows for the full incorporation of interdepartmental relationships.
253. Correct answer b. Using the direct method of allocation, only the hours of the production departments would be included in the allocation base ( $3600 + 1800 + 2700 = 8100$ ).
254. Correct answer c. Total overhead in the Machining Department is \$442,053 as presented below.

Machining overhead	\$200,000
Maintenance ( $\$360,000 \times .5$ )	180,000
Systems [ $(\$95,000 + \$36,000^*) \times .473687^{**}$ ]	<u>62,053</u>
Total overhead	<u>\$442,053</u>

\*Maintenance allocated to Systems ( $\$360,000 \times 10\%$ )

\*\* $1.05 \times 45\%$

255. Correct answer c. Using the direct method of cost allocation, all support departments are allocated directly to production departments. Relationships between support departments are not included in the allocation.
256. Correct answer d. Using the step-down method, Logo should allocate \$20,000 of Systems to Facilities and \$24,000 of Facilities to Machining as shown below.

% allocation Systems to Facilities:	$900 \div (9,300 - 300)$	=	10%
Allocation	$\$200,000 \times 10\%$	=	<u>\$20,000</u>
% allocation Facilities to Mach.	$2,000 \div (11,600 - 600 - 1,000)$	=	20%
Allocation	$(\$100,000 + \$20,000^*) \times 20\%$	=	<u>\$24,000</u>

\*Systems to Facilities allocation

257. Correct answer d. The total overhead allocated by the Machining Department to Adam's product is \$445,000 calculated as follows.

% allocation Maint. to Mach.:	$50\% \div (40\% + 50\%)$	=	.555
Allocation	$.555 \times \$360,000$	=	\$199,800
% allocation Systems to Mach.:	$45\% \div (45\% + 50\%)$	=	.4736842
Allocation	$.4736842 \times \$95,000$	=	\$45,200
Total allocation	$\$199,800 + \$45,200 + \$200,000$	=	<u>\$445,000</u>

258. Correct answer a. The use of just-in-time production generally involves developing relationships with a minimum number of suppliers that reliably deliver high quality products.

259. Correct answer d. According to the theory of constraints, increasing the efficiency of operations at non-bottleneck machines will make the slowdowns at bottlenecks worse as it will increase the traffic at bottlenecks.
260. Correct answer b. A company must first locate the source of the production constraint before it can effectively work to increase production capacity.
261. Correct answer c. In conventional financial statements, customer service costs are generally part of sales and administrative costs and not associated with a product. In value-chain statements, customer service is treated as part of the value chain and therefore associated with product cost.
262. Correct answer a. In option A, the functions are in the proper order while in the other options the functions are out of order, e.g., in option B, production design must precede production.
263. Correct answer d. Activities I and III are the only activities that actually increase the value of the product and would, therefore, be classified as value-added activities.
264. Correct answer c. A major disadvantage of business process reengineering is that as processes are changed to be more efficient, the internal controls that were established previously can be ignored or overlooked and may not be replaced with new controls.
265. Correct answer d. Retail Partners would benefit from all of these benchmarking techniques as all would identify best practices.
266. Correct answer a. Option A does not compare the business unit to any other standard, e.g., best practice, and is not an example of benchmarking standards.
267. Correct answer c. Prevention costs include Design Engineering (\$300,000), Supplier Evaluation (\$240,000), and Labor Training (\$150,000) for a total of \$690,000. All of these activities would likely take place prior to production to improve quality and prevent costly errors.
268. Correct answer b. Appraisal costs are incurred to detect individual units that do not conform to specifications, e.g., inspecting raw materials.
269. Correct answer b. Appraisal costs are incurred to detect individual units that do not conform to specifications, e.g., product testing costs.
270. Correct answer d. External failure costs are incurred by non-conforming products after shipment to customers. Product field testing would occur during the design phase and therefore prior to shipment.
271. Correct answer a. Internal failure costs are incurred by non-conforming products prior to shipment, e.g., the cost to rework defective units.

### **Section E: Internal Controls**

272. Correct answer d. One of the main objectives of internal controls is to provide reasonable assurance of reliability of financial reporting (financial statement assertions).

273. Correct answer d. The benefits of internal controls must always exceed the costs of implementing them. Implementing a system of absolute assurance is overly costly; thus only reasonable assurance can be obtained.
274. Correct answer c. Cashier prepares deposit slip for all cash receipts received. This action involves two functions that are not segregated: custody of assets and recording of transactions. In addition, the summary is not done in a timely manner.
275. Correct answer d. In order to properly segregate duties within the computer department, the responsibility to reprocess the errors detected during processing of the data should be given to the data control group and not to department manager, who should have access to review transactions, but not process transactions; nor to systems analyst, who should have access to view and analyze transactions, but not process transactions, and not to the computer programmer, who should have access to programs, not transactions.
276. Correct answer b. Direct deposit of pay in lieu of distribution of physical paychecks is an example of an effective safeguarding control that limits access to the organization's assets to authorized personnel.
277. Correct answer a. Policies of strong internal control, segregation of duties, and requiring employees to take vacations is an effective way of deterring fraud. In addition, periodic rotation of employees would also strengthen the control. These practices help prevent collusion and decrease the opportunity for employees to hide fraudulent behavior.
278. Correct answer a. Foreign Corrupt Practices Act of 1977 does not require a public company to sign an agreement that it will abide by the Act, however if the company does not abide by the Act, the company may be assessed fines up to \$2,000,000 and imprisonment for up to 5 years.
279. Correct answer c. The principal purpose of Foreign Corrupt Practices Act of 1977 was to prevent the bribery of foreign officials, foreign political parties or candidates for political office in the foreign country by U.S. firms seeking to do business overseas.
280. Correct answer c. The responsibility of Internal Audit Function is not only to identify the control weaknesses during the audit, but to follow-up on the audit findings to make sure the issues have been resolved.
281. Correct answer d. Internal auditors are often looking for significant or unexpected variances in account balances and investigate these. All of the methods listed - Cost Variance Analysis, Flexible Budgets and Activity-based Management – can assist internal auditors in such variance analyses, except for joint cost allocation, which is a method of allocating costs to products, and does not help with variance analysis.
282. Correct answer b. The objective of compliance testing is ensuring conformity with laws, regulations and contracts. This includes Federal and State laws.
283. Correct answer d. One of the objectives of the operational audit is to ensure efficient and economic operations and the effectiveness with which these operations achieve their objectives. This is not an objective of the compliance audit that ensures compliance with laws or the information system audit that check the systems' controls.

284. Correct answer d. One of the objectives of the operational audit is to ensure efficient and economic operations and the effectiveness with which these operations achieve their objectives. This is not an objective of the compliance audit that ensures compliance with laws or the financial statements audit that checks to ensure that financial statements are not misstated.
285. Correct answer c. Viruses are computer programs that propagate themselves from one computer to another without the user's knowledge. Trojan horses are restricted to a specific computer, these are voluntarily installed as regular programs, but, behind the scenes, they contain codes that a hacker can activate later to take over the computer .
286. Correct answer a. Key verification is one of the data controls. A record's key is the group of values that uniquely identify the record. No application process should be able to alter the data in these key fields.
287. Correct answer c. Compatibility check is most appropriate control to verify that the user is authorized to execute a particular on-line transaction. It verifies the user access information, such as user ID, password and security profile is correct.
288. Correct answer b. Single sign-on, although a great convenience to users, because they don't need to remember multiple passwords and user-ids and can access all IT resources using single sign-on data. This however, becomes a single-point of failure, if the sign-on does not work and the user is not able to access any of the IT resources.
289. Correct answer d. Computer Operator executes programs and maintains custody of programs and files. This action involves two functions that are not segregated: recording of transactions and custody of assets.
290. Correct answer c. Encryption technology converts data into a code. Unauthorized users may still be able to access the data, but without the encryption key, they will be unable to decode the information; thus encrypting confidential data is a secure way of transmitting it over the Internet.
291. Correct answer c. Encryption technology converts data into a code. Unauthorized users may still be able to access the data, but without the encryption key, they will be unable to decode the information. Two major types of encryption software exist: public key and private key. An example of authentication is assigning each user a unique identifier and password. Not even information security personnel should be able to view unencrypted passwords.
292. Correct answer c. Flowcharting is the representation of a process using pictorial symbols. A document flowchart would be an effective way to visualize how the document (a copy of a shipping order) flows through various departments.
293. Correct answer c. Operating system should be the first one to be restored at an alternate site so the operations can continue with minimum of amount of interruption; while other systems, such as decision support, online system, can be restored later.



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CMA Part 2 – Financial Decision Making

Examination Practice Questions

## CMA Part 2 – Financial Decision Making

### Examination Practice Questions

#### Section A: Financial Statement Analysis

1. CSO: 2A1a LOS: 2A1a

Gordon has had the following financial results for the last four years.

	<u>Year 1</u>	<u>Year 2</u>	<u>Year 3</u>	<u>Year 4</u>
Sales	\$1,250,000	\$1,300,000	\$1,359,000	\$1,400,000
Cost of goods sold	750,000	785,000	825,000	850,000
Gross profit	500,000	515,000	534,000	550,000
Inflation factor	1.00	1.03	1.07	1.10

Gordon has analyzed these results using vertical common-size analysis to determine trends. The performance of Gordon can **best** be characterized by which one of the following statements?

- The common-size gross profit percentage has decreased as a result of an increasing common-size trend in cost of goods sold.
- The common-size trend in sales is increasing and is resulting in an increasing trend in the common-size gross profit margin.
- The common-size trend in cost of goods sold is decreasing which is resulting in an increasing trend in the common-size gross profit margin.
- The increased trend in the common-size gross profit percentage is the result of both the increasing trend in sales and the decreasing trend in cost of goods sold.

2. CSO: 2A2a LOS: 2A2a

Broomall Corporation has decided to include certain financial ratios in its year-end annual report to shareholders. Selected information relating to its most recent fiscal year is provided below.

• Cash	\$10,000
• Accounts receivable	20,000
• Prepaid expenses	8,000
• Inventory	30,000
• Available-for-sale securities	
-At cost	9,000
-Fair value at year end	12,000
• Accounts payable	15,000
• Notes payable (due in 90 days)	25,000
• Bonds payable (due in 10 years)	35,000
• Net credit sales for year	220,000
• Cost of goods sold	140,000

Broomall's working capital at year end is

- a. \$40,000.
- b. \$37,000.
- c. \$28,000.
- d. \$10,000.

3. *CSO: 2A2a LOS: 2A2b*

All of the following are affected when merchandise is purchased on credit **except**

- a. total current assets.
- b. net working capital.
- c. total current liabilities.
- d. current ratio.

4. *CSO: 2A2a LOS: 2A2a*

Birch Products Inc. has the following current assets.

Cash	\$ 250,000
Marketable securities	100,000
Accounts receivable	800,000
Inventories	<u>1,450,000</u>
Total current assets	<u>\$2,600,000</u>

If Birch's current liabilities are \$1,300,000, the firm's

- a. current ratio will decrease if a payment of \$100,000 cash is used to pay \$100,000 of accounts payable.
- b. current ratio will not change if a payment of \$100,000 cash is used to pay \$100,000 of accounts payable.
- c. quick ratio will decrease if a payment of \$100,000 cash is used to purchase inventory.
- d. quick ratio will not change if a payment of \$100,000 cash is used to purchase inventory.

5. *CSO: 2A2a LOS: 2A2a*  
Shown below are beginning and ending balances for certain of Grimaldi Inc.'s accounts.

	<u>January 1</u>	<u>December 31</u>
Cash	\$ 48,000	\$ 62,000
Marketable securities	42,000	35,000
Accounts receivable	68,000	47,000
Inventory	125,000	138,000
Plant & equipment	325,000	424,000
Accounts payable	32,000	84,000
Accrued liabilities	14,000	11,000
7% bonds payable	95,000	77,000

Grimaldi's acid test ratio or quick ratio at the end of the year is

- a. 0.83.  
b. 1.02.  
c. 1.15.  
d. 1.52.
6. *CSO: 2A2a LOS: 2A2b*  
Davis Retail Inc. has total assets of \$7,500,000 and a current ratio of 2.3 times before purchasing \$750,000 of merchandise on credit for resale. After this purchase, the current ratio will
- a. remain at 2.3 times.  
b. be higher than 2.3 times.  
c. be lower than 2.3 times.  
d. be exactly 2.53 times. }
7. *CSO: 2A2a LOS: 2A2b*  
Markowitz Company increased its allowance for uncollectable accounts. This adjustment will
- a. increase the acid test ratio.  
b. increase working capital.  
c. reduce debt-to-asset ratio.  
d. reduce the current ratio.



8. *CSO: 2A2a LOS: 2A2a*  
Shown below are selected data from Fortune Company's most recent financial statements.

Marketable securities	\$10,000
Accounts receivable	60,000
Inventory	25,000
Supplies	5,000
Accounts payable	40,000
Short-term debt payable	10,000
Accruals	5,000

What is Fortune's net working capital?

- a. \$35,000.  
b. \$45,000.  
c. \$50,000.  
d. \$80,000.
9. *CSO: 2A2a LOS: 2A2b*  
Garstka Auto Parts must increase its acid test ratio above the current 0.9 level in order to comply with the terms of a loan agreement. Which one of the following actions is **most** likely to produce the desired results?
- a. Expediting collection of accounts receivable.  
b. Selling auto parts on account.  
c. Making a payment to trade accounts payable.  
d. Purchasing marketable securities for cash.
10. *CSO: 2A2a LOS: 2A2b*  
The owner of a chain of grocery stores has bought a large supply of mangoes and paid for the fruit with cash. This purchase will adversely impact which one of the following?
- a. Working capital.  
b. Current ratio.  
c. Quick or acid test ratio.  
d. Price earnings ratio.

11. CSO: 2A2a LOS: 2A2a

Selected financial data for Boyd Corporation are shown below.

	<u>January 1</u>	<u>December 31</u>
Cash	\$ 48,000	\$ 62,000
Accounts receivable (net)	68,000	47,000
Trading securities	42,000	35,000
Inventory	125,000	138,000
Plant and equipment (net)	325,000	424,000
Accounts payable	32,000	84,000
Accrued liabilities	14,000	11,000
Deferred taxes	15,000	9,000
Long-term bonds payable	95,000	77,000

Boyd's net income for the year was \$96,000. Boyd's current ratio at the end of the year is

- a. 1.55.
- b. 1.71.
- c. 2.71.
- d. 2.97.

12. CSO: 2A2a LOS: 2A2a

When reviewing a credit application, the credit manager should be **most** concerned with the applicant's

- a. profit margin and return on assets.
- b. price-earnings ratio and current ratio.
- c. working capital and return on equity.
- d. working capital and current ratio.

13. CSO: 2A2a LOS: 2A2b

Both the current ratio and the quick ratio for Spartan Corporation have been slowly decreasing. For the past two years, the current ratio has been 2.3 to 1 and 2.0 to 1. During the same time period, the quick ratio has decreased from 1.2 to 1 to 1.0 to 1. The disparity between the current and quick ratios can be explained by which one of the following?

- a. The current portion of long-term debt has been steadily increasing.
- b. The cash balance is unusually low.
- c. The accounts receivable balance has decreased.
- d. The inventory balance is unusually high.

14. *CSO: 2A2a LOS: 2A2a*  
 The acid test ratio shows the ability of a company to pay its current liabilities without having to
- reduce its cash balance.
  - borrow additional funds.
  - collect its receivables.
  - liquidate its inventory.
15. *CSO: 2A2a LOS: 2A2a*  
 All of the following are included when calculating the acid test ratio **except**
- six-month treasury bills.
  - prepaid insurance.
  - accounts receivable.
  - 60-day certificates of deposit.
16. *CSO: 2A2a LOS: 2A2a*  
 Dedham Corporation has decided to include certain financial ratios in its year-end annual report to shareholders. Selected information relating to its most recent fiscal year is provided below.

• Cash	\$10,000
• Accounts receivable	20,000
• Prepaid expenses	8,000
• Inventory	30,000
• Available-for-sale securities	
-At cost	9,000
-Fair value at year end	12,000
• Accounts payable	15,000
• Notes payable (due in 90 days)	25,000
• Bonds payable (due in 10 years)	35,000

Dedham's quick (acid-test) ratio at year end is

- 2.00 to 1.
- 1.925 to 1.
- 1.80 to 1.
- 1.05 to 1.

17. *CSO: 2A2a LOS: 2A2b*  
 If a company has a current ratio of 2.1 and pays off a portion of its accounts payable with cash, the current ratio will
- decrease.
  - increase.
  - remain unchanged.
  - move closer to the quick ratio.

18. *CSO: 2A2b LOS: 2A2e*  
 The capital structure of four corporations is as follows.

	<u>Corporation</u>			
	<u>Sterling</u>	<u>Cooper</u>	<u>Warwick</u>	<u>Pane</u>
Short-term debt	10%	10%	15%	10%
Long-term debt	40%	35%	30%	30%
Preferred stock	30%	30%	30%	30%
Common equity	20%	25%	25%	30%

Which corporation is the most highly leveraged?

- Sterling.
  - Cooper.
  - Warwick.
  - Pane.
19. *CSO: 2A2b LOS: 2A2f*  
 A summary of the Income Statement of Sahara Company is shown below.

Sales	\$15,000,000
Cost of sales	9,000,000
Operating expenses	3,000,000
Interest expense	800,000
Taxes	<u>880,000</u>
Net income	<u>\$ 1,320,000</u>

Based on the above information, Sahara's degree of financial leverage is

- 0.96.
- 1.36.
- 1.61.
- 2.27.

20. *CSO: 2A2b LOS: 2A2f*  
A degree of operating leverage of 3 at 5,000 units means that a
- 3% change in earnings before interest and taxes will cause a 3% change in sales.
  - 3% change in sales will cause a 3% change in earnings before interest and taxes.
  - 1% change in sales will cause a 3% change in earnings before interest and taxes.
  - 1% change in earnings before interest and taxes will cause a 3% change in sales.
21. *CSO: 2A2b LOS: 2A2e*  
Firms with high degrees of financial leverage would be **best** characterized as having
- high debt-to-equity ratios.
  - zero coupon bonds in their capital structures.
  - low current ratios.
  - high fixed-charge coverage.
22. *CSO: 2A2b LOS: 2A2e*  
The use of debt in the capital structure of a firm
- increases its financial leverage.
  - increases its operating leverage.
  - decreases its financial leverage.
  - decreases its operating leverage.
23. *CSO: 2A2b LOS: 2A2g*  
A financial analyst with Mineral Inc. calculated the company's degree of financial leverage as 1.5. If net income before interest increases by 5%, earnings to shareholders will increase by
- 1.50%.
  - 3.33%.
  - 5.00%.
  - 7.50%.
24. *CSO: 2A2b LOS: 2A2g*  
Which one of the following statements concerning the effects of leverage on earnings before interest and taxes (EBIT) and earnings per share (EPS) is **correct**?
- For a firm using debt financing, a decrease in EBIT will result in a proportionally larger decrease in EPS.
  - A decrease in the financial leverage of a firm will increase the beta value of the firm.
  - If Firm A has a higher degree of operating leverage than Firm B, and Firm A offsets this by using less financial leverage, then both firms will have the same variability in EBIT.
  - Financial leverage affects both EPS and EBIT, while operating leverage only effects EBIT.

25. CSO: 2A2b LOS: 2A2i

The Liabilities and Shareholders' Equity section of Mica Corporation's Statement of Financial Position is shown below.

	<u>January 1</u>	<u>December 31</u>
Accounts payable	\$ 32,000	\$ 84,000
Accrued liabilities	14,000	11,000
7% bonds payable	95,000	77,000
Common stock (\$10 par value)	300,000	300,000
Reserve for bond retirement	12,000	28,000
Retained earnings	<u>155,000</u>	<u>206,000</u>
Total liabilities and shareholders' equity	<u>\$608,000</u>	<u>\$706,000</u>

Mica's debt/equity ratio is

- a. 25.1%.
- b. 25.6%.
- c. 32.2%.
- d. 33.9%.

26. CSO: 2A2b LOS: 2A2y

Borglum Corporation is considering the acquisition of one of its parts suppliers and has been reviewing the pertinent financial statements. Specific data, shown below, has been selected from these statements for review and comparison with industry averages.

	<u>Bond</u>	<u>Rockland</u>	<u>Western</u>	<u>Industry</u>
Total sales (millions)	\$4.27	\$3.91	\$4.86	\$4.30
Net profit margin	9.55%	9.85%	10.05%	9.65%
Current ratio	1.32	2.02	1.96	1.95
Return on assets	11.0%	12.6%	11.4%	12.4%
Debt/equity ratio	62.5%	44.6%	49.6%	48.3%
Financial leverage	1.40	1.02	1.86	1.33

Borglum's objective for this acquisition is assuring a steady source of supply from a stable company. Based on the information above, select the strategy that would fulfill Borglum's objective.

- a. Borglum should not acquire any of these firms as none of them represents a good risk.
- b. Acquire Bond as both the debt/equity ratio and degree of financial leverage exceed the industry average.
- c. Acquire Rockland as both the debt/equity ratio and degree of financial leverage are below the industry average.
- d. Acquire Western as the company has the highest net profit margin and degree of financial leverage.

27. CSO: 2A2b LOS: 2A2i  
Which one of the following is the **best** indicator of long-term debt paying ability?

- a. Working capital turnover.
- b. Asset turnover.
- c. Current ratio.
- d. Debt-to-total assets ratio.

28. CSO: 2A2b LOS: 2A2y  
Easton Bank has received loan applications from three companies in the computer service business and will grant a loan to the company with the best prospect of fulfilling the loan obligations. Specific data, shown below, has been selected from these applications for review and comparison with industry averages.

	<u>CompGo</u>	<u>Astor</u>	<u>SysGen</u>	<u>Industry</u>
Total sales (millions)	\$4.27	\$3.91	\$4.86	\$4.30
Net profit margin	9.55%	9.85%	10.05%	9.65%
Current ratio	1.82	2.02	1.96	1.95
Return on assets	12.0%	12.6%	11.4%	12.4%
Debt/equity ratio	52.5%	44.6%	49.6%	48.3%
Financial leverage	1.30	1.02	1.56	1.33

Based on the information above, select the strategy that would fulfill Easton's objective.

- a. Easton should not grant any loans as none of these companies represents a good credit risk.
- b. Grant the loan to CompGo as all the company's data approximate the industry average.
- c. Grant the loan to Astor as both the debt/equity ratio and degree of financial leverage are below the industry average.
- d. Grant the loan to SysGen as the company has the highest net profit margin and degree of financial leverage.

29. CSO: 2A2b LOS: 2A2i

The following information has been derived from the financial statements of Boutwell Company.

Current assets	\$640,000
Total assets	990,000
Long-term liabilities	130,000
Current ratio	3.2 Times

The company's debt-to-equity ratio is

- a. 0.50 to 1.
- b. 0.37 to 1.
- c. 0.33 to 1.
- d. 0.13 to 1.

30. CSO: 2A2b LOS: 2A2j

The interest expense for a company is equal to its earnings before interest and taxes (EBIT). The company's tax rate is 40%. The company's times-interest earned ratio is equal to

- a. 2.0.
- b. 1.0.
- c. 0.6.
- d. 1.2.



31. CSO: 2A2b LOS: 2A2y

Marble Savings Bank has received loan applications from three companies in the auto parts manufacturing business and currently has the funds to grant only one of these requests. Specific data, shown below, has been selected from these applications for review and comparison with industry averages.

	<u>Bailey</u>	<u>Nutron</u>	<u>Sonex</u>	<u>Industry</u>
Total sales (millions)	\$4.27	\$3.91	\$4.86	\$4.30
Net profit margin	9.55%	9.85%	10.05%	9.65%
Current ratio	1.82	2.02	1.96	1.95
Return on assets	12.0%	12.6%	11.4%	12.4%
Debt/equity ratio	52.5%	44.6%	49.6%	48.3%
Financial leverage	1.30	1.02	1.56	1.33

Based on the information above, select the strategy that should be the **most** beneficial to Marble Savings.

- Marble Savings Bank should not grant any loans as none of these companies represents a good credit risk.
- Grant the loan to Bailey as all the company's data approximate the industry average.
- Grant the loan to Nutron as both the debt/equity ratio and degree of financial leverage are below the industry average.
- Grant the loan to Sonex as the company has the highest net profit margin and degree of financial leverage.

32. CSO: 2A2b LOS: 2A2y

Marge Halifax, chief financial officer of Strickland Construction, has been tracking the activities of the company's nearest competitor for several years. Among other trends, Halifax has noticed that this competitor is able to take advantage of new technology and bring new products to market more quickly than Strickland. In order to determine the reason for this, Halifax has been reviewing the following data regarding the two companies.

	<u>Strickland</u>	<u>Competitor</u>
Accounts receivable turnover	6.85	7.35
Return on assets	15.34	14.74
Times interest earned	15.65	12.45
Current ratio	2.11	1.23
Debt/equity ratio	42.16	55.83
Degree of financial leverage	1.06	1.81
Price/earnings ratio	26.56	26.15

On the basis of this information, which one of the following is the **best** initial strategy for Halifax to follow in attempting to improve the flexibility of Strickland?

- Seek cost cutting measures that would increase Strickland's profitability.
- Investigate ways to improve asset efficiency and turnover times to improve liquidity.
- Seek additional sources of outside financing for new product introductions.
- Increase Strickland's investment in short-term securities to increase the current ratio.

33. CSO: 2A2c LOS: 2A2I

Lowell Corporation has decided to include certain financial ratios in its year-end annual report to shareholders. Selected information relating to its most recent fiscal year is provided below.

• Cash	\$ 10,000
• Accounts receivable (end of year)	20,000
• Accounts receivable (beginning of year)	24,000
• Inventory (end of year)	30,000
• Inventory (beginning of year)	26,000
• Notes payable (due in 90 days)	25,000
• Bonds payable (due in 10 years)	35,000
• Net credit sales for year	220,000
• Cost of goods sold	140,000

Using a 365-day year, compute Lowell's accounts receivable turnover in days.

- a. 26.1 days.
- b. 33.2 days.
- c. 36.5 days.
- d. 39.8 days.

34. CSO: 2A2c LOS: 2A2I

Maydale Inc.'s financial statements show the following information.

Accounts receivable, end of Year 1	\$ 320,000
Credit sales for Year 2	3,600,000
Accounts receivable, end of Year 2	400,000

Maydale's accounts receivable turnover ratio is

- a. 0.10.
- b. 9.00.
- c. 10.00.
- d. 11.25.

35. CSO: 2A2c LOS: 2A2I

Zubin Corporation experiences a decrease in sales and the cost of good sold, an increase in accounts receivable, and no change in inventory. If all else is held constant, what is the total effect of these changes on the receivables turnover and inventory ratios?

- |    | <u>Inventory</u><br><u>Turnover</u> | <u>Receivables</u><br><u>Turnover</u> |
|----|-------------------------------------|---------------------------------------|
| a. | Increased;                          | Increased.                            |
| b. | Increased;                          | Decreased.                            |
| c. | Decreased;                          | Increased.                            |
| d. | Decreased;                          | Decreased.                            |

36. CSO: 2A2c LOS: 2A2I

Peggy Monahan, controller, has gathered the following information regarding Lampasso Company.

	<u>Beginning of the year</u>	<u>End of the year</u>
<b>Inventory</b>	<b>\$6,400</b>	<b>\$7,600</b>
Accounts receivable	2,140	3,060
Accounts payable	3,320	3,680

**Total sales for the year were \$85,900, of which \$62,400 were credit sales. The cost of goods sold was \$24,500.**

Lampasso's inventory turnover ratio for the year was

- a. 3.2 times.
- b. 3.5 times.
- c. 8.2 times.
- d. 8.9 times.

37. CSO: 2A2c LOS: 2A2I

Garland Corporation's Income Statement for the year just ended is shown below.

Net sales		\$900,000
Cost of goods sold		
Inventory - beginning	\$125,000	
Purchases	<u>540,000</u>	
Goods available for sale	665,000	
Inventory - ending	<u>138,000</u>	
		<u>527,000</u>
Gross profit		373,000
Operating expenses		<u>175,000</u>
Income from operations		<u>\$198,000</u>

Garland's average inventory turnover ratio is

- a. 6.84.
- b. 6.52.
- c. 4.01.
- d. 3.82.

38. CSO: 2A2c LOS: 2A2I

Makay Corporation has decided to include certain financial ratios in its year-end annual report to shareholders. Selected information relating to its most recent fiscal year is provided below.

• Cash	\$ 10,000
• Accounts receivable (end of year)	20,000
• Accounts receivable (beginning of year)	24,000
• Inventory (end of year)	30,000
• Inventory (beginning of year)	26,000
• Notes payable (due in 90 days)	25,000
• Bonds payable (due in 10 years)	35,000
• Net credit sales for year	220,000
• Cost of goods sold	140,000

Makay's average inventory turnover for the year was

- a. 4.7 times.
- b. 5.0 times.
- c. 5.4 times.
- d. 7.9 times.

39. CSO: 2A2c LOS: 2A2l

Globetrade is a retailer that buys virtually all of its merchandise from manufacturers in a country experiencing significant inflation. Globetrade is considering changing its method of inventory costing from first-in, first-out (FIFO) to last-in, first-out (LIFO). What effect would the change from FIFO to LIFO have on Globetrade's current ratio and inventory turnover ratio?

- a. Both the current ratio and the inventory turnover ratio would increase.
- b. The current ratio would increase but the inventory turnover ratio would decrease.
- c. The current ratio would decrease but the inventory turnover ratio would increase.
- d. Both the current ratio and the inventory turnover ratio would decrease.

40. CSO: 2A2c LOS: 2A2l

Lancaster Inc. had net accounts receivable of \$168,000 and \$147,000 at the beginning and end of the year, respectively. The company's net income for the year was \$204,000 on \$1,700,000 in total sales. Cash sales were 6% of total sales. Lancaster's average accounts receivable turnover ratio for the year is

- a. 9.51.
- b. 10.15.
- c. 10.79.
- d. 10.87.

41. CSO: 2A2c LOS: 2A2m

Cornwall Corporation's net accounts receivable were \$68,000 and \$47,000 at the beginning and end of the year, respectively. Cornwall's condensed Income Statement is shown below.

Sales	\$900,000
Cost of goods sold	527,000
Operating expenses	<u>175,000</u>
Operating income	198,000
Income tax	<u>79,000</u>
Net income	<u><u>\$119,000</u></u>

Cornwall's average number of days' sales in accounts receivable (using a 360-day year) is

- a. 8 days.
- b. 13 days.
- c. 19 days.
- d. 23 days.

42. CSO: 2A2c LOS: 2A2m

The following financial information is given for Anjuli Corporation (in millions of dollars).

	<u>Prior Year</u>	<u>Current Year</u>
Sales	\$10	\$11
Cost of good sold	6	7
Current Assets		
Cash	2	3
Accounts receivable	3	4
Inventory	4	5

Between the prior year and the current year, did the days sales in inventory and days sales in receivables for Anjuli increase or decrease? Assume a 365-day year.

- |    | <u>Days Sales<br/>in Inventory</u> | <u>Days Sales<br/>in Receivables</u> |
|----|------------------------------------|--------------------------------------|
| a. | Increased;                         | Increased.                           |
| b. | Increased;                         | Decreased.                           |
| c. | Decreased;                         | Increased.                           |
| d. | Decreased;                         | Decreased.                           |

43. CSO: 2A2c LOS: 2A2o

On its year-end financial statements, Caper Corporation showed sales of \$3,000,000, net fixed assets of \$1,300,000, and total assets of \$2,000,000. The company's fixed asset turnover is

- a. 1.5 times.
- b. 43.3%.
- c. 2.3 times.
- d. 65%.

44. CSO: 2A2c LOS: 2A2I

The following information was obtained from a company's financial statements.

	<u>Beginning of the year</u>	<u>End of the year</u>
Inventory	\$6,400	\$7,600
Accounts receivable	2,140	3,060
Accounts payable	3,320	3,680

Total sales for the year were \$85,900, of which \$62,400 were credit sales. The cost of goods sold was \$24,500. The company's payable turnover was

- a. 6.7 times.
- b. 7.0 times.
- c. 16.9 times.
- d. 17.8 times.

45. CSO: 2A2d LOS: 2A2p

Douglas Company purchased 10,000 shares of its common stock at the beginning of the year for cash. This transaction will affect all of the following **except** the

- a. debt-to-equity ratio.
- b. earnings per share.
- c. net profit margin.
- d. current ratio.

46. CSO: 2A2d LOS: 2A2q

For the year just ended, Beechwood Corporation had income from operations of \$198,000 and net income of \$96,000. Additional financial information is given below.

	<u>January 1</u>	<u>December 31</u>
7% bonds payable	\$95,000	\$77,000
Common stock (\$10 par value)	300,000	300,000
Reserve for bond retirement	12,000	28,000
Retained earnings	155,000	206,000

Beechwood has no other equity issues outstanding. Beechwood's return on shareholders' equity for the year just ended is

- a. 19.2%.
- b. 19.9%.
- c. 32.0%.
- d. 39.5%.

47. CSO: 2A2d LOS: 2A2q

The assets of Moreland Corporation are presented below.

	<u>January 1</u>	<u>December 31</u>
Cash	\$ 48,000	\$ 62,000
Marketable securities	42,000	35,000
Accounts receivable	68,000	47,000
Inventory	125,000	138,000
Plant & equipment (net of accumulated depreciation)	325,000	424,000

For the year just ended, Moreland had net income of \$96,000 on \$900,000 of sales. Moreland's total asset turnover ratio is

- a. 1.27.
- b. 1.37.
- c. 1.48.
- d. 1.50.

48. CSO: 2A2d LOS: 2A2q

Interstate Motors has decided to make an additional investment in its operating assets which are financed by debt. Assuming all other factors remain constant, this increase in investment will have which one of the following effects?

	Operating Income <u>Margin</u>	Operating <u>Asset Turnover</u>	Return on Operating <u>Assets</u>
a.	Increase	No change	Increase.
b.	No change	Decrease	Decrease.
c.	No change	Increase	Decrease.
d.	Decrease	Decrease	Decrease.

49. CSO: 2A2d LOS: 2A2q

Colonie Inc. expects to report net income of at least \$10 million annually for the foreseeable future. Colonie could increase its return on equity by taking which of the following actions with respect to its inventory turnover and the use of equity financing?

	<u>Inventory Turnover</u>	<u>Use of Equity Financing</u>
a.	Increase;	Increase.
b.	Increase;	Decrease.
c.	Decrease;	Increase.
d.	Decrease;	Decrease.



50. *CSO: 2A2e LOS: 2A2s*  
 At the end of its fiscal year on December 31, 2000, Merit Watches had total shareholders' equity of \$24,209,306. Of this total, \$3,554,405 was preferred equity. During the 2001 fiscal year, Merit's net income after tax was \$2,861,003. During 2001, Merit paid preferred share dividends of \$223,551 and common share dividends of \$412,917. At December 31, 2001, Merit had 12,195,799 common shares outstanding and the company did not sell any common shares during the year. What was Merit Watch's book value per share on December 31, 2001?

- a. \$1.88.
- b. \$2.17.
- c. \$1.91.
- d. \$2.20.

51. *CSO: 2A2e LOS: 2A2s*  
 Donovan Corporation recently declared and issued a 50% stock dividend. This transaction will reduce the company's

- a. current ratio.
- b. book value per common share.
- c. debt-to-equity ratio.
- d. return on operating assets.

52. *CSO: 2A2e LOS: 2A2r*  
 The following information concerning Arnold Company's common stock was included in the company's financial reports for the last two years.

	<u>Year 2</u>	<u>Year 1</u>
Market price per share on December 31	\$60	\$50
Par value per share	10	10
Earnings per share	3	3
Dividends per share	1	1
Book value per share on December 31	36	34

Based on the price-earnings information, investors would **most likely** consider Arnold's common stock to

- a. be overvalued at the end of Year 2.
- b. indicate inferior investment decisions by management in Year 2.
- c. show a positive trend in growth opportunities in Year 2 compared to Year 1.
- d. show a decline in growth opportunities in Year 2 compared to Year 1.

53. CSO: 2A2e LOS: 2A2v

Bull & Bear Investment Banking is working with the management of Clark Inc. in order to take the company public in an initial public offering. Selected financial information for Clark is as follows.

Long-term debt (8% interest rate)	\$10,000,000
Common equity: Par value (\$1 per share)	3,000,000
Additional paid-in-capital	24,000,000
Retained earnings	6,000,000
Total assets	55,000,000
Net income	3,750,000
Dividend (annual)	1,500,000

If public companies in Clark's industry are trading at twelve times earnings, what is the estimated value per share of Clark?

- a. \$9.00.
- b. \$12.00.
- c. \$15.00.
- d. \$24.00.

54. CSO: 2A2e LOS: 2A2r

Morton Starley Investment Banking is working with the management of Kell Inc. in order to take the company public in an initial public offering. Selected information for the year just ended for Kell is as follows.

Long-term debt (8% interest rate)	\$10,000,000
Common equity: Par value (\$1 per share)	3,000,000
Additional paid-in-capital	24,000,000
Retained earnings	6,000,000
Total assets	55,000,000
Net income	3,750,000
Dividend (annual)	1,500,000

If public companies in Kell's industry are trading at a market to book ratio of 1.5, what is the estimated value per share of Kell?

- a. \$13.50.
- b. \$16.50.
- c. \$21.50.
- d. \$27.50.

55. CSO: 2A2e LOS: 2A2u

At the beginning of the year, Lewis Corporation had 100,000 shares of common stock outstanding. During the year, the following transactions occurred.

<u>Date</u>	<u>Transaction</u>
April 1	Issued 10,000 shares in exchange for land
July 1	Declared and distributed a 10% stock dividend
October 1	Purchased 5,000 shares of treasury stock

The number of shares that Lewis should use when computing earnings per share at the end of the year is

- a. 117,000.
- b. 116,000.
- c. 111,750.
- d. 106,250.

56. CSO: 2A2e LOS: 2A2u

Selected financial data for ABC Company is presented below.

- For the year just ended ABC has net income of \$5,300,000.
- \$5,500,000 of 7% convertible bonds were issued in the prior year at a face value of \$1,000. Each bond is convertible into 50 shares of common stock. No bonds were converted during the current year.
- 50,000 shares of 10% cumulative preferred stock, par value \$100, were issued in the prior year. Preferred dividends were not declared in the current year, but were current at the end of the prior year.
- At the beginning of the current year 1,060,000 shares of common stock were outstanding.
- On June 1 of the current year 60,000 shares of common stock were issued and sold.
- ABC's average income tax rate is 40%.

ABC Company's basic earnings per share for the current fiscal year is

- a. \$3.67.
- b. \$4.29.
- c. \$4.38.
- d. \$4.73.

57. *CSO: 2A2e LOS: 2A2r*  
Devlin Inc. has 250,000 shares of \$10 par value common stock outstanding. For the current year, Devlin paid a cash dividend of \$3.50 per share and had earnings per share of \$4.80. The market price of Devlin's stock is \$34 per share. Devlin's price/earnings ratio is
- 2.08.
  - 2.85.
  - 7.08.
  - 9.71.
58. *CSO: 2A2e LOS: 2A2r*  
At year-end, Appleseed Company reported net income of \$588,000. The company has 10,000 shares of \$100 par value, 6% preferred stock and 120,000 shares of \$10 par value common stock outstanding and 5,000 shares of common stock in treasury. There are no dividend payments in arrears, and the market price per common share at the end of the year was \$40. Appleseed's price-earnings ratio is
- 9.47.
  - 9.09.
  - 8.50.
  - 8.16.
59. *CSO: 2A2e LOS: 2A2r*  
Archer Inc. has 500,000 shares of \$10 par value common stock outstanding. For the current year, Archer paid a cash dividend of \$4.00 per share and had earnings per share of \$3.20. The market price of Archer's stock is \$36 per share. The average price/earnings ratio for Archer's industry is 14.00. When compared to the industry average, Archer's stock appears to be
- overvalued by approximately 25%.
  - overvalued by approximately 10%.
  - undervalued by approximately 10%.
  - undervalued by approximately 25%.
60. *CSO: 2A2e LOS: 2A2r*  
A steady drop in a firm's price/earnings ratio could indicate that
- earnings per share has been increasing while the market price of the stock has held steady.
  - earnings per share has been steadily decreasing.
  - the market price of the stock has been steadily rising.
  - both earnings per share and the market price of the stock are rising.

61. *CSO: 2A2e LOS: 2A2u*  
Collins Company reported net income of \$350,000 for the year. The company had 10,000 shares of \$100 par value, non-cumulative, 6% preferred stock and 100,000 shares of \$10 par value common stock outstanding. There were also 5,000 shares of common stock in treasury during the year. Collins declared and paid all preferred dividends as well as a \$1 per share dividend on common stock. Collins' earnings per share of common stock for the year was
- a. \$3.50.
  - b. \$3.33.
  - c. \$2.90.
  - d. \$2.76.
62. *CSO: 2A2e LOS: 2A2u*  
Ray Company has 530,000 common shares outstanding at year-end. At December 31, for basic earnings per share purposes, Ray computed its weighted average number of shares as 500,000. Prior to issuing its annual financial statements, but after year-end, Ray split its stock 2 for 1. Ray's weighted average number of shares to be used for computing annual basic earnings per share is
- a. 500,000.
  - b. 530,000.
  - c. 1,000,000.
  - d. 1,060,000.
63. *CSO: 2A2e LOS: 2A2u*  
On January 1, Esther Pharmaceuticals had a balance of 10,000 shares of common stock outstanding. On June 1, the company issued an additional 2,000 shares of common stock for cash. A total of 5,000 shares of 6%, \$100 par, nonconvertible preferred stock was outstanding all year. Esther's net income was \$120,000 for the year. The earnings per share for the year were
- a. \$7.50.
  - b. \$8.06.
  - c. \$10.00.
  - d. \$10.75.

64. *CSO: 2A2e LOS: 2A2u*  
 Roy company had 120,000 common shares and 100,000 preferred shares outstanding at the close of the prior year. During the current year Roy repurchased 12,000 common shares on March 1, sold 30,000 common shares on June 1, and sold an additional 60,000 common shares on November 1. No change in preferred shares outstanding occurred during the year. The number of shares of stock outstanding to be used in the calculation of basic earnings per share at the end of the current year is
- 100,000.
  - 137,500.
  - 198,000.
  - 298,000.

65. *CSO: 2A2e LOS: 2A2v*  
 Selected information regarding Dyle Corporation's outstanding equity is shown below.

Common stock, \$10 par value, 350,000 shares outstanding	\$3,500,000
Preferred stock, \$100 par value, 10,000 shares outstanding	1,000,000
Preferred stock dividend paid	60,000
Common stock dividend paid	700,000
Earnings per common share	3
Market price per common share	18

Dyle's yield on common stock is

- 11.11%.
  - 16.66%.
  - 16.88%.
  - 20.00%.
66. *CSO: 2A2e LOS: 2A2v*  
 For the most recent fiscal period, Oakland Inc. paid a regular quarterly dividend of \$0.20 per share and had earnings of \$3.20 per share. The market price of Oakland stock at the end of the period was \$40.00 per share. Oakland's dividend yield was
- 0.50%.
  - 1.00%.
  - 2.00%.
  - 6.25%.

67. *CSO: 2A2e LOS: 2A2v*  
The dividend yield ratio is calculated by which one of the following methods?

- a. Market price per share divided by dividends per share.
- b. Earnings per share divided by dividends per share.
- c. Dividends per share divided by market price per share.
- d. Dividends per share divided by earnings per share.

68. *CSO: 2A2e LOS: 2A2v*

Mayson Company reported net income of \$350,000 for last year. The company had 100,000 shares of \$10 par value common stock outstanding and 5,000 shares of common stock in treasury during the year. Mayson declared and paid \$1 per share dividends on common stock. The market price per common share at the end of last year was \$30. The company's dividend yield for the year was

- a. 30.03%.
- b. 28.57%.
- c. 11.11%.
- d. 3.33%.

69. *CSO: 2A2e LOS: 2A2v*

The following information concerning Arnold Company's common stock was included in the company's financial reports for the last two years.

	<u>Year 2</u>	<u>Year 1</u>
Market price per share on December 31	\$60	\$50
Par value per share	10	10
Earnings per share	3	3
Dividends per share	1	1
Book value per share on December 31	36	34

Arnold's dividend yield in Year 2

- a. has increased compared to Year 1.
- b. is indicative of the company's failure to provide a positive return to the investors.
- c. is the same as Year 1.
- d. has declined compared to Year 1.

70. *CSO: 2A4a LOS: 2A4a.2*  
A firm's functional currency should be
- selected on the basis of several economic factors including cash flow, sales price, and financing indicators.
  - the currency of the foreign environment in which the firm primarily generates and expends cash.
  - selected on the basis of cost-benefit analysis and ease of preparing consolidated financial statements.
  - the currency of the parent organization as the firm operates as an extension of the parent's operations.
71. *CSO: 2A4a LOS: 2A4a.2*  
The functional currency of an entity is defined as the currency
- of the entity's parent company.
  - of the primary country in which the entity is physically located.
  - in which the books of record are maintained for all entity operations.
  - of the primary economic environment in which the entity operates.
72. *CSO: 2A4c LOS: 2A4c.2*  
If a company uses off-balance-sheet financing, assets have been acquired
- for cash.
  - with operating leases.
  - with financing leases.
  - with a line of credit.
73. *CSO: 2A4e LOS: 2A4e*  
The concept of economic profit is **best** defined as total
- revenue minus all accounting costs.
  - income minus the sum of total fixed and variable costs.
  - revenue minus the sum of total fixed and variable costs.
  - revenue minus all explicit and implicit costs.
74. *CSO: 2A4e LOS: 2A4e*  
"Economic costs" often differ from costs shown in a firm's financial statements. For a corporation, a major difference would arise due to
- interest costs.
  - salary and wage costs.
  - opportunity costs.
  - state and local tax costs.



75. *CSO: 2A4e LOS: 2A4e*  
Which of the following costs, when subtracted from total revenue, yields economic profit?
- Variable costs.
  - Recurring operating costs.
  - Fixed and variable costs.
  - Opportunity costs of all inputs.
76. *CSO: 2A4e LOS: 2A4e*  
Williams makes \$35,000 a year as an accounting clerk. He decides to quit his job to enter an MBA program full-time. Assume Williams doesn't work in the summer or hold any part-time jobs. His tuition, books, living expenses, and fees total \$25,000 a year. Given this information, the annual total economic cost of Williams' MBA studies is
- \$10,000.
  - \$35,000.
  - \$25,000.
  - \$60,000.
77. *CSO: 2A4e LOS: 2A4e*  
The financial statements of Lark Inc. for last year are shown below.

Income Statement (\$000)

Revenue	\$4,000
Cost of sales	<u>2,900</u>
Gross margin	1,100
General & administrative	500
Interest	100
Taxes	<u>150</u>
Net income	<u>\$ 350</u>

Balance Sheet (\$000)

Current assets	\$ 800	Current liabilities	\$ 500
Plant & equipment	3,200	Long-term debt	\$1,000
		Common equity	<u>2,500</u>
Totals	<u>\$4,000</u>	Totals	<u>\$4,000</u>

If Lark's book values approximate market values and if the opportunity costs of debt and equity are 10% and 15%, respectively, what was the economic profit for Lark last year?

- (\$125,000).
- (\$25,000).
- \$0.
- \$350,000.

## Section B: Corporate Finance

78. *CSO: 2B1b LOS: 2B1b*  
The systematic risk of an individual security is measured by the
- standard deviation of the security's rate of return.
  - covariance between the security's returns and the general market.
  - security's contribution to the portfolio risk.
  - standard deviation of the security's returns and other similar securities.
79. *CSO: 2B1b LOS: 2B1c*  
Which one of the following provides the **best** measure of interest rate risk for a corporate bond?
- Duration.
  - Yield to maturity.
  - Bond rating.
  - Maturity.
80. *CSO: 2B1a LOS: 2B1h*  
Frasier Products has been growing at a rate of 10% per year and expects this growth to continue and produce earnings per share of \$4.00 next year. The firm has a dividend payout ratio of 35% and a beta value of 1.25. If the risk-free rate is 7% and the return on the market is 15%, what is the expected current market value of Frasier's common stock?
- \$14.00.
  - \$16.00.
  - \$20.00.
  - \$28.00.
81. *CSO: 2B1a LOS: 2B1g*  
Which one of the following would have the **least** impact on a firm's beta value?
- Debt-to-equity ratio.
  - Industry characteristics.
  - Operating leverage.
  - Payout ratio.

82. *CSO: 2B1a LOS: 2B1g*  
If Dexter Industries has a beta value of 1.0, then its
- return should equal the risk-free rate.
  - price is relatively stable.
  - expected return should approximate the overall market.
  - volatility is low.
83. *CSO: 2B4g LOS: 2B4ee*  
Buying a wheat futures contract to protect against price fluctuation of wheat would be classified as a
- fair value hedge.
  - cash flow hedge.
  - foreign currency hedge.
  - swap.
84. *CSO: 2B2b LOS: 2B2c*  
The call provision in some bond indentures allows
- the issuer to exercise an option to redeem the bonds.
  - the bondholder to exchange the bond, at no additional cost, for common shares.
  - the bondholder to redeem the bond early by paying a call premium.
  - the issuer to pay a premium in order to prevent bondholders from redeeming bonds.
85. *CSO: 2B2b LOS: 2B2c*  
Protective clauses set forth in an indenture are known as
- provisions.
  - requirements.
  - addenda.
  - covenants.
86. *CSO: 2B2b LOS: 2B2c*  
A requirement specified in an indenture agreement which states that a company cannot acquire or sell major assets without prior creditor approval is known as a
- protective covenant.
  - call provision.
  - warrant.
  - put option.

87. *CSO: 2B2b LOS: 2b2c*  
Dorsy Manufacturing plans to issue mortgage bonds subject to an indenture. Which of the following restrictions or requirements are likely to be contained in the indenture?
- I. Receiving the trustee's permission prior to selling the property.
  - II. Maintain the property in good operating condition.
  - III. Insuring plant and equipment at certain minimum levels.
  - IV. Including a negative pledge clause.
- a. I and IV only.
  - b. II and III only.
  - c. I, III, and IV only.
  - d. I, II, III and IV.
88. *CSO: 2B2c LOS: 2B2d*  
Which one of the following statements concerning debt instruments is **correct**?
- a. The coupon rate and yield of an outstanding long-term bond will change over time as economic factors change.
  - b. A 25-year bond with a coupon rate of 9% and one year to maturity has more interest rate risk than a 10-year bond with a 9% coupon issued by the same firm with one year to maturity.
  - c. For long-term bonds, price sensitivity to a given change in interest rates is greater the longer the maturity of the bond.
  - d. A bond with one year to maturity would have more interest rate risk than a bond with 15 years to maturity.
89. *CSO: 2B2b LOS: 2B2d*  
Which one of the following situations would prompt a firm to issue debt, as opposed to equity, the next time it raises external capital?
- a. High breakeven point.
  - b. Significant percentage of assets under capital lease.
  - c. Low fixed-charge coverage.
  - d. High effective tax rate.
90. *CSO: 2B2b LOS: 2B2c*  
Which one of the following is a debt instrument that generally has a maturity of ten years or more?
- a. A bond.
  - b. A note.
  - c. A chattel mortgage.
  - d. A financial lease.

91. *CSO: 2B2b LOS: 2B2b*  
James Hemming, the chief financial officer of a mid-western machine parts manufacturer, is considering splitting the company's stock, which is currently selling at \$80.00 per share. The stock currently pays a \$1.00 per share dividend. If the split is two-for-one, Mr. Hemming may expect the post split price to be
- exactly \$40.00, regardless of dividend policy.
  - greater than \$40.00, if the dividend is changed to \$0.45 per new share.
  - greater than \$40.00, if the dividend is changed to \$0.55 per new share.
  - less than \$40.00, regardless of dividend policy.
92. *CSO: 2B2b LOS: 2B2b*  
Which one of the following **best** describes the record date as it pertains to common stock?
- Four business days prior to the payment of a dividend.
  - The 52-week high for a stock published in the Wall Street Journal.
  - The date that is chosen to determine the ownership of shares.
  - The date on which a prospectus is declared effective by the Securities and Exchange Commission.
93. *CSO: 2B2b LOS: 2B2b*  
Preferred stock may be retired through the use of any one of the following **except a**
- conversion.
  - call provision.
  - refunding.
  - sinking fund.
94. *CSO: 2B2b LOS: 2B2b*  
All of the following are characteristics of preferred stock **except that**
- it may be callable at the option of the corporation.
  - it may be converted into common stock.
  - its dividends are tax deductible to the issuer.
  - it usually has no voting rights.
95. *CSO: 2B2b LOS: 2B2b*  
Which one of the following describes a **disadvantage** to a firm that issues preferred stock?
- Preferred stock dividends are legal obligations of the corporation.
  - Preferred stock typically has no maturity date.
  - Preferred stock is usually sold on a higher yield basis than bonds.
  - Most preferred stock is owned by corporate investors.

96. *COS: 2B2c LOS: 2B2q*  
Which of the following, when considered individually, would generally have the effect of increasing a firm's cost of capital?

- I. The firm reduces its operating leverage.
- II. The corporate tax rate is increased.
- III. The firm pays off its only outstanding debt.
- IV. The Treasury Bond yield increases.

- a. I and III.
- b. II and IV.
- c. III and IV.
- d. I, III and IV.

97. *CSO: 2B2c LOS: 2B2r*  
An accountant for Stability Inc. must calculate the weighted average cost of capital of the corporation using the following information.

		<u>Interest Rate</u>
Accounts payable	\$35,000,000	-0-
Long-term debt	10,000,000	8%
Common stock	10,000,000	15%
Retained earnings	5,000,000	18%

What is the weighted average cost of capital of Stability?

- a. 6.88%.
- b. 8.00%.
- c. 10.25%.
- d. 12.80%.

98. CSO: 2B2c LOS:2B2r

Kielly Machines Inc. is planning an expansion program estimated to cost \$100 million. Kielly is going to raise funds according to its target capital structure shown below.

Debt	.30
Preferred stock	.24
Equity	.46

Kielly had net income available to common shareholders of \$184 million last year of which 75% was paid out in dividends. The company has a marginal tax rate of 40%.

Additional data:

- The before-tax cost of debt is estimated to be 11%.
- The market yield of preferred stock is estimated to be 12%.
- The after-tax cost of common stock is estimated to be 16%.

What is Kielly's weighted average cost of capital?

- 12.22%.
- 13.00%.
- 13.54%.
- 14.00%.

99. CSO: 2B2c LOS: 2B2r

Following is an excerpt from Albion Corporation's balance sheet.

Long-term debt (9% interest rate)	\$30,000,000
Preferred stock (100,000 shares, 12% dividend)	10,000,000
Common stock (5,000,000 shares outstanding)	60,000,000

Albion's bonds are currently trading at \$1,083.34, reflecting a yield to maturity of 8%. The preferred stock is trading at \$125 per share. Common stock is selling at \$16 per share, and Albion's treasurer estimates that the firm's cost of equity is 17%. If Albion's effective income tax rate is 40%, what is the firm's cost of capital?

- 12.6%.
- 13.1%.
- 13.9%.
- 14.1%.

100. *CSO: 2B2c LOS: 2B2r*

Thomas Company's capital structure consists of 30% long-term debt, 25% preferred stock, and 45% common equity. The cost of capital for each component is shown below.

Long-term debt	8%
Preferred stock	11%
Common equity	15%

If Thomas pays taxes at the rate of 40%, what is the company's after-tax weighted average cost of capital?

- a. 7.14%.
- b. 9.84%.
- c. 10.94%.
- d. 11.90%.

101. *CSO: 2B2c LOS: 2B2r*

Joint Products Inc., a corporation with a 40% marginal tax rate, plans to issue \$1,000,000 of 8% preferred stock in exchange for \$1,000,000 of its 8% bonds currently outstanding. The firm's total liabilities and equity are equal to \$10,000,000. The effect of this exchange on the firm's weighted average cost of capital is likely to be

- a. no change, since it involves equal amounts of capital in the exchange and both instruments have the same rate.
- b. a decrease, since a portion of the debt payments are tax deductible.
- c. a decrease, since preferred stock payments do not need to be made each year, whereas debt payments must be made.
- d. an increase, since a portion of the debt payments are tax deductible.

102. *COS: 2B2c LOS: 2B2r*

Cox Company has sold 1,000 shares of \$100 par, 8% preferred stock at an issue price of \$92 per share. Stock issue costs were \$5 per share. Cox pays taxes at the rate of 40%. What is Cox's cost of preferred stock capital?

- a. 8.00%.
- b. 8.25%.
- c. 8.70%.
- d. 9.20%.



103. *CSO: 2B2c LOS: 2B2r*  
In calculating the component costs of long-term funds, the appropriate cost of retained earnings, ignoring flotation costs, is equal to
- the cost of common stock.
  - the same as the cost of preferred stock.
  - the weighted average cost of capital for the firm.
  - zero, or no cost.
104. *CSO: 2B2c LOS: 2B2r*  
The Hatch Sausage Company is projecting an annual growth rate for the foreseeable future of 9%. The most recent dividend paid was \$3.00 per share. New common stock can be issued at \$36 per share. Using the constant growth model, what is the approximate cost of capital for retained earnings?
- 9.08%.
  - 17.33%.
  - 18.08%
  - 19.88%.
105. *CSO: 2B2c LOS: 2B2r*  
The management of Old Fenske Company (OFC) has been reviewing the company's financing arrangements. The current financing mix is \$750,000 of common stock, \$200,000 of preferred stock (\$50 par) and \$300,000 of debt. OFC currently pays a common stock cash dividend of \$2. The common stock sells for \$38, and dividends have been growing at about 10% per year. Debt currently provides a yield to maturity to the investor of 12%, and preferred stock pays a dividend of 9% to yield 11%. Any new issue of securities will have a flotation cost of approximately 3%. OFC has retained earnings available for the equity requirement. The company's effective income tax rate is 40%. Based on this information, the cost of capital for retained earnings is
- 9.5%.
  - 14.2%.
  - 15.8%.
  - 16.0%.

106. CSO: 2B2c LOS: 2B2r

Angela Company's capital structure consists entirely of long-term debt and common equity. The cost of capital for each component is shown below.

Long-term debt	8%
Common equity	15%

Angela pays taxes at a rate of 40%. If Angela's weighted average cost of capital is 10.41%, what proportion of the company's capital structure is in the form of long-term debt?

- a. 34%.
- b. 45%.
- c. 55%.
- d. 66%.

107. CSO: 2B4b LOS: 2B4e

A firm uses the following model to determine the optimal average cash balance (Q).

$$Q = \sqrt{\frac{2 \times \text{annual cash disbursement} \times \text{cost per sale of T-Bill}}{\text{interest rate}}}$$

An **increase** in which one of the following would result in a **decrease** in the optimal cash balance?

- a. Uncertainty of cash outflows.
- b. Cost of a security trade.
- c. Return on marketable securities.
- d. Cash requirements for the year.

108. CSO: 2B4b LOS: 2B4e

All of the following are reasons for holding cash **except** for the

- a. precautionary motive.
- b. transactions motive.
- c. motive to make a profit.
- d. motive to meet future needs.

109. CSO: 2B4b LOS: 2B4g

All of the following can be utilized by a firm in managing its cash outflows **except**

- a. zero-balance accounts.
- b. centralization of payables.
- c. controlled disbursement accounts.
- d. lock-box system.

110. *CSO: 2B4b LOS: 2B4h*

Powell Industries deals with customers throughout the country and is attempting to more efficiently collect its accounts receivable. A major bank has offered to develop and operate a lock-box system for Powell at a cost of \$90,000 per year. Powell averages 300 receipts per day at an average of \$2,500 each. Its short-term interest cost is 8% per year. Using a 360-day year, what reduction in average collection time would be needed in order to justify the lock-box system?

- a. 0.67 days.
- b. 1.20 days.
- c. 1.25 days.
- d. 1.50 days.

111. *CSO: 2B4b LOS: 2B4h*

Mandel Inc. has a zero-balance account with a commercial bank. The bank sweeps any excess cash into a commercial investment account earning interest at the rate of 4% per year, payable monthly. When Mandel has a cash deficit, a line of credit is used which has an interest rate of 8% per year, payable monthly based on the amount used. Mandel expects to have a \$2 million cash balance on January 1 of next year. Net cash flows for the first half of the year, excluding the effects of interest received or paid, are forecasted (in millions of dollars) as follows.

	<u>Jan</u>	<u>Feb</u>	<u>Mar</u>	<u>Apr</u>	<u>May</u>	<u>Jun</u>
Net cash inflows (\$)	+2	+1	-5	-3	-2	+6

Assuming all cash-flows occur at the end of each month, approximately how much interest will Mandel incur for this period?

- a. \$17,000 net interest paid.
- b. \$53,000 net interest paid.
- c. \$76,000 net interest paid.
- d. \$195,000 net interest paid.

112. *CSO: 2B4b LOS: 2B4h*

Dexter Products receives \$25,000 worth of merchandise from its major supplier on the 15th and 30th of each month. The goods are sold on terms of 1/15, net 45, and Dexter has been paying on the net due date and foregoing the discount. A local bank offered Dexter a loan at an interest rate of 10%. What will be the net annual savings to Dexter if it borrows from the bank and utilizes the funds to take advantage of the trade discount?

- a. \$525.
- b. \$1,050.
- c. \$1,575.
- d. \$2,250.

113. CSO: 2B4b LOS: 2B4g

The Rolling Stone Corporation, an entertainment ticketing service, is considering the following means of speeding cash flow for the corporation.

- Lock Box System. This would cost \$25 per month for each of its 170 banks and would result in interest savings of \$5,240 per month.
- Drafts. Drafts would be used to pay for ticket refunds based on 4,000 refunds per month at a cost of \$2.00 per draft, which would result in interest savings of \$6,500 per month.
- Bank Float. Bank float would be used for the \$1,000,000 in checks written each month. The bank would charge a 2% fee for this service, but the corporation will earn \$22,000 in interest on the float.
- Electronic Transfer. Items over \$25,000 would be electronically transferred; it is estimated that 700 items of this type would be made each month at a cost of \$18 each, which would result in increased interest earnings of \$14,000 per month.

Which of these methods of speeding cash flow should Rolling Stone Corporation adopt?

- a. Lock box and electronic transfer only.
- b. Bank float and electronic transfer only.
- c. Lock box, drafts, and electronic transfer only.
- d. Lock box, bank float, and electronic transfer only.

114. CSO: 2B4b LOS: 2B4g

JKL Industries requires its branch offices to transfer cash balances once per week to the central corporate account. A wire transfer costs \$12 and assures the cash is available the same day. A depository transfer check (DTC) costs \$1.50 and generally results in funds being available in 2 days. JKL's cost of short-term funds averages 9%, and they use a 360-day year in all calculations. What is the minimum transfer amount that would justify the cost of a wire transfer as opposed to a DTC?

- a. \$21,000.
- b. \$24,000.
- c. \$27,000.
- d. \$42,000.

115. CSO: 2B4b LOS: 2B4l

The establishment and maintenance of a zero-balance account (ZBA) typically reduces all of the following **except**

- a. the cost of cash management.
- b. the disbursement float.
- c. excess bank balances.
- d. management time.

116. *CSO: 2B4c LOS: 2B4o*  
Which one of the following instruments would be **least** appropriate for a corporate treasurer to utilize for temporary investment of cash?
- U.S. Treasury bills.
  - Money market mutual funds.
  - Commercial paper.
  - Municipal bonds.
117. *CSO: 2B4c LOS: 2B4n*  
Which one of the following statements **best** characterizes U.S. Treasury bills?
- They have no coupon rate, no interest rate risk, and are issued at par.
  - They have an active secondary market, one to twenty-four month maturities, and monthly interest payments.
  - They have an active secondary market, the interest received is exempt from federal income tax, and there is no interest rate risk.
  - They have no coupon rate, no default risk, and interest received is subject to federal income tax.
118. *CSO: 2B4c LOS: 2B42B4dn*  
The Duoplan Company is determining the most appropriate source of short-term funding. Trade credit terms from suppliers are 2/30, net 90. The rate for borrowing at the bank is 12%. The company has also been approached by an investment banker offering to issue Duoplan's commercial paper. The commercial paper would be issued quarterly in increments of \$9.1 million with net proceeds of \$8.8 million. Which option should the firm select?
- The trade discount, because it provides the lowest cost of funds.
  - Bank borrowing, because it provides the lowest cost of funds.
  - Commercial paper, because it provides the lowest cost of funds.
  - The costs are so similar that the decision is a matter of convenience.
119. *CSO: 2B4d LOS: 2B4q*  
Clauson Inc. grants credit terms of 1/15, net 30 and projects gross sales for the year of \$2,000,000. The credit manager estimates that 40% of customers pay on the 15th day, 40% of the 30th day and 20% on the 45th day. Assuming uniform sales and a 360-day year, what is the projected amount of overdue receivables?
- \$50,000.
  - \$83,333.
  - \$116,676.
  - \$400,000.

120. *CSO: 2B4d LOS: 2B4t*  
Northville Products is changing its credit terms from net 30 to 2/10, net 30. The **least** likely effect of this change would be a(n)
- a. increase in sales.
  - b. shortening of the cash conversion cycle.
  - c. increase in short-term borrowings.
  - d. lower number of days sales outstanding.
121. *CSO: 2B4d LOS: 2B4t*  
Snug-fit, a maker of bowling gloves, is investigating the possibility of liberalizing its credit policy. Currently, payment is made on a cash-on-delivery basis. Under a new program, sales would increase by \$80,000. The company has a gross profit margin of 40%. The estimated bad debt loss rate on the incremental sales would be 6%. Ignoring the cost of money, what would be the return on sales before taxes for the new sales?
- a. 34.0%.
  - b. 36.2%.
  - c. 40.0%.
  - d. 42.5%.
122. *CSO: 2B4d LOS: 2B4r*  
A credit manager considering whether to grant trade credit to a new customer is **most** likely to place primary emphasis on
- a. profitability ratios.
  - b. valuation ratios.
  - c. growth ratios.
  - d. liquidity ratios.

123. CSO: 2B4d LOS: 2B4gg

Foster Products is reviewing its trade credit policy with respect to the small retailers to which it sells. Four plans have been studied and the results are as follows.

<u>Plan</u>	<u>Annual Revenue</u>	<u>Bad Debt</u>	<u>Collection Costs</u>	<u>Accounts Receivable</u>	<u>Inventory</u>
A	\$200,000	\$ 1,000	\$1,000	\$20,000	\$40,000
B	250,000	3,000	2,000	40,000	50,000
C	300,000	6,000	5,000	60,000	60,000
D	350,000	12,000	8,000	80,000	70,000

The information shows how various annual expenses such as bad debts and the cost of collections change as sales change. The average balance of accounts receivable and inventory have also been projected. The cost of the product to Foster is 80% of the selling price, after-tax cost of capital is 15%, and Foster's effective income tax rate is 30%. What is the optimal plan for Foster to implement?

- a. Plan A.
- b. Plan B.
- c. Plan C.
- d. Plan D.

124. CSO: 2B4d LOS: 2B4t

Consider the following factors affecting a company as it is reviewing its trade credit policy.

- I. Operating at full capacity.
- II. Low cost of borrowing.
- III. Opportunity for repeat sales.
- IV. Low gross margin per unit.

Which of the above factors would indicate that the company should liberalize its credit policy?

- a. I and II only.
- b. I, II and III only.
- c. II and III only.
- d. III and IV only.

125. *CSO: 2B4d LOS: 2B4t*

Computer Services is an established firm that sells computer hardware, software and services. The firm is considering a change in its credit policy. It has been determined that such a change would not change the payment patterns of the current customers. To determine whether such a change would be beneficial, the firm has identified the proposed new credit terms, the expected additional sales, the expected contribution margin on the sales, the expected bad debt losses, and the investment in additional receivables and the period of the investment. What additional information, if any, does the firm require to determine the profitability of the proposed new policy as compared to the current credit policy?

- a. The credit standards that presently exist.
- b. The new credit standards.
- c. The opportunity cost of funds.
- d. No additional information is needed.

126. *CSO: 2B4d LOS: 2B4gg*

Harson Products currently has a conservative credit policy and is in the process of reviewing three other credit policies. The current credit policy (Policy A) results in sales of \$12 million per year. Policies B and C involve higher sales, accounts receivable and inventory balances, as well as higher bad debt and collection costs. Policy D grants longer payment terms than Policy C, but charges customers interest if they take advantage of the lengthy payment terms. The policies are outlined below.

	<u>P o l i c y (000)</u>			
	<u>A</u>	<u>B</u>	<u>C</u>	<u>D</u>
Sales	\$12,000	\$13,000	\$14,000	\$14,000
Average accounts receivable	1,500	2,000	3,500	5,000
Average inventory	2,000	2,300	2,500	2,500
Interest income	0	0	0	500
Bad debt expense	100	125	300	400
Collection cost	100	125	250	350

If the direct cost of products is 80% of sales and the cost of short-term funds is 10%, what is the optimal policy for Harson?

- a. Policy A.
- b. Policy B.
- c. Policy C.
- d. Policy D.



127. CSO: 2B4d LOS: 2B4t

Global Manufacturing Company has a cost of borrowing of 12%. One of the firm's suppliers has just offered new terms for purchases. The old terms were cash on delivery and the new terms are 2/10, net 45. Should Global pay within the first ten days?

- a. Yes, the cost of not taking the trade discount exceeds the cost of borrowing.
- b. No, the cost of trade credit exceeds the cost of borrowing.
- c. No, the use of debt should be avoided if possible.
- d. The answer depends on whether the firm borrows money.

128. CSO: 2B4d LOS: 2B2m2B4e

Locar Corporation had net sales last year of \$18,600,000 (of which 20% were installment sales). It also had an average accounts receivable balance of \$1,380,000. Credit terms are 2/10, net 30. Based on a 360-day year, Locar's average collection period last year was

- a. 26.2 days.
- b. 26.7 days.
- c. 27.3 days.
- d. 33.4 days.

129. CSO: 2B4e LOS: 2B4gg

Atlantic Distributors is expanding and wants to increase its level of inventory to support an aggressive sales target. They would like to finance this expansion using debt. Atlantic currently has loan covenants that require the working capital ratio to be at least 1.2. The average cost of the current liabilities is 12% and the cost of the long-term debt is 8%. Below is the current balance sheet for Atlantic.

Current assets	\$200,000	Current liabilities	\$165,000
Fixed assets	<u>100,000</u>	Long-term debt	100,000
Total assets	<u>\$300,000</u>	Equity	<u>35,000</u>
		Total debt & equity	<u>\$300,000</u>

Which one of the following alternatives will provide the resources to expand the inventory while lowering the total cost of debt and satisfying the loan covenant?

- a. Increase both accounts payable and inventory by \$25,000.
- b. Sell fixed assets with a book value of \$20,000 for \$25,000 and use the proceeds to increase inventory.
- c. Borrow short-term funds of \$25,000, and purchase inventory of \$25,000.
- d. Collect \$25,000 accounts receivable; use \$10,000 to purchase inventory and use the balance to reduce short-term debt.

130. *CSO: 2B4e LOS: 2B4v*  
All of the following are carrying costs of inventory **except**

- a. storage costs.
- b. insurance.
- c. shipping costs.
- d. opportunity costs.

131. *CSO: 2B4e LOS: 2B4v*

Valley Inc. uses 400 lbs. of a rare isotope per year. The isotope costs \$500 per lb., but the supplier is offering a quantity discount of 2% for order sizes between 30 and 79 lbs., and a 6% discount for order sizes of 80 lbs. or more. The ordering costs are \$200. Carrying costs are \$100 per lb. of material and are not affected by the discounts. If the purchasing manager places eight orders of 50 lbs. each, the total cost of ordering and carrying inventory, including discounts lost, will be

- a. \$1,600.
- b. \$4,100.
- c. \$6,600.
- d. \$12,100.

132. *CSO: 2B4e LOS: 2B4v*

A review of the inventories of Cedar Grove Company shows the following cost data for entertainment centers.

Invoice price	\$400.00 per unit
Freight and insurance on shipment	20.00 per unit
Insurance on inventory	15.00 per unit
Unloading	140.00 per order
Cost of placing orders	10.00 per order
Cost of capital	25%

What are the total carrying costs of inventory for an entertainment center?

- a. \$105.
- b. \$115.
- c. \$120.
- d. \$420.

133. *CSO: 2B4e LOS: 2B4v*  
Paint Corporation expects to use 48,000 gallons of paint per year costing \$12 per gallon. Inventory carrying cost is equal to 20% of the purchase price. The company uses its inventory at a constant rate. The lead time for placing the order is 3 days, and Paint Corporation holds 2,400 gallons of paint as safety stock. If the company orders 2,000 gallons of paint per order, what is the cost of carrying inventory?
- \$2,400.
  - \$5,280.
  - \$5,760.
  - \$8,160.
134. *CSO: 2B4e LOS: 2B4w*  
James Smith is the new manager of inventory at American Electronics, a major retailer. He is developing an inventory control system, and knows he should consider establishing a safety stock level. The safety stock can protect against all of the following risks, **except** for the possibility that
- customers cannot find the merchandise they want, and they will go to the competition.
  - shipments of merchandise from the manufacturers is delayed by as much as one week.
  - the distribution of daily sales will have a large variance, due to holidays, weather, advertising, and weekly shopping habits.
  - new competition may open in the company's market area.
135. *CSO: 2B4e LOS: 2B4y*  
Carnes Industries uses the Economic Order Quantity (EOQ) model as part of its inventory control program. An **increase** in which one of the following variables would **increase** the EOQ?
- Carrying cost rate.
  - Purchase price per unit.
  - Ordering costs.
  - Safety stock level.
136. *CSO: 2B4e LOS: 2B4y*  
Which one of the following is **not** explicitly considered in the standard calculation of Economic Order Quantity (EOQ)?
- Level of sales.
  - Fixed ordering costs.
  - Carrying costs.
  - Quantity discounts.

137. *CSO: 2B4e LOS: 2B4y*  
Which one of the following statements concerning the economic order quantity (EOQ) is **correct**?
- The EOQ results in the minimum ordering cost and minimum carrying cost.
  - Increasing the EOQ is the best way to avoid stockouts.
  - The EOQ model assumes constantly increasing usage over the year.
  - The EOQ model assumes that order delivery times are consistent.
138. *CSO: 2B4e LOS: 2B4y*  
Moss Products uses the Economic Order Quantity (EOQ) model as part of its inventory management process. A **decrease** in which one of the following variables would **increase** the EOQ?
- Annual sales.
  - Cost per order.
  - Safety stock level.
  - Carrying costs.
139. *CSO: 2B4f LOS: 2B4ff*  
Burke Industries has a revolving credit arrangement with its bank which specifies that Burke can borrow up to \$5 million at an annual interest rate of 9% payable monthly. In addition, Burke must pay a commitment fee of 0.25% per month on the unused portion of the line, payable monthly. Burke expects to have a \$2 million cash balance and no borrowings against this line of credit on April 1, net cash inflows of \$2 million in April, net outflows of \$7 million in May, and net inflows of \$4 million in June. If all cash-flows occur at the end of the month, approximately how much will Burke pay to the bank during the second quarter related to this revolving credit arrangement?
- \$47,700.
  - \$52,500.
  - \$60,200.
  - \$62,500.
140. *CSO: 2B4f LOS: 2B4z*  
Of the following, the working capital financing policy that would subject a firm to the **greatest** level of risk is the one where the firm finances
- fluctuating current assets with short-term debt.
  - permanent current assets with long-term debt.
  - fluctuating current assets with long-term debt.
  - permanent current assets with short-term debt.

141. CSO: 2B4f LOS: 2B4bb

The Texas Corporation is considering the following opportunities to purchase an investment at the following amounts and discounts.

<u>Term</u>	<u>Amount</u>	<u>Discount</u>
90 days	\$ 80,000	5%
180 days	75,000	6%
270 days	100,000	5%
360 days	60,000	10%

Which opportunity offers the Texas Corporation the highest annual yield?

- a. 90-day investment.
- b. 180-day investment.
- c. 270-day investment.
- d. 360-day investment.

142. CSO: 2B4f LOS: 2B4aa

A manufacturer with seasonal sales would be **most likely** to obtain which one of the following types of loans from a commercial bank to finance the need for a fixed amount of additional capital during the busy season?

- a. Transaction loan.
- b. Insurance company term loan.
- c. Installment loan.
- d. Unsecured short-term loan.

143. CSO: 2B4f LOS: 2B4aa

Which of the following financing vehicles would a commercial bank be likely to offer to its customers?

- I. Discounted notes
- II. Term loans
- III. Lines of credit
- IV. Self-liquidating loans

- a. I and II.
- b. III and IV.
- c. I, III and IV.
- d. I, II, III and IV.

144. *CSO: 2B4f LOS: 2B4gg*

Megatech Inc. is a large publicly-held firm. The treasurer is making an analysis of the short-term financing options available for the third quarter, as the company will need an average of \$8 million for the month of July, \$12 million for August, and \$10 million for September. The following options are available.

- I. Issue commercial paper on July 1 in an amount sufficient to net Megatech \$12 million at an effective rate of 7% per year. Any temporarily excess funds will be deposited in Megatech's investment account at First City Bank and earn interest at an annual rate of 4%.
- II. Utilize a line of credit from First City Bank with interest accruing monthly on the amount utilized at the prime rate, which is estimated to be 8% in July and August and 8.5% in September.

Based on this information, which one of the following actions should the treasurer take?

- a. Issue commercial paper, since it is approximately \$35,000 less expensive than the line of credit.
- b. Issue commercial paper, since it is approximately \$14,200 less expensive than the line of credit.
- c. Use the line of credit, since it is approximately \$15,000 less expensive than issuing commercial paper.
- d. Use the line of credit, since it is approximately \$5,800 less expensive than issuing commercial paper.

145. *CSO: 2B4f LOS: 2B4aa*

Dudley Products is given terms of 2/10, net 45 by its suppliers. If Dudley forgoes the cash discount and instead pays the suppliers 5 days after the net due date, what is the annual interest rate cost (using a 360-day year)?

- a. 18.0%.
- b. 18.4%.
- c. 21.0%.
- d. 24.5%.

146. *CSO: 2B4f LOS: 2B4bb*

A firm is given payment terms of 3/10, net 90 and forgoes the discount paying on the net due date. Using a 360-day year and ignoring the effects of compounding, what is the effective annual interest rate cost?

- a. 12.0%.
- b. 12.4%.
- c. 13.5%.
- d. 13.9%.

147. *CSO: 2B4f LOS: 2B4cc*  
Lang National Bank offered a one-year loan to a commercial customer. The instrument is a discounted note with a nominal rate of 12%. What is the effective interest rate to the borrower?
- a. 10.71%.
  - b. 12.00%.
  - c. 13.20%.
  - d. 13.64%.
148. *CSO: 2B4f LOS: 2B4cc*  
Gates Inc. has been offered a one-year loan by its commercial bank. The instrument is a discounted note with a stated interest rate of 9%. If Gates needs \$300,000 for use in the business, what should the face value of the note be?
- a. \$275,229.
  - b. \$327,000.
  - c. \$327,154.
  - d. \$329,670.
149. *CSO: 2B4f LOS: 2B4cc*  
Keller Products needs \$150,000 of additional funds over the next year in order to satisfy a significant increase in demand. A commercial bank has offered Keller a one-year loan at a nominal rate of 8%, which requires a 15% compensating balance. How much would Keller have to borrow, assuming it would need to cover the compensating balance with the loan proceeds?
- a. \$130,435.
  - b. \$172,500.
  - c. \$176,471.
  - d. \$194,805.
150. *CSO: 2B4f LOS: 2B4cc*  
Approximately what amount of compensating balance would be required for a stated interest rate of 10% to equal an effective interest rate of 10.31% on a \$100,000,000 one-year loan?
- a. \$310,000.
  - b. \$3,000,000.
  - c. \$3,100,000.
  - d. Not enough information is given.

151. *CSO: 2B4f LOS: 2B4cc*

The effective annual interest rate to the borrower of a \$100,000 one-year loan with a stated rate of 7% and a 20% compensating balance is

- a. 7.0%.
- b. 8.4%.
- c. 8.75%.
- d. 13.0%.

152. *CSO: 2B4f LOS: 2B4cc*

Todd Manufacturing Company needs a \$100 million loan for one year. Todd's banker has presented two alternatives as follows:

Option #1 - Loan with a stated interest rate of 10.25%. No compensating balance required.

Option #2 - Loan with a stated interest rate of 10.00%. Non-interest bearing compensating balance required.

Which of the following compensating balances, withheld from the loan proceeds, would result in Option #2 having an effective interest rate equal to the 10.25% rate of Option #1?

- a. \$250,000.
- b. \$2,440,000.
- c. \$2,500,000.
- d. \$10,250,000.



153. *CSO: 2B4f LOS: 2B4cc*

Frame Industries has arranged a revolving line of credit for the upcoming year with a commercial bank. The arrangement is for \$20 million, with interest payable monthly on the amount utilized at the bank's prime rate and an annual commitment fee of one-half of 1 percent, computed and payable monthly on the unused portion of the line. Frame estimates that the prime rate for the upcoming year will be 8%, and expects the following average amount to be borrowed by quarter.

<u>Quarter</u>	<u>Amount Borrowed</u>
First	\$10,000,000
Second	20,000,000
Third	20,000,000
Fourth	5,000,000

How much will Frame pay to the bank next year in interest and fees?

- a. \$1,118,750.
  - b. \$1,131,250.
  - c. \$1,168,750.
  - d. \$1,200,000.
154. *CSO: 2B4f LOS: 2B4cc*
- What is the effective annual interest rate for a one-year \$100 million loan with a stated interest rate of 8.00%, if the lending bank requires a non-interest bearing compensating balance in the amount of \$5 million?
- a. 7.62%
  - b. 8.00%
  - c. 8.42%
  - d. 13.00%
155. *CSO: 2B3e LOS: 2B3i*
- The residual theory of dividends argues that dividends
- a. are necessary to maintain the market price of the common stock.
  - b. are irrelevant.
  - c. can be foregone unless there is an excess demand for cash dividends.
  - d. can be paid if there is income remaining after funding all attractive investment opportunities.

156. *CSO: 2B3e LOS:2B3j*

Mason Inc. is considering four alternative opportunities. Required investment outlays and expected rates of return for these investments are given below.

<u>Project</u>	<u>Investment Cost</u>	<u>IRR</u>
A	\$200,000	12.5
B	\$350,000	14.2
C	\$570,000	16.5
D	\$390,000	10.6

The investments will be financed through 40% debt and 60% common equity. Internally generated funds totaling \$1,000,000 are available for reinvestment. If the cost of capital is 11%, and Mason strictly follows the residual dividend policy, how much in dividends would the company likely pay?

- a. \$120,000.
- b. \$328,000.
- c. \$430,000.
- d. \$650,000.

157. *CSO: 2B3e LOS: 2B3j*

When determining the amount of dividends to be declared, the **most** important factor to consider is the

- a. expectations of the shareholders.
- b. future planned uses of retained earnings.
- c. impact of inflation on replacement costs.
- d. future planned uses of cash.

158. *CSO: 2B3e LOS: 2B3i*

Underhall Inc.'s common stock is currently selling for \$108 per share. Underhall is planning a new stock issue in the near future and would like to stimulate interest in the company. The Board, however, does not want to distribute capital at this time. Therefore, Underhall is considering whether to offer a 2-for-1 common stock split or a 100% stock dividend on its common stock. The **best** reason for opting for the stock split is that

- a. it will not decrease shareholders' equity.
- b. it will not impair the company's ability to pay dividends in the future.
- c. the impact on earnings per share will not be as great.
- d. the par value per share will remain unchanged.

159. *CSO: 2B3e LOS: 2B3j*  
Kalamazoo Inc. has issued 25,000 shares of its authorized 50,000 shares of common stock. There are 5,000 shares of common stock that have been repurchased and are classified as treasury stock. Kalamazoo has 10,000 shares of preferred stock. If a \$0.60 per share dividend has been authorized on its common stock, what will be the total common stock dividend payment?
- \$12,000.
  - \$15,000.
  - \$21,000.
  - \$30,000.
160. *CSO: 2B6a LOS: 2B6b*  
Under a floating exchange rate system, which one of the following should result in a depreciation of the Swiss franc?
- U.S. inflation declines relative to the Swiss inflation.
  - U.S. income levels improve relative to the Swiss.
  - Swiss interest rate rise relative to the U.S. rates.
  - Decrease in outflows of Swiss capital to the U.S.
161. *CSO: 2B6a LOS: 2B6b*  
If the U.S. dollar appreciated against the British pound, other things being equal, we would expect that
- the British demand for U.S. products would increase.
  - U.S. demand for British products would decrease.
  - U.S. demand for British products would increase.
  - trade between the U.S. and Britain would decrease.
162. *CSO: 2B6a LOS: 2B6b*  
Country A's currency would tend to appreciate relative to Country B's currency when
- Country A has a higher rate of inflation than Country B.
  - Country B has real interest rates that are greater than real interest rates in Country A.
  - Country A has a slower rate of growth in income that causes its imports to lag behind its exports.
  - Country B switches to a more restrictive monetary policy.
163. *CSO: 2B6a LOS: 2B6b*  
Country R's currency would tend to depreciate relative to Country T's currency when
- Country R switches to a more restrictive monetary policy.
  - Country T has a rapid rate of growth in income that causes imports to lag behind exports.
  - Country R has a rate of inflation that is lower than the rate of inflation in Country T.
  - Country R has real interest rates that are lower than real interest rates in Country T.

## Section C: Decision Analysis

164. *CSO: 2C1a LOS: 2C1f*

Garner Products is considering a new accounts payable and cash disbursement process which is projected to add 3 days to the disbursement schedule without having significant negative effects on supplier relations. Daily cash outflows average \$1,500,000. Garner is in a short-term borrowing position for 8 months of the year and in an investment position for 4 months. On an annual basis, bank lending rates are expected to average 7% and marketable securities yields are expected to average 4%. What is the maximum annual expense that Garner could incur for this new process and still break even?

- a. \$90,000.
- b. \$180,000.
- c. \$270,000.
- d. \$315,000.

165. *CSO: 2C1a LOS: 2C1f*

Bolger and Co. manufactures large gaskets for the turbine industry. Bolger's per unit sales price and variable costs for the current year are as follows.

Sales price per unit	\$300
Variable costs per unit	210

Bolger's total fixed costs aggregate \$360,000. As Bolger's labor agreement is expiring at the end of the year, management is concerned about the effect a new agreement will have on its unit breakeven point. The controller performed a sensitivity analysis to ascertain the estimated effect of a \$10 per unit direct labor increase and a \$10,000 reduction in fixed costs. Based on these data, it was determined that the breakeven point would

- a. decrease by 1,000 units.
- b. decrease by 125 units.
- c. increase by 375 units.
- d. increase by 500 units.

166. CSO: 2C1a LOS: 2C1b

Phillips & Company produces educational software. Its unit cost structure, based upon an anticipated production volume of 150,000 units, is as follows.

Sales price	\$160
Variable costs	60
Fixed costs	55

The marketing department has estimated sales for the coming year at 175,000 units, which is within the relevant range of Phillip's cost structure. Phillip's break-even volume (in units) and anticipated operating income for the coming year would amount to

- a. 82,500 units and \$7,875,000 of operating income.
- b. 82,500 units and \$9,250,000 of operating income.
- c. 96,250 units and \$3,543,750 of operating income.
- d. 96,250 units and \$7,875,000 of operating income.

167. CSO: 2C1a LOS: 2C1a

All of the following are assumptions of cost-volume-profit analysis **except**

- a. total fixed costs do not change with a change in volume.
- b. revenues change proportionately with volume.
- c. variable costs per unit change proportionately with volume.
- d. sales mix for multi-product situations do not vary with volume changes.

168. CSO: 2C1a LOS: 2C1f

Ace Manufacturing plans to produce two products, Product C and Product F, during the next year, with the following characteristics.

	<u>Product C</u>	<u>Product F</u>
Selling price per unit	\$10	\$15
Variable cost per unit	\$ 8	\$10
Expected sales (units)	20,000	5,000

Total projected fixed costs for the company are \$30,000. Assume that the product mix would be the same at the breakeven point as at the expected level of sales of both products. What is the projected number of units (rounded) of Product C to be sold at the breakeven point?

- a. 2,308 units.
- b. 9,231 units.
- c. 11,538 units.
- d. 15,000 units.

169. CSO: 2C1a LOS: 2C1f

Starlight Theater stages a number of summer musicals at its theater in northern Ohio. Preliminary planning has just begun for the upcoming season, and Starlight has developed the following estimated data.

<u>Production</u>	<u>Number of Performances</u>	<u>Average Attendance per Performance</u>	<u>Ticket Price</u>	<u>Variable Costs</u> <sup>1</sup>	<u>Fixed Costs</u> <sup>2</sup>
Mr. Wonderful	12	3,500	\$18	\$3	\$165,000
That's Life	20	3,000	15	1	249,000
All That Jazz	12	4,000	20	0	316,000

<sup>1</sup> Represent payments to production companies and are based on tickets sold.

<sup>2</sup> Costs directly associated with the entire run of each production for costumes, sets, and artist fees.

Starlight will also incur \$565,000 of common fixed operating charges (administrative overhead, facility costs, and advertising) for the entire season, and is subject to a 30% income tax rate. These common charges are allocated based on total attendance for each production.

If Starlight's schedule of musicals is held, as planned, how many patrons would have to attend for Starlight to break even during the summer season?

- a. 77,918.
- b. 79,302.
- c. 79,938.
- d. 81,344.

170. CSO: 2C1a LOS: 2C1f

Carson Inc. manufactures only one product and is preparing its budget for next year based on the following information.

Selling price per unit	\$	100
Variable costs per unit		75
Fixed costs		250,000
Effective tax rate		35%

If Carson wants to achieve a net income of \$1.3 million next year, its sales must be

- a. 62,000 units.
- b. 70,200 units.
- c. 80,000 units.
- d. 90,000 units.

171. CSO: 2C1a LOS: 2C1f

MetalCraft produces three inexpensive socket wrench sets that are popular with do-it-yourselfers. Budgeted information for the upcoming year is as follows.

<u>Model</u>	<u>Selling Price</u>	<u>Variable Cost</u>	<u>Estimated Sales Volume</u>
No. 109	\$10.00	\$ 5.50	30,000 sets
No. 145	15.00	8.00	75,000 sets
No. 153	20.00	14.00	45,000 sets

Total fixed costs for the socket wrench product line is \$961,000. If the company's actual experience remains consistent with the estimated sales volume percentage distribution, and the firm desires to generate total operating income of \$161,200, how many Model No. 153 socket sets will MetalCraft have to sell?

- a. 26,000.
- b. 54,300.
- c. 155,000.
- d. 181,000.

172. CSO: 2C1a LOS: 2C1f

Starlight Theater stages a number of summer musicals at its theater in northern Ohio. Preliminary planning has just begun for the upcoming season, and Starlight has developed the following estimated data.

<u>Production</u>	<u>Number of Performances</u>	<u>Average Attendance per Performance</u>	<u>Ticket Price</u>	<u>Variable Costs<sup>1</sup></u>	<u>Fixed Costs<sup>2</sup></u>
Mr. Wonderful	12	3,500	\$18	\$3	\$165,000
That's Life	20	3,000	15	1	249,000
All That Jazz	12	4,000	20	0	316,000

<sup>1</sup> Represent payments to production companies and are based on tickets sold.

<sup>2</sup> Costs directly associated with the entire run of each production for costumes, sets, and artist fees.

Starlight will also incur \$565,000 of common fixed operating charges (administrative overhead, facility costs, and advertising) for the entire season, and is subject to a 30% income tax rate.

If management desires Mr. Wonderful to produce an after-tax contribution of \$210,000 toward the firm's overall operating income for the year, total attendance for the production would have to be

- a. 20,800.
- b. 25,000.
- c. 25,833.
- d. 31,000.

173. CSO: 2C1a LOS: 2C1f

Robin Company wants to earn a 6% return on sales after taxes. The company's effective income tax rate is 40%, and its contribution margin is 30%. If Robin has fixed costs of \$240,000, the amount of sales required to earn the desired return is

- a. \$375,000.
- b. \$400,000.
- c. \$1,000,000.
- d. \$1,200,000.

174. CSO: 2C1a LOS: 2C1f

Bargain Press is considering publishing a new textbook. The publisher has developed the following cost data related to a production run of 6,000, the minimum possible production run. Bargain Press will sell the textbook for \$45 per copy.

	Estimated cost
Development (reviews, class testing, editing)	\$35,000
Set-up costs	18,500
Depreciation on Equipment	9,320
General and Administrative	7,500
Miscellaneous Fixed Costs	4,400
Supervisor's Salary	30,000
Sales staff commissions (2% of selling price)	5,400
Bookstore commissions (25% of selling price)	67,500
Author's Royalties (10% of selling price)	<u>27,000</u>
 Total costs at production of 6,000 copies	 <u>\$204,620</u>

How many textbooks must Bargain Press sell in order to generate operating earnings (earnings before interest and taxes) of 20% on sales? (Round your answer up to the nearest whole textbook.)

- a. 2,076 copies.
- b. 5,207 copies.
- c. 5,412 copies.
- d. 6,199 copies.



175. *CSO: 2C1a LOS: 2C1f*  
 Zipper Company invested \$300,000 in a new machine to produce cones for the textile industry. Zipper's variable costs are 30% of the selling price, and its fixed costs are \$600,000. Zipper has an effective income tax rate of 40%. The amount of sales required to earn an 8% after-tax return on its investment would be
- \$891,429.
  - \$914,286.
  - \$2,080,000.
  - \$2,133,333.

176. *CSO: 2C1a LOS: 2C1a*  
 Breakeven quantity is defined as the volume of output at which revenues are equal to
- marginal costs.
  - total costs.
  - variable costs.
  - fixed costs.

177. *CSO: 2C1a LOS: 2C1b*  
 Eagle Brand Inc. produces two products. Data regarding these products are presented below.

	<u>Product X</u>	<u>Product Y</u>
Selling price per unit	\$100	\$130
Variable costs per unit	\$80	\$100
Raw materials used per unit	4 lbs.	10 lbs.

Eagle Brand has 1,000 lbs. of raw materials which can be used to produce Products X and Y.

Which one of the alternatives below should Eagle Brand accept in order to maximize contribution margin?

- 100 units of product Y.
- 250 units of product X.
- 200 units of product X and 20 units of product Y.
- 200 units of product X and 50 units of product Y.

178. *CSO: 2C1b LOS: 2C1b*  
For the year just ended, Silverstone Company's sales revenue was \$450,000. Silverstone's fixed costs were \$120,000 and its variable costs amounted to \$270,000. For the current year sales are forecasted at \$500,000. If the fixed costs do not change, Silverstone's profits this year will be
- \$60,000.
  - \$80,000.
  - \$110,000.
  - \$200,000.
179. *CSO: 2C1b LOS: 2C1e*  
Breeze Company has a contribution margin of \$4,000 and fixed costs of \$1,000. If the total contribution margin increases by \$1,000, operating profit would
- decrease by \$1,000.
  - increase by more than \$1,000.
  - increase by \$1,000.
  - remain unchanged.
180. *CSO: 2C1b LOS: 2C1b*  
Wilkinson Company sells its single product for \$30 per unit. The contribution margin ratio is 45% and Wilkinson has fixed costs of \$10,000 per month. If 3,000 units are sold in the current month, Wilkinson's income would be
- \$30,500.
  - \$49,500.
  - \$40,500.
  - \$90,000.

181. CSO: 2C1c LOS: 2C1h

Cervine Corporation makes motors for various products. Operating data and unit cost information for its products are presented below.

	<u>Product A</u>	<u>Product B</u>
Annual unit capacity	10,000	20,000
Annual unit demand	<u>10,000</u>	<u>20,000</u>
Selling price	\$100	\$80
Variable manufacturing cost	53	45
Fixed manufacturing cost	10	10
Variable selling & administrative	10	11
Fixed selling & administrative	5	4
Fixed other administrative	<u>2</u>	<u>-</u>
Unit operating profit	<u>\$ 20</u>	<u>\$10</u>
Machine hours per unit	2.0	1.5

Cervine has 40,000 productive machine hours available. What is the maximum total contribution margin that Cervine can generate in the coming year?

- a. \$665,000.
- b. \$689,992.
- c. \$850,000.
- d. \$980,000.

182. CSO: 2C1c LOS: 2C1h

Specialty Cakes Inc. produces two types of cakes, a 2 lbs. round cake and a 3 lbs. heart-shaped cake. Total fixed costs for the firm are \$94,000. Variable costs and sales data for the two types of cakes are presented below.

	2 lbs. <u>Round Cake</u>	3 lbs. <u>Heart-shape Cake</u>
Selling price per unit	\$12	\$20
Variable cost per unit	\$8	\$15
Current sales (units)	10,000	15,000

If the product sales mix were to change to three heart-shaped cakes for each round cake, the breakeven volume for each of these products would be

- a. 8,174 round cakes, 12,261 heart-shaped cakes.
- b. 12,261 round cakes, 8,174 heart-shaped cakes.
- c. 4,947 round cakes, 14,842 heart-shaped cakes.
- d. 15,326 round cakes, 8,109 heart-shaped cakes.

183. CSO: 2C1c LOS: 2C1e

Lazar Industries produces two products, Crates and Boxes. Per unit selling prices, costs, and resource utilization for these products are as follows.

	<u>Crates</u>	<u>Boxes</u>
Selling price	<u>\$20</u>	<u>\$30</u>
Direct material costs	\$ 5	\$ 5
Direct labor costs	8	10
Variable overhead costs	3	5
Variable selling costs	1	2
Machine hours per unit	2	4

Production of Crates and Boxes involves joint processes and use of the same facilities. The total fixed factory overhead cost is \$2,000,000 and total fixed selling and administrative costs are \$840,000. Production and sales are scheduled for 500,000 units of Crates and 700,000 units of Boxes. Lazar maintains no direct materials, work-in-process, or finished goods inventory.

Lazar can reduce direct material costs for Crates by 50% per unit, with no change in direct labor costs. However, it would increase machine-hour production time by 1-1/2 hours per unit. For Crates, variable overhead costs are allocated based on machine hours. What would be the effect on the total contribution margin if this change was implemented?

- a. \$125,000 increase.
- b. \$250,000 decrease.
- c. \$300,000 increase.
- d. \$1,250,000 increase.

184. CSO: 2C1c LOS: 2C1g

Ticker Company sells two products. Product A provides a contribution margin of \$3 per unit, and Product B provides a contribution margin of \$4 per unit. If Ticker's sales mix shifts toward Product A, which one of the following statements is **correct**?

- a. The total number of units necessary to break even will decrease.
- b. The overall contribution margin ratio will increase.
- c. Operating income will decrease if the total number of units sold remains constant.
- d. The contribution margin ratios for Products A and B will change.

185. CSO: 2C1c LOS: 2C1h

Lazar Industries produces two products, Crates and Trunks. Per unit selling prices, costs, and resource utilization for these products are as follows.

	<u>Crates</u>	<u>Trunks</u>
Selling price	<u>\$20</u>	<u>\$30</u>
Direct material costs	\$ 5	\$ 5
Direct labor costs	8	10
Variable overhead costs	3	5
Variable selling costs	1	2
Machine hours per unit	2	4

Production of Crates and Trunks involves joint processes and use of the same facilities. The total fixed factory overhead cost is \$2,000,000 and total fixed selling and administrative costs are \$840,000. Production and sales are scheduled for 500,000 Crates and 700,000 Trunks. Lazar has a normal capacity to produce a total of 2,000,000 units in any combination of Crates and Trunks, and maintains no direct materials, work-in-process, or finished goods inventory.

Due to plant renovations Lazar Industries will be limited to 1,000,000 machine hours. What is the maximum amount of contribution margin Lazar can generate during the renovation period?

- a. \$1,500,000.
- b. \$2,000,000.
- c. \$3,000,000.
- d. \$7,000,000.

186. CSO: 2C2a LOS: 2C2c

Johnson waits two hours in line to buy a ticket to an NCAA Final Four Tournament. The opportunity cost of buying the \$200 ticket is

- a. Johnson's best alternative use of the \$200.
- b. Johnson's best alternative use of the two hours it took to wait in line.
- c. the value of the \$200 to the ticket agent.
- d. Johnson's best alternative use of both the \$200 and the two hours spent in line.

187. CSO: 2C2a LOS: 2C2a

In a management decision process, the cost measurement of the benefits sacrificed due to selecting an alternative use of resources is **most** often referred to as a(n)

- a. relevant cost.
- b. sunk cost.
- c. opportunity cost.
- d. differential cost.

188. *CSO: 2C2a LOS: 2C2a*  
In order to avoid pitfalls in relevant-cost analysis, management should focus on
- variable cost items that differ for each alternative.
  - long-run fixed costs of each alternative.
  - anticipated fixed costs and variable costs of all alternatives.
  - anticipated revenues and costs that differ for each alternative.
189. *CSO: 2C2a LOS: 2C2a*  
In a joint manufacturing process, joint costs incurred prior to a decision as to whether to process the products after the split-off point should be viewed as
- sunk costs.
  - relevant costs.
  - standard costs.
  - differential costs.
190. *CSO: 2C2a LOS: 2C2a*  
Jack Blaze wants to rent store space in a new shopping mall for the three month holiday shopping season. Blaze believes he has a new product available which has the potential for good sales. The product can be obtained on consignment at the cost of \$20 per unit and he expects to sell the item for \$100 per unit. Due to other business ventures, Blaze's risk tolerance is low. He recognizes that, as the product is entirely new, there is an element of risk. The mall management has offered Blaze three rental options: (1) a fixed fee of \$8,000 per month, (2) a fixed fee of \$3,990 per month plus 10% of Blaze's revenue, or (3) 30% of Blaze's revenues. Which one of the following actions would you recommend to Jack Blaze?
- Choose the first option no matter what Blaze expects the revenues to be.
  - Choose the second option no matter what Blaze expects the revenues to be.
  - Choose the second option only if Blaze expects revenues to exceed \$5,700.
  - Choose the third option no matter what Blaze expects the revenues to be.
191. *CSO: 2C2a LOS: 2C2a*  
Profits that are lost by moving an input from one use to another are referred to as
- out-of-pocket costs.
  - cannibalization charges.
  - replacement costs.
  - opportunity costs.

192. CSO: 2C2a LOS: 2C2a  
In differential cost analysis, which one of the following **best** fits the description of a sunk cost?

- a. Direct materials required in the manufacture of a table.
- b. Purchasing department costs incurred in acquiring material.
- c. Cost of the forklift driver to move the material to the manufacturing floor.
- d. Cost of a large crane used to move materials.

193. CSO: 2C2a LOS: 2C2d  
Refrigerator Company manufactures ice-makers for installation in refrigerators. The costs per unit, for 20,000 units of ice-makers, are as follows.

Direct materials	\$ 7
Direct labor	12
Variable overhead	5
Fixed overhead	<u>10</u>
Total costs	<u>\$34</u>

Cool Compartments Inc. has offered to sell 20,000 ice-makers to Refrigerator Company for \$28 per unit. If Refrigerator accepts Cool Compartments' offer the plant would be idled and fixed overhead amounting to \$6 per unit could be eliminated. The total relevant costs associated with the manufacture of ice-makers amount to

- a. \$480,000.
- b. \$560,000.
- c. \$600,000.
- d. \$680,000.

194. CSO: 2C2b LOS: 2C2e

Edwards Products has just developed a new product with a manufacturing cost of \$30. The Marketing Director has identified three marketing approaches for this new product.

Approach X Set a selling price of \$36 and have the firm's sales staff sell the product at a 10% commission with no advertising program. Estimated annual sales would be 10,000 units.

Approach Y Set a selling price of \$38, have the firm's sales staff sell the product at a 10% commission, and back them up with a \$30,000 advertising program. Estimated annual sales would be 12,000 units.

Approach Z Rely on wholesalers to handle the product. Edwards would sell the new product to the wholesalers at \$32 per unit and incur no selling expenses. Estimated annual sales would be 14,000 units.

Rank the three alternatives in order of net profit, from highest net profit to lowest.

- a. X, Y, Z.
- b. Y, Z, X.
- c. Z, X, Y.
- d. Z, Y, X.

195. CSO: 2C2b LOS: 2C2f

Auburn Products Inc. has compiled the following daily cost information for its manufacturing operation.

<u>Output (units)</u>	<u>Fixed Cost</u>	<u>Variable Cost</u>
0	\$2,000	\$ 0
1	2,000	200
2	2,000	380
3	2,000	550
4	2,000	700
5	2,000	860
6	2,000	1,040
7	2,000	1,250
8	2,000	1,500

Auburn's average total cost at an output level of 3 units is

- a. \$667.
- b. \$850.
- c. \$1,217.
- d. \$2,550.



196. CSO: 2C2b LOS: 2C2f

Daily costs for Kelso Manufacturing include \$1,000 of fixed costs and total variable costs are shown below.

Unit Output	10	11	12	13	14	15
Cost	\$125	\$250	\$400	\$525	\$700	\$825

The average total cost at an output level of 11 units is

- a. \$113.64.
- b. \$125.00.
- c. \$215.91.
- d. \$250.00.

197. CSO: 2C2b LOS: 2C2e

Harper Products' cost information for the normal range of output in a month is shown below.

<u>Output in units</u>	<u>Total Cost</u>
20,000	\$3,000,000
22,500	3,325,000
25,000	3,650,000

What is Harper's short-run marginal cost?

- a. \$26.
- b. \$130.
- c. \$146.
- d. \$150.

198. CSO: 2C2b LOS: 2C2e

Auburn Products Inc. has compiled the following daily cost information for its manufacturing operation.

<u>Output (units)</u>	<u>Fixed Cost</u>	<u>Variable Cost</u>
0	\$2,000	\$ 0
1	2,000	200
2	2,000	380
3	2,000	550
4	2,000	700
5	2,000	860
6	2,000	1,040
7	2,000	1,250
8	2,000	1,500

Auburn's marginal cost for the 7th unit is

- a. \$179.
- b. \$210.
- c. \$286.
- d. \$464.

199. CSO: 2C2b LOS: 2C2e

Daily costs for Kelso Manufacturing include \$1,250 in fixed costs and total variable costs are shown below.

Unit Output	10	11	12	13	14	15
Cost	\$150	\$300	\$480	\$620	\$750	\$900

The marginal cost of the 12th unit is

- a. \$180.00.
- b. \$140.00.
- c. \$104.16.
- d. \$40.00.

200. CSO: 2C2b LOS: 2C2f

The total cost of producing 100 units of a good is \$800. If a firm's average variable cost is \$5 per unit, then the firm's

- a. average fixed cost is \$3.
- b. total variable cost is \$300.
- c. marginal cost is \$3.
- d. marginal cost is \$8.

201. CSO: 2C2b LOS: 2C2e

Daily sales and cost data for Crawford Industries are shown below.

Units	Sales		Total Costs
		\$	
20		\$2,000	\$1,200
21		2,090	1,250
22		2,170	1,290
23		2,240	1,330
24		2,300	1,380
25		2,350	1,440

The marginal cost of the 23rd unit is

- a. \$30.00.
- b. \$40.00.
- c. \$50.00.
- d. \$57.83.

202. CSO: 2C2b LOS: 2C2e

Parker Manufacturing is analyzing the market potential for its specialty turbines. Parker developed its pricing and cost structures for their specialty turbines over various relevant ranges. The pricing and cost data for each relevant range are presented below.

Units produced and sold	<u>1 - 5</u>	<u>6 - 10</u>	<u>11 - 15</u>	<u>16 - 20</u>
Total fixed costs	\$200,000	\$400,000	\$600,000	\$800,000
Unit variable cost	50,000	50,000	45,000	45,000
Unit selling price	100,000	100,000	100,000	100,000

Which one of the following production/sales levels would produce the highest operating income for Parker?

- a. 8 units.
- b. 10 units.
- c. 14 units.
- d. 17 units.

203. CSO: 2C2c LOS: 2C2h

Johnson Company manufactures a variety of shoes, and has received a special one-time-only order directly from a wholesaler. Johnson has sufficient idle capacity to accept the special order to manufacture 15,000 pairs of sneakers at a price of \$7.50 per pair. Johnson's normal selling price is \$11.50 per pair of sneakers. Variable manufacturing costs are \$5.00 per pair and fixed manufacturing costs are \$3.00 a pair. Johnson's variable selling expense for its normal line of sneakers is \$1.00 per pair. What would the effect on Johnson's operating income be if the company accepted the special order?

- a. Decrease by \$60,000.
- b. Increase by \$22,500.
- c. Increase by \$37,500.
- d. Increase by \$52,500.

204. CSO: 2C2c LOS: 2C2h

The Robo Division, a decentralized division of GMT Industries, has been approached to submit a bid for a potential project for the RSP Company. Robo Division has been informed by RSP that they will not consider bids over \$8,000,000. Robo Division purchases its materials from the Cross Division of GMT Industries. There would be no additional fixed costs for either the Robo or Cross Divisions. Information regarding this project is as follows.

	<u>Cross Division</u>	<u>Robo Division</u>
Variable Costs	\$1,500,000	\$4,800,000
Transfer Price	3,700,000	-

If Robo Division submits a bid for \$8,000,000, the amount of contribution margin recognized by the Robo Division and GMT Industries, respectively, is

- a. \$(500,000) and \$(2,000,000).
- b. \$3,200,000 and \$(500,000).
- c. \$(500,000) and \$1,700,000.
- d. \$3,200,000 and \$1,700,000.

205. CSO: 2C2c LOS: 2C2g

Basic Computer Company (BCC) sells its micro-computers using bid pricing. It develops bids on a full cost basis. Full cost includes estimated material, labor, variable overheads, fixed manufacturing overheads, and reasonable incremental computer assembly administrative costs, plus a 10% return on full cost. BCC believes bids in excess of \$925 per computer are not likely to be considered.

BCC's current cost structure, based on its normal production levels, is \$500 for materials per computer and \$20 per labor hour. Assembly and testing of each computer requires 12 labor hours. BCC's variable manufacturing overhead is \$2 per labor hour, fixed manufacturing overhead is \$3 per labor hour, and incremental administrative costs are \$8 per computer assembled.

The company has received a request from the School Board for 500 computers. BCC's management expects heavy competition in bidding for this job. As this is a very large order for BCC, and could lead to other educational institution orders, management is extremely interested in submitting a bid which would win the job, but at a price high enough so that current net income will not be unfavorably impacted. Management believes this order can be absorbed within its current manufacturing facility. Which one of the following bid prices should be recommended to BCC's management?

- a. \$764.00.
- b. \$772.00.
- c. \$849.20.
- d. \$888.80.

206. CSO: 2C2c LOS: 2C2g

The loss of a key customer has temporarily caused Bedford Machining to have some excess manufacturing capacity. Bedford is considering the acceptance of a special order, one that involves Bedford's most popular product. Consider the following types of costs.

- I. Variable costs of the product
- II. Fixed costs of the product
- III. Direct fixed costs associated with the order
- IV. Opportunity cost of the temporarily idle capacity

Which one of the following combinations of cost types should be considered in the special order acceptance decision?

- a. I and II.
- b. I and IV.
- c. II and III.
- d. I, III, and IV.

207. CSO: 2C2c LOS: 2C2g

Raymund Inc. currently sells its only product to Mall-Stores. Raymund has received a one-time-only order for 2,000 units from another buyer. Sale of the special order items will not require any additional selling effort. Raymund has a manufacturing capacity to produce 7,000 units. Raymund has an effective income tax rate of 40%. Raymund's Income Statement, before consideration of the one-time-only order, is as follows.

Sales (5,000 units at \$20 per unit)		\$100,000
Variable manufacturing costs	\$50,000	
Variable selling costs	<u>15,000</u>	<u>65,000</u>
Contribution margin		35,000
Fixed manufacturing costs	16,000	
Fixed selling costs	<u>4,000</u>	<u>20,000</u>
Operating income		15,000
Income taxes		<u>6,000</u>
Net income		<u>\$ 9,000</u>

In negotiating a price for the special order, Raymund should set the minimum per unit selling price at

- \$10.
- \$13.
- \$17.
- \$18.

208. CSO: 2C2c LOS: 2C2d

Two months ago, Hickory Corporation purchased 4,500 pounds of Kaylene at a cost of \$15,300. The market for this product has become very strong, with the price jumping to \$4.05 per pound. Because of the demand, Hickory can buy or sell Kaylene at this price. Hickory recently received a special order inquiry that would require the use of 4,200 pounds of Kaylene. In deciding whether to accept the order, management must evaluate a number of decision factors. Without regard to income taxes, which one of the following combination of factors correctly depicts relevant and irrelevant decision factors, respectively?

	<u>Relevant Decision Factor</u>	<u>Irrelevant Decision Factor</u>
a.	Remaining 300 pounds of Kaylene	Market price of \$4.05 per lb.
b.	Market price of \$4.05 per lb.	Purchase price of \$3.40 per lb.
c.	Purchase price of \$3.40 per lb.	Market price of \$4.05 per lb.
d.	4,500 pounds of Kaylene	Remaining 300 pounds of Kaylene.

209. CSO: 2C2c LOS: 2C2h

Gardener Company currently is using its full capacity of 25,000 machine hours to manufacture product XR-2000. LJB Corporation placed an order with Gardener for the manufacture of 1,000 units of KT-6500. LJB would normally manufacture this component. However, due to a fire at its plant, LJB needs to purchase these units to continue manufacturing other products. This is a one time special order. The following reflects unit cost data, and selling prices.

	<u>KT-6500</u>	<u>XR-2000</u>
Material	\$27	\$24
Direct labor	12	10
Variable overhead	6	5
Fixed overhead	48	40
Variable selling & administrative	5	4
Fixed selling & administrative	12	10
Normal selling price	\$125	\$105
Machine hours required	3	4

What is the minimum unit price that Gardener should charge LJB to manufacture 1,000 units of KT-6500?

- a. \$93.00.
- b. \$96.50.
- c. \$110.00.
- d. \$125.00.

210. CSO: 2C2c LOS: 2C2n

Green Corporation builds custom-designed machinery. A review of selected data and the company's pricing policies revealed the following.

- A 10% commission is paid on all sales orders.
- Variable and fixed factory overheads total 40% and 20%, respectively, of direct labor.
- Corporate administrative costs amount to 10% of direct labor.
- When bidding on jobs, Green adds a 25% markup to the total of all factory and administrative costs to cover income taxes and produce a profit.
- The firm's income tax rate is 40%.

The company expects to operate at a maximum of 80% of practical capacity.

Green recently received an invitation to bid on the manufacture of some custom machinery for Kennendale, Inc. For this project, Green's production accountants estimate the material and labor costs will be \$66,000 and \$120,000, respectively. Accordingly, Green submitted a bid to Kennendale in the amount of \$375,000. Feeling Green's bid was too high, Kennendale countered with a price of \$280,000. Which one of the following options should be recommended to Green's management?

- a. Accept the counteroffer because the order will increase operating income.
- b. Accept the counteroffer even though the order will decrease operating income.
- c. Reject the counteroffer even though the order will increase operating income.
- d. Reject the counteroffer because the order will decrease operating income.



211. CSO: 2C2d LOS: 2C2n

Synergy Inc. produces a component that is popular in many refrigeration systems. Data on three of the five different models of this component are as follows.

	Model		
	A	B	C
Volume needed (units)	<u>5,000</u>	<u>6,000</u>	<u>3,000</u>
Manufacturing costs			
Variable direct costs	\$10	\$24	\$20
Variable overhead	5	10	15
Fixed overhead	<u>11</u>	<u>20</u>	<u>17</u>
Total manufacturing costs	<u>\$26</u>	<u>\$54</u>	<u>\$52</u>
Cost if purchased	<u>\$21</u>	<u>\$42</u>	<u>\$39</u>

Synergy applies variable overhead on the basis of machine hours at the rate of \$2.50 per hour. Models A and B are manufactured in the Freezer Department, which has a capacity of 28,000 machine processing hours. Which one of the following options should be recommended to Synergy's management?

- a. Purchase all three products in the quantities required.
- b. Manufacture all three products in the quantities required.
- c. The Freezer Department's manufacturing plan should include 5,000 units of Model A and 4,500 units of Model B.
- d. The Freezer Department's manufacturing plan should include 2,000 units of Model A and 6,000 units of Model B.

212. CSO: 2C2d LOS: 2C2d

Refrigerator Company manufactures ice-makers for installation in refrigerators. The costs per unit, for 20,000 units of ice-makers, are as follows.

Direct materials	\$ 7
Direct labor	12
Variable overhead	5
Fixed overhead	<u>10</u>
Total costs	<u>\$34</u>

Cool Compartments Inc. has offered to sell 20,000 ice-makers to Refrigerator Company for \$28 per unit. If Refrigerator accepts Cool Compartments' offer, the facilities used to manufacture ice-makers could be used to produce water filtration units. Revenues from the sale of water filtration units are estimated at \$80,000, with variable costs amounting to 60% of sales. In addition, \$6 per unit of the fixed overhead associated with the manufacture of ice-makers could be eliminated.

For Refrigerator Company to determine the **most** appropriate action to take in this situation, the total relevant costs of make vs. buy, respectively, are

- a. \$600,000 vs. \$560,000.
- b. \$648,000 vs. \$528,000.
- c. \$600,000 vs. \$528,000.
- d. \$680,000 vs. \$440,000.

213. CSO: 2C2d LOS: 2C2d

Sunshine Corporation is considering the purchase of a new machine for \$800,000. The machine is capable of producing 1.6 million units of product over its useful life. The manufacturer's engineering specifications state that the machine-related cost of producing each unit of product should be \$.50. Sunshine's total anticipated demand over the asset's useful life is 1.2 million units. The average cost of materials and labor for each unit is \$.40. In considering whether to buy the new machine, would you recommend that Sunshine use the manufacturer's engineering specification of machine-related unit production cost?

- a. No, the machine-related cost of producing each unit is \$2.00.
- b. No, the machine-related cost of producing each unit is \$.67.
- c. No, the machine-related cost of producing each unit is \$.90.
- d. Yes, the machine-related cost of producing each unit is \$.50.

214. CSO: 2C2d LOS: 2C2g

Aril Industries is a multiproduct company that currently manufactures 30,000 units of Part 730 each month for use in production. The facilities now being used to produce Part 730 have fixed monthly overhead costs of \$150,000, and a theoretical capacity to produce 60,000 units per month. If Aril were to buy Part 730 from an outside supplier, the facilities would be idle and 40% of fixed costs would continue to be incurred. There are no alternative uses for the facilities. The variable production costs of Part 730 are \$11 per unit. Fixed overhead is allocated based on planned production levels.

If Aril Industries continues to use 30,000 units of Part 730 each month, it would realize a net benefit by purchasing Part 730 from an outside supplier only if the supplier's unit price is less than

- a. \$12.00.
- b. \$12.50.
- c. \$13.00.
- d. \$14.00.

215. CSO: 2C2d LOS: 2C2a

Verla Industries is trying to decide which one of the following two options to pursue. Either option will take effect on January 1st of the next year.

Option One - Acquire a New Finishing Machine.

The cost of the machine is \$1,000,000 and will have a useful life of five years. Net pre-tax cash flows arising from savings in labor costs will amount to \$100,000 per year for five years.

Depreciation expense will be calculated using the straight-line method for both financial and tax reporting purposes. As an incentive to purchase, Verla will receive a trade-in allowance of \$50,000 on their current fully depreciated finishing machine.

Option Two - Outsource the Finishing Work.

Verla can outsource the work to LM Inc. at a cost of \$200,000 per year for five years. If they outsource, Verla will scrap their current fully depreciated finishing machine.

Verla's effective income tax rate is 40%. The weighted-average cost of capital is 10%.

When comparing the two options, the \$50,000 trade-in allowance would be considered

- a. irrelevant because it does not affect taxes.
- b. relevant because it is a decrease in cash outflow.
- c. irrelevant because it does not affect cash.
- d. relevant because it is an increase in cash outflows.

216. CSO: 2C2e LOS: 2C2n

Jones Enterprises manufactures 3 products, A, B, and C. During the month of May Jones' production, costs, and sales data were as follows.

	Products			<u>Totals</u>
	<u>A</u>	<u>B</u>	<u>C</u>	
Units of production	<u>30,000</u>	<u>20,000</u>	<u>70,000</u>	<u>120,000</u>
Joint production costs to split-off point				\$480,000
Further processing costs	\$ -	\$60,000	\$140,000	
Unit sales price				
At split-off	3.75	5.50	10.25	
After further processing	-	8.00	12.50	

Based on the above information, which one of the following alternatives should be recommended to Jones' management?

- Sell both Product B and Product C at the split-off point.
- Process Product B further but sell Product C at the split-off point.
- Process Product C further but sell Product B at the split-off point.
- Process both Products B and C further.

217. CSO: 2C2e LOS: 2C2k

Oakes Inc. manufactured 40,000 gallons of Mononate and 60,000 gallons of Beracyl in a joint production process, incurring \$250,000 of joint costs. Oakes allocates joint costs based on the physical volume of each product produced. Mononate and Beracyl can each be sold at the split-off point in a semifinished state or, alternatively, processed further. Additional data about the two products are as follows.

	<u>Mononate</u>	<u>Beracyl</u>
Sales price per gallon at split-off	\$7	\$15
Sales price per gallon if processed further	\$10	\$18
Variable production costs if processed further	\$125,000	\$115,000

An assistant in the company's cost accounting department was overheard saying "...that when both joint and separable costs are considered, the firm has no business processing either product beyond the split-off point. The extra revenue is simply not worth the effort." Which of the following strategies should be recommended for Oakes?

- |    | <u>Mononate</u>   | <u>Beracyl</u>     |
|----|-------------------|--------------------|
| a. | Sell at split-off | Sell at split-off. |
| b. | Sell at split-off | Process further.   |
| c. | Process further   | Sell at split-off. |
| d. | Process further   | Process further.   |

218. CSO: 2C2f LOS: 2C2k

Current business segment operations for Whitman, a mass retailer, are presented below.

	<u>Merchandise</u>	<u>Automotive</u>	<u>Restaurant</u>	<u>Total</u>
Sales	\$500,000	\$400,000	\$100,000	\$1,000,000
Variable costs	300,000	200,000	70,000	570,000
Fixed costs	<u>100,000</u>	<u>100,000</u>	<u>50,000</u>	<u>250,000</u>
Operating income (loss)	<u>\$100,000</u>	<u>\$100,000</u>	<u>\$(20,000)</u>	<u>\$ 180,000</u>

Management is contemplating the discontinuance of the Restaurant segment since “it is losing money.” If this segment is discontinued, \$30,000 of its fixed costs will be eliminated. In addition, Merchandise and Automotive sales will decrease 5% from their current levels. What will Whitman’s total contribution margin be if the Restaurant segment is discontinued?

- a. \$160,000.
- b. \$220,000.
- c. \$367,650.
- d. \$380,000.

219. CSO: 2C2f LOS: 2C2g

Current business segment operations for Whitman, a mass retailer, are presented below.

	<u>Merchandise</u>	<u>Automotive</u>	<u>Restaurant</u>	<u>Total</u>
Sales	\$500,000	\$400,000	\$100,000	\$1,000,000
Variable costs	300,000	200,000	70,000	570,000
Fixed costs	<u>100,000</u>	<u>100,000</u>	<u>50,000</u>	<u>250,000</u>
Operating income (loss)	<u>\$100,000</u>	<u>\$100,000</u>	<u>\$(20,000)</u>	<u>\$ 180,000</u>

Management is contemplating the discontinuance of the Restaurant segment since “it is losing money.” If this segment is discontinued, \$30,000 of its fixed costs will be eliminated. In addition, Merchandise and Automotive sales will decrease 5% from their current levels. When considering the decision, Whitman’s controller advised that one of the financial aspects Whitman should review is contribution margin. Which one of the following options reflects the current contribution margin ratios for each of Whitman’s business segments?

- |    | <u>Retailing</u> | <u>Automotive</u> | <u>Restaurant</u> |
|----|------------------|-------------------|-------------------|
| a. | 60%              | 50%               | 30%.              |
| b. | 60%              | 50%               | 70%.              |
| c. | 40%              | 50%               | 70%.              |
| d. | 40%              | 50%               | 30%.              |

220. CSO: 2C2f LOS: 2C2d

Capital Company has decided to discontinue a product produced on a machine purchased four years ago at a cost of \$70,000. The machine has a current book value of \$30,000. Due to technologically improved machinery now available in the marketplace the existing machine has no current salvage value. The company is reviewing the various aspects involved in the production of a new product. The engineering staff advised that the existing machine can be used to produce the new product. Other costs involved in the production of the new product will be materials of \$20,000 and labor priced at \$5,000.

Ignoring income taxes, the costs relevant to the decision to produce or not to produce the new product would be

- a. \$25,000.
- b. \$30,000.
- c. \$55,000.
- d. \$95,000.

221. CSO: 2C2f LOS: 2C2d

Reynolds Inc. manufactures several different products, including a premium lawn fertilizer and weed killer that is popular in hot, dry climates. Reynolds is currently operating at less than full capacity because of market saturation for lawn fertilizer. Sales and cost data for a 40-pound bag of Reynolds lawn fertilizer is as follows.

Selling price		\$18.50
Production cost		
Materials and labor	\$12.25	
Variable overhead	3.75	
Allocated fixed overhead	<u>4.00</u>	<u>20.00</u>
Income (loss) per bag		<u><u>\$(1.50)</u></u>

On the basis of this information, which one of the following alternatives should be recommended to Reynolds management?

- a. Select a different cost driver to allocate its overhead.
- b. Drop this product from its product line.
- c. Continue to produce and market this product.
- d. Increase output and spread fixed overhead over a larger volume base.

222. CSO: 2C2f LOS: 2C2k

Following are the operating results of the two segments of Parklin Corporation.

	<u>Segment A</u>	<u>Segment B</u>	<u>Total</u>
Sales	\$10,000	\$15,000	\$25,000
Variable costs of goods sold	4,000	8,500	12,500
Fixed costs of goods sold	<u>1,500</u>	<u>2,500</u>	<u>4,000</u>
Gross margin	4,500	4,000	8,500
Variable selling and administrative	2,000	3,000	5,000
Fixed selling and administrative	<u>1,500</u>	<u>1,500</u>	<u>3,000</u>
Operating income (loss)	<u>\$ 1,000</u>	<u>\$ (500)</u>	<u>\$ 500</u>

Variable costs of goods sold are directly related to the operating segments. Fixed costs of goods sold are allocated to each segment based on the number of employees. Fixed selling and administrative expenses are allocated equally. If Segment B is eliminated, \$1,500 of fixed costs of goods sold would be eliminated. Assuming Segment B is closed, the effect on operating income would be

- a. an increase of \$500.
- b. an increase of \$2,000.
- c. a decrease of \$2,000.
- d. a decrease of \$2,500.

223. *CSO: 2C2f LOS: 2C2d*

Grapevine Corporation produces two joint products, JP-1 and JP-2, and a single by-product, BP-1, in Department 2 of its manufacturing plant. JP-1 is subsequently transferred to Department 3 where it is refined into a more expensive, higher-priced product, JP-1R, and a by-product known as BP-2. Recently, Santa Fe Company introduced a product that would compete directly with JP-1R and, as a result, Grapevine must reevaluate its decision to process JP-1 further. The market for JP-1 will not be affected by Santa Fe's product, and Grapevine plans to continue production of JP-1, even if further processing is terminated. Should this latter action be necessary, Department 3 will be dismantled.

Which of the following items should Grapevine consider in its decision to continue or terminate Department 3 operations?

1. The selling price per pound of JP-1.
2. The total hourly direct labor cost in Department 3.
3. Unit marketing and packaging costs for BP-2.
4. Supervisory salaries of Department 3 personnel who will be transferred elsewhere in the plant, if processing is terminated.
5. Department 2 joint cost allocated to JP-1 and transferred to Department 3.
6. The cost of existing JP-1R inventory.

- a. 2, 3, 4.
- b. 1, 2, 3.
- c. 2, 3, 5, 6.
- d. 1, 2, 3, 4, 5.

224. *CSO: 2C2f LOS: 2C2k*

The Doll House, a very profitable company, plans to introduce a new type of doll to its product line. The sales price and costs for the new dolls are as follows.

Selling price per doll	\$100
Variable cost per doll	\$60
Incremental annual fixed costs	\$456,000
Income tax rate	30%

If 10,000 new dolls are produced and sold, the effect on Doll House's profit (loss) would be

- a. \$(176,000).
- b. \$(56,000).
- c. \$(39,200).
- d. \$280,000.



225. CSO: 2C2f LOS: 2C2n

The Furniture Company currently has three divisions: Maple, Oak, and Cherry. The oak furniture line does not seem to be doing well and the president of the company is considering dropping this line. If it is dropped, the revenues associated with the Oak Division will be lost and the related variable costs saved. Also, 50% of the fixed costs allocated to the oak furniture line would be eliminated. The income statements, by divisions, are as follows.

	<u>Maple</u>	<u>Oak</u>	<u>Cherry</u>
Sales	\$55,000	\$85,000	\$100,000
Variable Costs	<u>40,000</u>	<u>72,000</u>	<u>82,000</u>
Contribution Margin	15,000	13,000	18,000
Fixed costs	<u>10,000</u>	<u>14,000</u>	<u>10,200</u>
Operating profit (loss)	<u>\$ 5,000</u>	<u>\$(1,000)</u>	<u>\$ 7,800</u>

Which one of the following options should be recommended to the president of the company?

- Continue operating the Oak Division as discontinuance would result in a total operating loss of \$1,200.
- Continue operating the Oak Division as discontinuance would result in a \$6,000 decline in operating profits.
- Discontinue the Oak Division which would result in a \$1,000 increase in operating profits.
- Discontinue the Oak Division which would result in a \$7,000 increase in operating profits.

226. CSO: 2C2g LOS: 2C2l

Milton Manufacturing occasionally has capacity problems in its metal shaping division, where the chief cost driver is machine hours. In evaluating the attractiveness of its individual products for decision-making purposes, which measurement tool should the firm select?

- |    |   |  |
|----|---|--|
|    | <u>If machine hours do not<br/>constrain the number<br/>of units to be produced</u> | <u>If machine hours<br/>constrain the number<br/>of units to be produced</u> |
| a. | Contribution margin   | Contribution margin per machine hour.  |
| b. | Gross profit  | Contribution margin.   |
| c. | Contribution margin   | Contribution margin ratio.   |
| d. | Contribution margin per<br>machine hour   | Contribution margin.   |

227. CSO: 2C2g LOS: 2C2I

Elgers Company produces valves for the plumbing industry. Elgers' per unit sales price and variable costs are as follows.

Sales price	\$12
Variable costs	8

Elgers' practical plant capacity is 40,000 units. Elgers' total fixed costs aggregate \$48,000 and it has a 40% effective tax rate. The maximum net profit that Elger can earn is

- a. \$48,000.
- b. \$67,200.
- c. \$96,000.
- d. \$112,000.

228. CSO: 2C2g LOS: 2C2I

Dayton Corporation manufactures pipe elbows for the plumbing industry. Dayton's per unit sales price and variable costs are as follows.

Sales price	\$10
Variable costs	7

Dayton's practical plant capacity is 35,000 units. Dayton's total fixed costs amount to \$42,000, and the company has a 50% effective tax rate. If Dayton produced and sold 30,000 units, net income would be

- a. \$24,000.
- b. \$45,000.
- c. \$48,000.
- d. \$90,000.

229. CSO: 2C2g LOS: 2C2I

Raymund Inc., a bearings manufacturer, has the capacity to produce 7,000 bearings per month. The company is planning to replace a portion of its labor intensive production process with a highly automated process, which would increase Raymund's fixed manufacturing costs by \$30,000 per month and reduce its variable costs by \$5 per unit.

Raymund's Income Statement for an average month is as follows.

Sales (5,000 units at \$20 per unit)		\$100,000
Variable manufacturing costs	\$50,000	
Variable selling costs	<u>15,000</u>	<u>65,000</u>
Contribution margin		35,000
Fixed manufacturing costs	16,000	
Fixed selling costs	<u>4,000</u>	<u>20,000</u>
Operating income		<u>\$ 15,000</u>

If Raymund installs the automated process, the company's monthly operating income would be

- \$5,000.
- \$10,000.
- \$30,000.
- \$40,000.

230. CSO: 2C2g LOS: 2C2I

Phillips and Company produces educational software. Its current unit cost, based upon an anticipated volume of 150,000 units, is as follows.

Selling price	\$150
Variable costs	60
Contribution margin	90
Fixed costs	60
Operating income	30

Sales for the coming year are estimated at 175,000 units, which is within the relevant range of Phillip's cost structure. Cost management initiatives are expected to yield a 20% reduction in variable costs and a reduction of \$750,000 in fixed costs. Phillip's cost structure for the coming year will include a

- per unit contribution margin of \$72 and fixed costs of \$55.
- total contribution margin of \$15,300,000 and fixed costs of \$8,250,000.
- variable cost ratio of 32% and operating income of \$9,600,000.
- contribution margin ratio of 68% and operating income of \$7,050,000.

231. CSO: 2C2g LOS: 2C2d

Cervine Corporation makes two types of motors for use in various products. Operating data and unit cost information for its products are presented below.

	<u>Product A</u>	<u>Product B</u>
Annual unit capacity	10,000	20,000
Annual unit demand	<u>10,000</u>	<u>20,000</u>
Selling price	\$100	\$80
Variable manufacturing cost	53	45
Fixed manufacturing cost	10	10
Variable selling & administrative	10	11
Fixed selling & administrative	5	4
Fixed other administrative	<u>2</u>	<u>0</u>
Unit operating profit	<u>\$ 20</u>	<u>\$10</u>
Machine hours per unit	2.0	1.5

Cervine has 40,000 productive machine hours available. The relevant contribution margins, per machine hour for each product, to be utilized in making a decision on product priorities for the coming year, are

	<u>Product A</u>	<u>Product B</u>
a.	\$17.00	\$14.00.
b.	\$18.50	\$16.00.
c.	\$20.00	\$10.00.
d.	\$37.00	\$24.00.

232. CSO: 2C2g LOS: 2C2n

Lark Industries accepted a contract to provide 30,000 units of Product A and 20,000 units of Product B. Lark's staff developed the following information with regard to meeting this contract.

	<u>Product A</u>	<u>Product B</u>	<u>Total</u>
Selling Price	\$75	\$125	
Variable costs	\$30	\$48	
Fixed overhead			\$1,600,000
Machine hours required	3	5	
Machine hours available			160,000
Cost if outsourced	\$45	\$60	

Lark's operations manager has identified the following alternatives. Which alternative should be recommended to Lark's management?

- Make 30,000 units of Product A, utilize the remaining capacity to make Product B, and outsource the remainder.
- Make 25,000 units of Product A, utilize the remaining capacity to make Product B, and outsource the remainder.
- Make 20,000 units of Product A, utilize the remaining capacity to make Product B, and outsource the remainder.
- Rent additional capacity of 30,000 machine hours which will increase fixed costs by \$150,000.

233. CSO: 2C2g LOS: 2C2n

Aspen Company plans to sell 12,000 units of product XT and 8,000 units of product RP. Aspen has a capacity of 12,000 productive machine hours. The unit cost structure and machine hours required for each product is as follows.

<u>Unit Costs</u>	<u>XT</u>	<u>RP</u>
Materials	\$37	\$24
Direct labor	12	13
Variable overhead	6	3
Fixed overhead	37	38
Machine hours required	1.0	1.5

Aspen can purchase 12,000 units of XT at \$60 and/or 8,000 units of RP at \$45. Based on the above, which one of the following actions should be recommended to Aspen's management?

- Produce XT internally and purchase RP.
- Produce RP internally and purchase XT.
- Purchase both XT and RP.
- Produce both XT and RP.

234. *CSO: 2C3a LOS: 2C3d*  
Which one of the following would cause the demand curve for bagels to shift to the left?
- A decrease in the cost of muffins.
  - An increase in the population.
  - A decrease in the price of bagels.
  - An increase in the supply of bagels.
235. *CSO: 2C3a LOS: 2C3d*  
Which one of the following would cause the demand curve for prepared meals sold in supermarkets to shift to the right?
- An increase in the price of prepared meals.
  - An increase in consumer income.
  - A decrease in the price of restaurant meals.
  - An increase in the supply of prepared meals.
236. *CSO: 2C3a LOS: 2C3n*  
If the demand for a product is elastic, a price increase will result in
- no change in total revenue.
  - an increase in total revenue.
  - a decrease in total revenue.
  - an indeterminate change in revenue.
237. *CSO: 2C3a LOS: 2C3b*  
The advantages of incorporating full product costs in pricing decisions include all the following **except**
- ease in identifying unit fixed costs with individual products.
  - full product cost recovery.
  - the promotion of price stability.
  - a pricing formula that meets the cost-benefit test; i.e., simplicity.

238. CSO: 2C3a LOS: 2C3p

An economist determined the following market data for a commodity.

<u>Price</u>	<u>Quantity Supplied</u>	<u>Quantity Demanded</u>
\$25	250	750
50	500	500
75	750	250
100	1,000	0

Based on this information, which one of the following statements is correct?

- a. In the short-term, there would be excess supply at a price of \$40.
- b. In the long-run, if producers' costs per unit decline, then a reasonable market clearing price could be \$65.
- c. In the short-term, there would be excess demand at a price of \$70.
- d. In the long-run, if producers' costs per unit increase, then a reasonable market clearing price could be \$70.

239. CSO: 2C3a LOS: 2C3m

If a product's price elasticity of demand is greater than one, then a 1% price increase will cause the quantity demanded to

- a. increase by more than 1%.
- b. increase by less than 1%.
- c. decrease by less than 1%.
- d. decrease by more than 1%.

240. CSO: 2C3a LOS: 2C3o

If the demand for a good is elastic, then a(n)

- a. decrease in price will increase total revenue.
- b. increase in price will increase total revenue.
- c. decrease in price will decrease total revenue.
- d. increase in price will have no effect on total revenue.

241. CSO: 2C3a LOS: 2C3c

Leader Industries is planning to introduce a new product, DMA. It is expected that 10,000 units of DMA will be sold. The full product cost per unit is \$300. Invested capital for this product amounts to \$20 million. Leader's target rate of return on investment is 20%. The markup percentage for this product, based on operating income as a percentage of full product cost, will be

- a. 42.9%.
- b. 57.1%.
- c. 133.3%.
- d. 233.7%.

242. CSO: 2C3a LOS: 2C3b

Which one of the following situations **best** lends itself to a cost-based pricing approach?

- a. A paper manufacturer negotiating the price for supplying copy paper to a new mass merchandiser of office products.
- b. An industrial equipment fabricator negotiating pricing for one of its standard models with a major steel manufacturer.
- c. A computer component manufacturer debating pricing terms with a customer in a new channel of distribution.
- d. A computer component manufacturer debating pricing with a new customer for a made to order, state of the art application.

243. CSO: 2C3a LOS: 2C3r

Basic Computer Company (BCC) sells its microcomputers using bid pricing. It develops its bids on a full cost basis. Full cost includes estimated material, labor, variable overheads, fixed manufacturing overheads, and reasonable incremental computer assembly administrative costs, plus a 10% return on full cost. BCC believes bids in excess of \$1,050 per computer are not likely to be considered.

BCC's current cost structure, based on its normal production levels, is \$500 for materials per computer and \$20 per labor hour. Assembly and testing of each computer requires 17 labor hours. BCC expects to incur variable manufacturing overhead of \$2 per labor hour, fixed manufacturing overhead of \$3 per labor hour, and incremental administrative costs of \$8 per computer assembled.

BCC has received a request from a school board for 200 computers. Using the full-cost criteria and desired level of return, which one of the following prices should be recommended to BCC's management for bidding purposes?

- a. \$874.00.
- b. \$882.00.
- c. \$961.40.
- d. \$1,026.30.



244. *CSO: 2C3a LOS: 2C3b*  
 Companies that manufacture made-to-order industrial equipment typically use which one of the following?
- Cost-based pricing.
  - Market-based pricing.
  - Material-based pricing.
  - Price discrimination.

245. *CSO: 2C3a LOS: 2C3b*  
 Which one of the following is **not** a characteristic of market-based costing?
- It has a customer-driven external focus.
  - It is used by companies facing stiff competition.
  - It is used by companies facing minimal competition.
  - It starts with a target selling price and target profit.

246. *CSO: 2C3a LOS: 2C3c*  
 Almelo Manpower Inc. provides contracted bookkeeping services. Almelo has annual fixed costs of \$100,000 and variable costs of \$6 per hour. This year the company budgeted 50,000 hours of bookkeeping services. Almelo prices its services at full cost and uses a cost-plus pricing approach. The company developed a billing price of \$9 per hour. The company's mark-up level would be
- 12.5%.
  - 33.3%.
  - 50.0%.
  - 66.6%.

247. *CSO: 2C3b LOS: 2C3j*  
 Fennel Products is using cost-based pricing to determine the selling price for its new product based on the following information.

Annual volume	25,000 units
Fixed costs	\$700,000 per year
Variable costs	\$200 per unit
Plant investment	\$3,000,000
Working capital	\$1,000,000
Effective tax rate	40%

The target price that Fennell needs to set for the new product to achieve a 15% after-tax return on investment (ROI) would be

- \$228.
- \$238.
- \$258.
- \$268.

248. *CSO: 2C3e LOS: 2C3f*  
 A monopoly will maximize profits if it produces an output where marginal cost is
- less than marginal revenue.
  - greater than marginal revenue.
  - equal to marginal revenue.
  - equal to price.

249. *CSO: 2C3e LOS: 2C3f*  
 At the long-run profit maximizing equilibrium of a firm in a perfectly competitive market, all of the following are correct **except** that
- price equals marginal cost.
  - price equals average total cost.
  - economic profits are positive.
  - marginal cost equals marginal revenue.

**Section D: Risk Management**

250. *CSO: 2D1b LOS: 2D1f*  
 A firm is constructing a risk analysis to quantify the exposure of its data center to various types of threats. Which one of the following situations would represent the highest annual loss exposure after adjustment for insurance proceeds?

	Frequency of Occurrence <u>(years)</u>	Loss Amount	Insurance <u>(% coverage)</u>
a.	1	\$ 15,000	85.
b.	8	75,000	80.
c.	20	200,000	80.
d.	100	400,000	50.

**Section E: Investment Decisions**

251. *CSO: 2E1a LOS: 2E1a*  
 Capital investment projects include proposals for all of the following **except**
- the acquisition of government mandated pollution control equipment.
  - the expansion of existing product offerings.
  - additional research and development facilities.
  - refinancing existing working capital agreements.

252. CSO: 2E1a LOS: 2E1a

Which one of the following items is **least** likely to directly impact an equipment replacement capital expenditure decision?

- a. The net present value of the equipment that is being replaced.
- b. The depreciation rate that will be used for tax purposes on the new asset.
- c. The amount of additional accounts receivable that will be generated from increased production and sales.
- d. The sales value of the asset that is being replaced.

253. CSO: 2E1a LOS: 2E1a

All of the following are methods used to evaluate investments for capital budgeting decisions **except**

- a. accounting rate of return.
- b. internal rate of return.
- c. excess present value (profitability) index.
- d. required rate of return.

254. CSO: 2E1b LOS: 2E1b

Cora Lewis is performing an analysis to determine if her firm should invest in new equipment to produce a product recently developed by her firm. The other option would be to abandon the product. She uses the net present value (NPV) method and discounts at the firm's cost of capital. Lewis is contemplating how to handle the following items.

- I. The book value of warehouse space currently used by another division.
- II. Interest payments on debt to finance the equipment.
- III. Increased levels of accounts payable and inventory.
- IV. R&D spent in prior years and treated as a deferred asset for book and tax purposes.

Which of the above items are relevant for Lewis to consider in determining the cash flows for her NPV calculation?

- a. I, II, III and IV.
- b. II and III only.
- c. III only.
- d. IV only.

255. CSO: 2E1b LOS: 2E1b

Wilcox Corporation won a settlement in a law suit and was offered four different payment alternatives by the defendant's insurance company. A review of interest rates indicates that 8% is appropriate for analyzing this situation. Ignoring any tax considerations, which one of the following four alternatives should the controller recommend to Wilcox management?

- a. \$135,000 now.
- b. \$40,000 per year at the end of each of the next four years.
- c. \$5,000 now and \$20,000 per year at the end of each of the next ten years.
- d. \$5,000 now and \$5,000 per year at the end of each of the next nine years, plus a lump-sum payment of \$200,000 at the end of the tenth year.

256. CSO: 2E1b LOS: 2E1b

Calvin Inc. is considering the purchase of a new state-of-art machine to replace its hand-operated machine. Calvin's effective tax rate is 40%, and its cost of capital is 12%. Data regarding the existing and new machines are presented below.

	Existing <u>Machine</u>	New <u>Machine</u>
Original cost	\$50,000	\$90,000
Installation costs	0	4,000
Freight and insurance	0	6,000
Expected end salvage value	0	0
Depreciation method	straight-line	straight-line
Expected useful life	10 years	5 years

The existing machine has been in service for seven years and could be sold currently for \$25,000. Calvin expects to realize a before-tax annual reduction in labor costs of \$30,000 if the new machine is purchased and placed in service.

If the new machine is purchased, the incremental cash flows for the fifth year would amount to

- a. \$18,000.
- b. \$24,000.
- c. \$26,000.
- d. \$30,000.

257. CSO: 2E1b LOS: 2E1b

Olson Industries needs to add a small plant to accommodate a special contract to supply building materials over a five year period. The required initial cash outlays at Time 0 are as follows.

Land	\$ 500,000
New building	2,000,000
Equipment	3,000,000

Olson uses straight-line depreciation for tax purposes and will depreciate the building over 10 years and the equipment over 5 years. Olson's effective tax rate is 40%.

Revenues from the special contract are estimated at \$1.2 million annually, and cash expenses are estimated at \$300,000 annually. At the end of the fifth year, the assumed sales values of the land and building are \$800,000 and \$500,000, respectively. It is further assumed the equipment will be removed at a cost of \$50,000 and sold for \$300,000.

As Olson utilizes the net present value (NPV) method to analyze investments, the net cash flow for period 3 would be

- a. \$60,000.
- b. \$860,000.
- c. \$880,000.
- d. \$940,000.

258. CSO: 2E1b LOS: 2E1b

The following schedule reflects the incremental costs and revenues for a capital project. The company uses straight-line depreciation. The interest expense reflects an allocation of interest on the amount of this investment, based on the company's weighted average cost of capital.

Revenues		\$650,000
Direct costs	\$270,000	
Variable overhead	50,000	
Fixed overhead	20,000	
Depreciation	70,000	
General & administrative	40,000	
Interest expense	<u>8,000</u>	
Total costs		<u>458,000</u>
Net profit before taxes		<u>\$192,000</u>

The annual cash flow from this investment, before tax considerations, would be

- a. \$192,000.
- b. \$200,000.
- c. \$262,000.
- d. \$270,000.

259. CSO: 2E1b LOS: 2E1b

Kell Inc. is analyzing an investment for a new product expected to have annual sales of 100,000 units for the next 5 years and then be discontinued. New equipment will be purchased for \$1,200,000 and cost \$300,000 to install. The equipment will be depreciated on a straight-line basis over 5 years for financial reporting purposes and 3 years for tax purposes. At the end of the fifth year, it will cost \$100,000 to remove the equipment, which can be sold for \$300,000. Additional working capital of \$400,000 will be required immediately and needed for the life of the product. The product will sell for \$80, with direct labor and material costs of \$65 per unit. Annual indirect costs will increase by \$500,000. Kell's effective tax rate is 40%.

In a capital budgeting analysis, what is the expected cash flow at time = 5 (fifth year of operations) that Kell should use to compute the net present value?

- a. \$720,000.
- b. \$800,000.
- c. \$1,120,000.
- d. \$1,240,000.

260. CSO: 2E1b LOS: 2E1b

Kell Inc. is analyzing an investment for a new product expected to have annual sales of 100,000 units for the next 5 years and then be discontinued. New equipment will be purchased for \$1,200,000 and cost \$300,000 to install. The equipment will be depreciated on a straight-line basis over 5 years for financial reporting purposes and 3 years for tax purposes. At the end of the fifth year, it will cost \$100,000 to remove the equipment, which can be sold for \$300,000. Additional working capital of \$400,000 will be required immediately and needed for the life of the product. The product will sell for \$80, with direct labor and material costs of \$65 per unit. Annual indirect costs will increase by \$500,000. Kell's effective tax rate is 40%.

In a capital budgeting analysis, what is the cash outflow at time 0 (initial investment) that Kell should use to compute the net present value?

- a. \$1,300,000.
- b. \$1,500,000.
- c. \$1,700,000.
- d. \$1,900,000.

261. CSO: 2E1b LOS: 2E1b

Colvern Corporation is considering the acquisition of a new computer-aided machine tool to replace an existing, outdated model. Relevant information includes the following.

Projected annual cash savings	\$28,400
Annual depreciation - new machine	16,000
Annual depreciation - old machine	1,600
Income tax rate	40%

Annual after-tax cash flows for the project would amount to

- a. \$5,600.
- b. \$7,440.
- c. \$17,040.
- d. \$22,800.

262. CSO: 2E1b LOS: 2E1b

Skytop Industries is analyzing a capital investment project using discounted cash flow (DCF) analysis. The new equipment will cost \$250,000. Installation and transportation costs aggregating \$25,000 will be capitalized. A five year MACRS depreciation schedule (20%, 32%, 19.2%, 11.52%, 11.52%, 5.76%) with the half-year convention will be employed. Existing equipment, with a book value of \$100,000 and an estimated market value of \$80,000, will be sold immediately after installation of the new equipment. Annual incremental pre-tax cash inflows are estimated at \$75,000. Skytop's effective income tax rate is 40%. After-tax cash flow for the first year of the project would amount to

- a. \$45,000.
- b. \$52,000.
- c. \$67,000.
- d. \$75,000.

263. CSO: 2E1b LOS: 2E1b

Skytop Industries is analyzing a capital investment project using discounted cash flow (DCF) analysis. The new equipment will cost \$250,000. Installation and transportation costs aggregating \$25,000 will be capitalized. Existing equipment will be sold immediately after installation of the new equipment. The existing equipment has a tax basis of \$100,000 and an estimated market value of \$80,000. Skytop estimates that the new equipment's capacity will generate additional receivables and inventory of \$30,000, while payables will increase by \$15,000. Annual incremental pre-tax cash inflows are estimated at \$75,000. Skytop's effective income tax rate is 40%. Total after-tax cash outflows occurring in Year 0 would be

- a. \$177,000.
- b. \$182,000.
- c. \$198,000.
- d. \$202,000.



264. CSO: 2E1b LOS: 2E1b

Mintz Corporation is considering the acquisition of a new technologically efficient packaging machine at a cost of \$300,000. The equipment requires an immediate, fully recoverable, investment in working capital of \$40,000. Mintz plans to use the machine for five years, is subject to a 40% income tax rate, and uses a 12% hurdle rate when analyzing capital investments. The company employs the net present value method (NPV) to analyze projects.

The overall impact of the working capital investment on Mintz's NPV analysis is

- a. \$(10,392).
- b. \$(13,040).
- c. \$(17,320).
- d. \$(40,000).

265. CSO: 2E1b LOS: 2E1b

In estimating "after-tax incremental cash flows," under discounted cash flow analyses for capital project evaluations, which one of the following options reflects the items that should be included in the analyses?

	<u>Sunk Costs</u>	<u>Project related changes in net working capital</u>	<u>Estimated impacts of inflation</u>
a.	No	No	Yes
b.	No	Yes	Yes
c.	No	Yes	No
d.	Yes	No	No

266. CSO: 2E1b LOS: 2E1b

AGC Company is considering an equipment upgrade. AGC uses discounted cash flow (DCF) analysis in evaluating capital investments and has an effective tax rate of 40%. Selected data developed by AGC is as follows.

	Existing <u>Equipment</u>	New <u>Equipment</u>
Original cost	\$50,000	\$95,000
Accumulated depreciation	45,000	-
Current market value	3,000	95,000
Accounts receivable	6,000	8,000
Accounts payable	2,100	2,500

Based on this information, what is the initial investment for a DCF analysis of this proposed upgrade?

- a. \$92,400.
- b. \$92,800.
- c. \$95,800.
- d. \$96,200.

267. CSO: 2E1b LOS: 2E1b

Calvin Inc. is considering the purchase of a new state-of-art machine to replace its hand-operated machine. Calvin's effective tax rate is 40%, and its cost of capital is 12%. Data regarding the existing and new machines are presented below.

	Existing <u>Machine</u>	New <u>Machine</u>
Original cost	\$50,000	\$90,000
Installation cost	0	4,000
Freight and insurance	0	6,000
Expected end salvage value	0	0
Depreciation method	straight-line	straight-line
Expected useful life	10 years	5 years

The existing machine has been in service for seven years and could be sold currently for \$25,000. If the new machine is purchased Calvin expects to realize a \$30,000 before-tax annual reduction in labor costs.

If the new machine is purchased, what is the net amount of the initial cash outflow at Time 0 for net present value calculation purposes?

- a. \$65,000.
- b. \$75,000.
- c. \$79,000.
- d. \$100,000.

268. CSO: 2E1b LOS: 2E1b

Olson Industries needs to add a small plant to accommodate a special contract to supply building materials over a five year period. The required initial cash outlays at Time 0 are as follows.

Land	\$ 500,000
New building	2,000,000
Equipment	3,000,000

Olson uses straight-line depreciation for tax purposes and will depreciate the building over 10 years and the equipment over 5 years. Olson's effective tax rate is 40%.

Revenues from the special contract are estimated at \$1.2 million annually and cash expenses are estimated at \$300,000 annually. At the end of the fifth year, the assumed sales values of the land and building are \$800,000 and \$500,000, respectively. It is further assumed the equipment will be removed at a cost of \$50,000 and sold for \$300,000.

As Olson utilizes the net present value (NPV) method to analyze investments, the net cash flow for period 5 would be`

- a. \$1,710,000.
- b. \$2,070,000.
- c. \$2,230,000.
- d. \$2,390,000.

269. CSO: 2E1b LOS: 2E1b

In discounted cash flow techniques, which one of the following alternatives **best** reflects the items to be incorporated in the initial net cash investment?

	<u>Capitalized expenditures (e.g., shipping costs)</u>	<u>Changes in net working capital</u>	<u>Net proceeds from sale of old asset in a replacement decision</u>	<u>Impact of spontaneous changes in current liabilities</u>
a.	No	Yes	Yes	Yes.
b.	Yes	No	No	No.
c.	No	Yes	No	No.
d.	Yes	Yes	Yes	Yes.

270. CSO: 2E1b LOS: 2E1b

Calvin Inc. is considering the purchase of a new state-of-art machine to replace its hand-operated machine. Calvin's effective tax rate is 40%, and its cost of capital is 12%. Data regarding the existing and new machines are presented below.

	<u>Existing Machine</u>	<u>New Machine</u>
Original cost	\$50,000	\$90,000
Installation costs	0	4,000
Freight and insurance	0	6,000
Expected end salvage value	0	0
Depreciation method	straight-line	straight-line
Expected useful life	10 years	5 years

The existing machine has been in service for five years and could be sold currently for \$25,000. Calvin expects to realize annual before-tax reductions in labor costs of \$30,000 if the new machine is purchased and placed in service.

If the new machine is purchased, the incremental cash flows for the first year would amount to

- a. \$18,000.
- b. \$24,000.
- c. \$30,000.
- d. \$45,000.

271. CSO: 2E1b LOS: 2E2E1c1f

The owner of Woofie's Video Rental cannot decide how to project the real costs of opening a rental store in a new shopping mall. The owner knows the capital investment required but is not sure of the returns from a store in a new mall. Historically, the video rental industry has had an inflation rate equal to the economic norm. The owner requires a real internal rate of return of 10%. Inflation is expected to be 3% during the next few years. The industry expects a new store to show a growth rate, without inflation, of 8%. First year revenues at the new store are expected to be \$400,000.

The revenues for the second year, using both the real rate approach and the nominal rate approach, respectively, would be

- a. \$432,000 real and \$444,960 nominal.
- b. \$432,000 real and \$452,000 nominal.
- c. \$440,000 real and \$452,000 nominal.
- d. \$440,000 real and \$453,200 nominal.

272. CSO: 2E1b LOS: 2E1b

Kell Inc. is analyzing an investment for a new product expected to have annual sales of 100,000 units for the next 5 years and then be discontinued. New equipment will be purchased for \$1,200,000 and cost \$300,000 to install. The equipment will be depreciated on a straight-line basis over 5 years for financial reporting purposes and 3 years for tax purposes. At the end of the fifth year, it will cost \$100,000 to remove the equipment, which can be sold for \$300,000. Additional working capital of \$400,000 will be required immediately and needed for the life of the product. The product will sell for \$80, with direct labor and material costs of \$65 per unit. Annual indirect costs will increase by \$500,000. Kell's effective tax rate is 40%.

In a capital budgeting analysis, what is the expected cash flow at time = 3 (3rd year of operation) that Kell should use to compute the net present value?

- a. \$300,000.
- b. \$720,000.
- c. \$760,000.
- d. \$800,000.

273. CSO: 2E1c LOS: 2E1c

Sarah Birdsong has prepared a net present value (NPV) analysis for a 15-year equipment modernization program. Her initial calculations include a series of depreciation tax savings, which are then discounted. Birdsong is now considering the incorporation of inflation into the NPV analysis. If the depreciation tax savings were based on original equipment cost, which of the following options correctly shows how she should handle the program's cash operating costs and the firm's required rate return, respectively?

- |    | <u>Cash Operating Costs</u> | <u>Required Rate of Return</u> |
|----|-----------------------------|--------------------------------|
| a. | Adjust for inflation        | Adjust for inflation.          |
| b. | Adjust for inflation        | Do not adjust for inflation.   |
| c. | Do not adjust for inflation | Adjust for inflation.          |
| d. | Do not adjust for inflation | Do not adjust for inflation.   |

274. CSO: 2E1c LOS: 2E1c

Regis Company, which is subject to an effective income tax rate of 30%, is evaluating a proposed capital project. Relevant information for the proposed project is summarized below.

Initial investment	\$500,000
Annual operating cash inflows for the first three years.	
Year 1	185,000
Year 2	175,000
Year 3	152,000

Depreciation will be calculated under the straight-line method using an 8-year estimated service life and a terminal value of \$50,000. In determining the estimated total after-tax cash flow in Year 2 of the project, Regis should consider the after-tax operating cash

- a. inflow only.
- b. inflow plus annual depreciation expense.
- c. inflow plus annual depreciation tax shield.
- d. inflow plus the net impact of the annual depreciation expense and depreciation tax shield.

274. CSO: 2E1c LOS: 2E1c

For each of the next six years Atlantic Motors anticipates net income of \$10,000, straight-line tax depreciation of \$20,000, a 40% tax rate, a discount rate of 10%, and cash sales of \$100,000. The depreciable assets are all being acquired at the beginning of year 1 and will have a salvage value of zero at the end of six years.

The present value of the total depreciation tax savings would be

- a. \$8,000.
- b. \$27,072.
- c. \$34,840.
- d. \$87,100.

276. CSO: 2E1c LOS: 2E1c

Webster Products is performing a capital budgeting analysis on a new product it is considering. Annual sales are expected to be 50,000 units in the first year, 100,000 units in the second year, and 125,000 units the year thereafter. Selling price will be \$80 in the first year and is expected to decrease by 5% per year. Annual costs are forecasted as follows.

Fixed costs	\$300,000 each year
Labor cost per unit	\$20 in year 1, increasing 5% per year, thereafter
Material cost per unit	\$30 in year 1, increasing 10% per year, thereafter

The investment of \$2 million will be depreciated on a straight-line basis over 4 years for financial reporting and tax purposes. Webster's effective tax rate is 40%. When calculating net present value (NPV), the net cash flow for year 3 would be

- a. \$558,750.
- b. \$858,750.
- c. \$1,058,750.
- d. \$1,070,000.

277. CSO: 2E1c LOS: 2E1c

Skytop Industries is analyzing a capital investment project using discounted cash flow (DCF) analysis. The new equipment will cost \$250,000. Installation and transportation costs aggregating \$25,000 will be capitalized. The appropriate five year depreciation schedule (20%, 32%, 19%, 14.5%, 14.5%) will be employed with no terminal value factored into the computations. Annual incremental pre-tax cash inflows are estimated at \$75,000. Skytop's effective income tax rate is 40%. Assuming the machine is sold at the end of Year 5 for \$30,000, the after-tax cash flow for Year 5 of the project would amount to

- a. \$63,950.
- b. \$72,950.
- c. \$78,950.
- d. \$86,925.

278. CSO: 2E1c LOS: 2E1c

Fuller Industries is considering a \$1 million investment in stamping equipment to produce a new product. The equipment is expected to last nine years, produce revenue of \$700,000 per year, and have related cash expenses of \$450,000 per year. At the end of the 9th year, the equipment is expected to have a salvage value of \$100,000 and cost \$50,000 to remove. The IRS categorizes this as 5-year Modified Accelerated Cost Recovery System (MACRS) property subject to the following depreciation rates.

<u>Year</u>	<u>Rate</u>
1	20.00%
2	32.00%
3	19.20%
4	11.52%
5	11.52%
6	5.76%

Fuller's effective income tax rate is 40% and Fuller expects, on an overall company basis, to continue to be profitable and have significant taxable income. If Fuller uses the net present value method to analyze investments, what is the expected net tax impact on cash flow in Year 2 before discounting?

- a. Tax benefit of \$28,000.
- b. \$0.
- c. Negative \$100,000.
- d. Negative \$128,000.

279. CSO: 2E2a LOS: 2E2a

The net present value of an investment project represents the

- a. total actual cash inflows minus the total actual cash outflows.
- b. excess of the discounted cash inflows over the discounted cash outflows.
- c. total after-tax cash flow including the tax shield from depreciation.
- d. cumulative accounting profit over the life of the project.



280. *CSO: 2E2a LOS: 2E2b*

Kunkle Products is analyzing whether or not to invest in equipment to manufacture a new product. The equipment will cost \$1 million, is expected to last 10 years, and will be depreciated on a straight-line basis for both financial reporting and tax purposes. Kunkle's effective tax rate is 40%, and its hurdle rate is 14%. Other information concerning the project is as follows.

Sales per year = 10,000 units  
Selling price = \$100 per unit  
Variable cost = \$70 per unit

A 10% reduction in variable costs would result in the net present value increasing by approximately

- a. \$156,000.
- b. \$219,000.
- c. \$365,000.
- d. \$367,000.

281. *CSO: 2E2a LOS: 2E2b*

Allstar Company invests in a project with expected cash inflows of \$9,000 per year for four years. All cash flows occur at year-end. The required return on investment is 9%. If the project generates a net present value (NPV) of \$3,000, what is the amount of the initial investment in the project?

- a. \$11,253.
- b. \$13,236.
- c. \$26,160.
- d. \$29,160.

282. CSO: 2E2a LOS: 2E2b

Smithco is considering the acquisition of scanning equipment to mechanize its procurement process. The equipment will require extensive testing and debugging, as well as user training prior to its operational use. Projected after-tax cash flows are shown below.

<u>Time Period</u> <u>Year</u>	<u>After-Tax Cash</u> <u>Inflow/(Outflow)</u>
0	\$(550,000)
1	\$(500,000)
2	\$450,000
3	\$350,000
4	\$350,000
5	\$350,000

Management anticipates the equipment will be sold at the beginning of year 6 for \$50,000 when its book value is zero. Smithco's internal hurdle and effective tax rates are 14% and 40%, respectively. The project's net present value would be

- a. \$(1,780).
- b. \$(6,970).
- c. \$(17,350).
- d. \$8,600.

283. CSO: 2E2a LOS: 2E2a

An investment decision is acceptable if the

- a. net present value is greater than or equal to \$0.
- b. present value of cash inflows is less than the present value of cash outflows.
- c. present value of cash outflows is greater than or equal to \$0.
- d. present value of cash inflows is greater than or equal to \$0.

284. CSO: 2E2a LOS: 2E2b

Verla Industries is trying to decide which one of the following two options to pursue. Either option will take effect on January 1st of the next year.

Option One - Acquire a New Finishing Machine.

The cost of the machine is \$1,000,000 and will have a useful life of five years. Net pre-tax cash flows arising from savings in labor costs will amount to \$100,000 per year for five years. Depreciation expense will be calculated using the straight-line method for both financial and tax reporting purposes. As an incentive to purchase, Verla will receive a trade-in allowance of \$50,000 on their current fully depreciated finishing machine.

Option Two - Outsource the Finishing Work.

Verla can outsource the work to LM Inc. at a cost of \$200,000 per year for five years. If they outsource, Verla will scrap their current fully depreciated finishing machine.

Verla's effective income tax rate is 40%. The weighted-average cost of capital is 10%.

The net present value of outsourcing the finishing work is

- a. \$303,280 net cash outflow.
- b. \$404,920 net cash outflow.
- c. \$454,920 net cash outflow.
- d. \$758,200 net cash outflow.

285. CSO: 2E2a LOS: 2E2b

Long Inc. is analyzing a \$1 million investment in new equipment to produce a product with a \$5 per unit margin. The equipment will last 5 years, be depreciated on a straight-line basis for tax purposes, and have no value at the end of its life. A study of unit sales produced the following data.

<u>Annual Unit Sales</u>	<u>Probability</u>
80,000	.10
85,000	.20
90,000	.30
95,000	.20
100,000	.10
110,000	.10

If Long utilizes a 12% hurdle rate and is subject to a 40% effective income tax rate, the expected net present value of the project would be

- a. \$261,750.
- b. \$283,380.
- c. \$297,800.
- d. \$427,580.

286. CSO: 2E2a LOS: 2E2b

Fred Kratz just completed a capital investment analysis for the acquisition of new material handling equipment. The equipment is expected to cost \$1,000,000 and be used for eight years. Kratz reviewed the net present value (NPV) analysis with Bill Dolan, Vice President of Finance. The analysis shows that the tax shield for this investment has a positive NPV of \$200,000, using the firm's hurdle rate of 20%. Dolan noticed that 8 year straight-line depreciation was used for tax purposes but, since this equipment qualifies for 3-year MACRS treatment, the tax shield analysis should be revised. The company has an effective tax rate of 40%. The MACRS rates for 3-year property are as follows.

<u>Year</u>	<u>Rate</u>
1	33.33%
2	44.45%
3	14.81%
4	7.41%

Accordingly, the revised NPV for the tax shield (rounded to the nearest thousand) should be

- a. \$109,000.
- b. \$192,000.
- c. \$283,000.
- d. \$425,000.

287. CSO: 2E2a LOS: 2E2c

Dobson Corp. is analyzing a capital investment requiring a cash outflow at Time 0 of \$2.5 million and net cash inflows of \$800,000 per year for 5 years. The net present value (NPV) was calculated to be \$384,000 at a 12% discount rate. Since several managers felt this was a risky project, three separate scenarios were analyzed, as follows.

- Scenario R - The annual cash inflows were reduced by 10%.
- Scenario S - The discount rate was changed to 18%.
- Scenario T - The cash inflow in year 5 was reduced to zero.

Rank the three individual scenarios in the order of the effect on NPV, from least effect to greatest effect.

- a. R, S, T.
- b. R, T, S.
- c. S, T, R.
- d. T, S, R.

288. CSO: 2E2a LOS: 2E2g

Ironside Products is considering two independent projects, each requiring a cash outlay of \$500,000 and having an expected life of 10 years. The forecasted annual net cash inflows for each project and the probability distributions for these cash inflows are as follows.

<u>Project R</u>		<u>Project S</u>	
<u>Probabilities</u>	<u>Cash Inflows</u>	<u>Probabilities</u>	<u>Cash Inflows</u>
0.10	\$ 75,000	0.25	\$ 70,000
0.80	95,000	0.50	110,000
0.10	115,000	0.25	150,000

Ironside has decided that the project with the greatest relative risk should meet a hurdle rate of 16% and the project with less risk should meet a hurdle rate of 12%. Given these parameters, which of the following actions should be recommended for Ironside to undertake?

- a. Reject both projects.
- b. Accept Project R and reject Project S.
- c. Reject Project R and accept Project S.
- d. Accept both projects.

289. CSO: 2E2a LOS: 2E2g

Logan Enterprises is at a critical decision point and must decide whether to go out of business or continue to operate for five more years. Logan has a labor contract with five years remaining which calls for \$1.5 million in severance pay if Logan's plant shuts down. The firm also has a contract to supply 150,000 units per year, at a price of \$100 each, to Dill Inc. for the next five years. Dill is Logan's only remaining customer. Logan must pay Dill \$500,000 immediately if it defaults on the contract. The plant has a net book value of \$600,000, and appraisers estimate the facility would sell for \$750,000 today but would have no market value if operated for another five years. Logan's fixed costs are \$4 million per year, and variable costs are \$75 per unit. Logan's appropriate discount rate is 12%. Ignoring taxes, the optimal decision is to

- a. shut down because the annual cash flow is negative \$250,000 per year.
- b. keep operating to avoid the severance pay of \$1,500,000.
- c. shut down since the breakeven point is 160,000 units while annual sales are 150,000 units.
- d. keep operating since the incremental net present value is approximately \$350,000.

290. CSO: 2E2a LOS: 2E2b

Foster Manufacturing is analyzing a capital investment project that is forecasted to produce the following cash flows and net income.

<u>Years</u>	<u>After-Tax Cash Flows</u>	<u>Net Income</u>
0	\$(20,000)	\$ 0
1	6,000	2,000
2	6,000	2,000
3	8,000	2,000
4	8,000	2,000

If Foster's cost of capital is 12%, the net present value for this project is

- a. \$(1,600).
- b. \$924.
- c. \$6,074.
- d. \$6,998.

291. CSO: 2E2a LOS: 2E2b

Lunar Inc. is considering the purchase of a machine for \$500,000 which will last 5 years. A financial analysis is being developed using the following information.

	<u>Year 1</u>	<u>Year 2</u>	<u>Year 3</u>	<u>Year 4</u>	<u>Year 5</u>
Unit sales	<u>10,000</u>	<u>10,000</u>	<u>20,000</u>	<u>20,000</u>	<u>20,000</u>
Selling price per unit	\$ 100	\$ 100	\$ 100	\$ 100	\$ 100
Variable cost per unit	65	65	65	65	65
Fixed costs	300,000	300,000	300,000	300,000	300,000
Pre-tax cash flow	50,000	50,000	400,000	400,000	400,000

The machine will be depreciated over 5 years on a straight-line basis for tax purposes and Lunar is subject to a 40% effective income tax rate. Assuming Lunar will have significant taxable income from other lines of business, and using a 20% discount rate, the net present value of the project would be

- a. \$(282,470).
- b. \$(103,070).
- c. \$(14,010).
- d. \$16,530.

292. CSO: 2E2a LOS: 2E2b

Parker Industries is analyzing a \$200,000 equipment investment to produce a new product for the next 5 years. A study of expected annual after-tax cash flows from the project produced the following data.

<u>Annual After-Tax Cash Flow</u>	<u>Probability</u>
\$45,000	.10
50,000	.20
55,000	.30
60,000	.20
65,000	.10
70,000	.10

If Parker utilizes a 14% hurdle rate, the probability of achieving a positive net present value is

- a. 20%.
- b. 30%.
- c. 40%.
- d. 60%.

293. CSO: 2E2a LOS: 2E2g

Staten Corporation is considering two mutually exclusive projects. Both require an initial outlay of \$150,000 and will operate for five years. The cash flows associated with these projects are as follows.

<u>Year</u>	<u>Project X</u>	<u>Project Y</u>
1	\$ 47,000	\$ 0
2	47,000	0
3	47,000	0
4	47,000	0
5	47,000	280,000
Total	<u>\$235,000</u>	<u>\$280,000</u>

Staten's required rate of return is 10 percent. Using the net present value method, which one of the following actions would you recommend to Staten?

- a. Accept Project X, and reject Project Y.
- b. Accept Project Y, and reject Project X.
- c. Accept Projects X and Y.
- d. Reject Projects X and Y.

294. CSO: 2E2a LOS: 2E2b

Verla Industries is trying to decide which one of the following two options to pursue. Either option will take effect on January 1st of the next year.

Option One - Acquire a New Finishing Machine.

The cost of the machine is \$1,000,000 and will have a useful life of five years. Net pre-tax cash flows arising from savings in labor costs will amount to \$100,000 per year for five years. Depreciation expense will be calculated using the straight-line method for both financial and tax reporting purposes. As an incentive to purchase, Verla will receive a trade-in allowance of \$50,000 on their current fully depreciated finishing machine.

Option Two - Outsource the Finishing Work.

Verla can outsource the work to LM Inc. at a cost of \$200,000 per year for five years. If they outsource, Verla will scrap their current fully depreciated finishing machine.

Verla's effective income tax rate is 40%. The weighted-average cost of capital is 10%.

The net present value of acquiring the new finishing machine is

- a. \$229,710 net cash outflow.
- b. \$267,620 net cash outflow.
- c. \$369,260 net cash outflow.
- d. \$434,424 net cash outflow.



295. CSO: 2E2a LOS: 2E2g

Stennet Company is considering two mutually exclusive projects. The company's cost of capital is 10%. The net present value (NPV) profiles of the two projects are as follows.

<u>Discount Rate</u> (percent)	<u>Net Present Value \$(000)</u>	
	<u>Project A</u>	<u>Project B</u>
0	\$2,220	\$1,240
10	681	507
12	495	411
14	335	327
16	197	252
18	77	186
20	(26)	128
22	(115)	76
24	(193)	30
26	(260)	(11)
28	(318)	(47)

The company president is of the view that Project B should be accepted because it has the higher internal rate of return (IRR). The president requested John Mack, the CFO, to make a recommendation. Which one of the following options should Mack recommend to the president?

- Agree with the president.
- Accept Project A because it has an IRR higher than that of Project B.
- Accept both Projects A and B as the IRR for each project is greater than cost of capital.
- Accept Project A because at a 10% discount rate it has an NPV that is greater than that of Project B.

296. CSO: 2E2a LOS: 2E2g

Winston Corporation is subject to a 30% effective income tax rate and uses the net present value method to evaluate capital budgeting proposals. Harry Ralston, the capital budget manager, desires to improve the appeal of a marginally attractive proposal. To accomplish his goal, which one of the following actions should be recommended to Ralston?

- Postpone a fully-deductible major overhaul from year 4 to year 5.
- Decrease the project's estimated terminal salvage value.
- Immediately pay the proposal's marketing program in its entirety rather than pay in five equal installments.
- Adjust the project's discount rate to reflect movement of the project from a "low risk" category to an "average risk" category.

297. CSO: 2E2b LOS: 2E2d

Which of the following is **not** a shortcoming of the Internal Rate of Return (IRR) method?

- a. IRR assumes that funds generated from a project will be reinvested at an interest rate equal to the project's IRR.
- b. IRR does not take into account the difference in the scale of investment alternatives.
- c. IRR is easier to visualize and interpret than net present value (NPV).
- d. Sign changes in the cash flow stream can generate more than one IRR.

298. CSO: 2E2b LOS: 2E2a

A company is in the process of evaluating a major product line expansion. Using a 14% discount rate, the firm has calculated the present value of both the project's cash inflows and cash outflows to be \$15.8 million. The company will likely evaluate this project further by

- a. taking a closer look at the expansion's contribution margin.
- b. comparing the internal rate of return versus the accounting rate of return.
- c. comparing the internal rate of return versus the company's cost of capital.
- d. comparing the internal rate of return versus the company's cost of capital and hurdle rate.

299. CSO: 2E2b LOS: 2E2g

Hobart Corporation evaluates capital projects using a variety of performance screens; including a hurdle rate of 16%, payback period of 3 years or less, and an accounting rate of return of 20% or more. Management is completing review of a project on the basis of the following projections.

- Capital investment           \$200,000
- Annual cash flows           \$74,000
- Straight-line depreciation   5 years
- Terminal value               \$20,000

The projected internal rate of return is 20%. Which one of the following alternatives reflects the appropriate conclusions for the indicated evaluative measures?

- |    | <u>Internal Rate<br/>of Return</u> | <u>Payback</u> |
|----|------------------------------------|----------------|
| a. | Accept                             | Reject.        |
| b. | Reject                             | Reject.        |
| c. | Accept                             | Accept.        |
| d. | Reject                             | Accept.        |

300. CSO: 2E2b LOS: 2E2g

Diane Harper, Vice President of Finance for BGN Industries, is reviewing material prepared by her staff prior to the board of directors meeting at which she must recommend one of four mutually exclusive options for a new product line. The summary information below indicates the initial investment required, the present value of cash inflows (excluding the initial investment) at BGN's hurdle rate of 16%, and the internal rate of return (IRR) for each of the four options.

<u>Option</u>	<u>Investment</u>	<u>Present Value of Cash Inflows at 16%</u>	<u>IRR</u>
X	\$3,950,000	\$3,800,000	15.5%
Y	3,000,000	3,750,000	19.0%
Z	2,000,000	2,825,000	17.5%
W	800,000	1,100,000	18.0%

If there are no capital rationing constraints, which option should Harper recommend?

- a. Option X.
- b. Option Y.
- c. Option Z.
- d. Option W.

301. CSO: 2E2b LOS: 2E2a

If the present value of expected cash inflows from a project equals the present value of expected cash outflows, the discount rate is the

- a. payback rate.
- b. internal rate of return.
- c. accounting rate of return.
- d. net present value rate.

302. CSO: 2E2b LOS: 2E2b

The net present value profiles of projects A and B are as follows.

<u>Discount Rate</u> (percent)	<u>Net Present Value \$(000)</u>	
	<u>Project A</u>	<u>Project B</u>
0	\$2,220	\$1,240
10	681	507
12	495	411
14	335	327
16	197	252
18	77	186
20	(26)	128
22	(115)	76
24	(193)	30
26	(260)	(11)
28	(318)	(47)

The approximate internal rates of return for Projects A and B, respectively, are

- a. 0% and 0%.
- b. 19.0% and 21.5%.
- c. 19.5% and 25.5%.
- d. 20.5% and 26.5%.

303. CSO: 2E2b LOS: 2E2a

For a given investment project, the interest rate at which the present value of the cash inflows equals the present value of the cash outflows is called the

- a. hurdle rate.
- b. payback rate.
- c. internal rate of return.
- d. cost of capital.

304. CSO: 2E2b LOS: 2E2b

Two mutually exclusive capital expenditure projects have the following characteristics.

		<u>Project A</u>	<u>Project B</u>
Investment		\$100,000	\$150,000
Net cash inflow -	Year 1	40,000	80,000
	Year 2	50,000	70,000
	Year 3	60,000	60,000

All cash flows are received at the end of the year. Based on this information, which one of the following statements is **not** correct?

- a. The net present value of Project A at a cost of capital of 10% is \$22,720.
- b. The net present value of Project B at a cost of capital of 12% is \$19,950.
- c. The internal rate of return of Project B is greater than the internal rate of return of Project A.
- d. The payback years for Project A is greater than the payback years for Project B.

305. CSO: 2E2b LOS: 2E2b

Jenson Copying Company is planning to buy a copying machine costing \$25,310. The net present values (NPV) of this investment, at various discount rates, are as follows.

<u>Discount Rate</u>	<u>NPV</u>
4%	\$2,440
6%	\$1,420
8%	\$ 460
10%	(\$ 440)

Jenson's approximate internal rate of return on this investment is

- a. 6%.
- b. 8%.
- c. 9%.
- d. 10%.

306. CSO: 2E2b LOS: 2E2b

Foster Manufacturing is analyzing a capital investment project that is forecasted to produce the following cash flows and net income.

<u>Year</u>	<u>After Tax Cash-Flows</u>	<u>Net Income</u>
0	\$(20,000)	\$ 0
1	6,000	2,000
2	6,000	2,000
3	8,000	2,000
4	8,000	2,000

The internal rate of return (rounded to the nearest whole percentage) is

- a. 5%.
- b. 12%.
- c. 14%.
- d. 40%.

307. CSO: 2E2c LOS: 2E2a

The following methods are used to evaluate capital investment projects.

- Internal rate of return
- Average rate of return
- Payback
- Net present value

Which one of the following correctly identifies the methods that utilize discounted cash-flow (DCF) techniques?

	<u>Internal Rate of Return</u>	<u>Average Rate of Return</u>	<u>Payback</u>	<u>Net Present Value</u>
a.	Yes	Yes	No	No.
b.	No	No	Yes	Yes.
c.	Yes	No	Yes	No.
d.	Yes	No	No	Yes.

308. CSO: 2E2c LOS: 2E2c

Molar Inc. is evaluating three independent projects for the expansion of different product lines. The Finance Department has performed an extensive analysis of each project and the chief financial officer has indicated that there is no capital rationing in effect. Which of the following statements are correct?

- I. Reject any project with a payback period which is shorter than the company standard.
  - II. The project with the highest internal rate of return (IRR) exceeding the hurdle rate should be selected and the others rejected.
  - III. All projects with positive net present values should be selected.
  - IV. Molar should reject any projects with negative IRRs.
- a. I, II and IV only.
  - b. I, II, III and IV.
  - c. II and III only.
  - d. III and IV only.

309. CSO: 2E2c LOS: 2E2c

Jones & Company is considering the acquisition of scanning equipment to mechanize its procurement process. The equipment will require extensive testing and debugging as well as user training prior to its operational use. Projected after-tax cash flows are as follows.

Time Period	After-Tax Cash
<u>Year</u>	<u>Inflow/(Outflow)</u>
0	\$(600,000)
1	(500,000)
2	450,000
3	450,000
4	350,000
5	250,000

Management anticipates the equipment will be sold at the beginning of Year 6 for \$50,000 and its book value will be zero. Jones' internal hurdle and effective income tax rates are 14% and 40%, respectively. Based on this information, a negative net present value was computed for the project. Accordingly, it can be concluded that

- a. the project has an internal rate of return (IRR) less than 14% since IRR is the interest rate at which net present value is equal to zero.
- b. Jones should examine the determinants of its hurdle rate further before analyzing any other potential projects.
- c. Jones should calculate the project payback to determine if it is consistent with the net present value calculation.
- d. the project has an IRR greater than 14% since IRR is the interest rate at which net present value is equal to zero.

310. *CSO: 2E3a LOS: 2E3a*  
Foggy Products is evaluating two mutually exclusive projects, one requiring a \$4 million initial outlay and the other a \$6 million outlay. The Finance Department has performed an extensive analysis of each project. The chief financial officer has indicated that there is no capital rationing in effect. Which of the following statements are correct?
- I. Both projects should be rejected if their payback periods are longer than the company standard.
  - II. The project with the highest Internal Rate of Return (IRR) should be selected (assuming both IRRs exceed the hurdle rate).
  - III. The project with the highest positive net present value should be selected.
  - IV. Select the project with the smaller initial investment, regardless of which evaluation method is used.
- a. I, II, and IV only.
  - b. I, II and III only.
  - c. I and III only.
  - d. II and III only.
311. *CSO: 2E3a LOS: 2E3a*  
Despite its shortcomings, the traditional payback period continues to be a popular method to evaluate investments because, in part, it
- a. provides some insight into the risk associated with a project.
  - b. ignores the time value of money.
  - c. focuses on income rather than cash flow.
  - d. furnishes information about an investment's lifetime performance.
312. *CSO: 2E3a LOS: 2E3b*  
Which one of the following is **not** a shortcoming of the payback method?
- a. It offers no consideration of cash flows beyond the expiration of the payback period.
  - b. It ignores the time value of money.
  - c. It offers no indication of a project's liquidity.
  - d. It encourages establishing a short payback period.



313. CSO: 2E3a LOS: 2E3c

Quint Company uses the payback method as part of its analysis of capital investments. One of its projects requires a \$140,000 investment and has the following projected before-tax cash flows.

Year 1	\$60,000
Year 2	60,000
Year 3	60,000
Year 4	80,000
Year 5	80,000

Quint has an effective 40% tax rate. Based on these data, the after-tax payback period is

- a. 1.5.
- b. 2.3.
- c. 3.4.
- d. 3.7.

314. CSO: 2E3a LOS: 2E3c

Foster Manufacturing is analyzing a capital investment project that is forecasted to produce the following cash flows and net income.

<u>Year</u>	<u>After-Tax Cash flow</u>	<u>Net Income</u>
0	(\$20,000)	\$ 0
1	6,000	2,000
2	6,000	2,000
3	8,000	2,000
4	8,000	2,000

The payback period of this project will be

- a. 2.5 years.
- b. 2.6 years.
- c. 3.0 years.
- d. 3.3 years.

315. CSO: 2E3a LOS: 2E3c

Smithco is considering the acquisition of scanning equipment to mechanize its procurement process. The equipment will require extensive testing and debugging, as well as user training prior to its operational use. Projected after-tax cash flows are shown below.

Time Period <u>Year</u>	After-Tax Cash <u>Inflow/(Outflow)</u>
0	\$(550,000)
1	\$(500,000)
2	\$450,000
3	\$350,000
4	\$250,000
5	\$150,000

Management anticipates the equipment will be sold at the beginning of year 6 for \$50,000 when its book value is zero. Smithco's internal hurdle and effective tax rates are 14% and 40%, respectively. The project's payback period will be

- a. 2.3 years.
- b. 3.0 years.
- c. 3.5 years.
- d. 4.0 years.

316. CSO: 2E4a LOS: 2E4b

Susan Hines has developed an estimate of the earnings per share for her firm for the next year using the following parameters.

Sales	\$20 million
Cost of goods sold	70% of sales
General & administrative expenses	\$300,000
Selling expense	\$100,000 plus 10% of sales
Debt outstanding	\$5 million @ 8% interest rate
Effective tax rate	35%
Common shares outstanding	2 million

She is now interested in the sensitivity of earnings per share to sales forecast changes. A 10% sales increase would increase earnings per share by

- a. 7.0 cents per share.
- b. 10.4 cents per share.
- c. 13.0 cents per share.
- d. 20.0 cents per share.

317. *CSO: 2E4a LOS: 2E4b*  
 The modeling technique that should be used in a complex situation involving uncertainty is a(n)
- expected value analysis.
  - program evaluation review technique.
  - Monte Carlo simulation.
  - Markov process.

318. *CSO: 2E4a LOS: 2E4b*  
 Janet Jones, an analyst with All Purpose Heater Company, plans to use a Monte Carlo experiment to estimate the simulated daily demand for All Purpose's heaters. The probability distribution for the daily demand for heaters is as follows.

<u>Daily demand for heaters</u>	<u>Probability</u>	<u>Random number intervals</u>
0	.10	00-09
1	.15	10-24
2	.20	25-44
3	.20	45-64
4	.25	
5	.10	

Jones is trying to assign random number intervals for each of the demand levels. She has done so for the first four levels. If a total of 100 two-digit numbers are used in a simulation, what random number intervals should Jones assign to the 4 and 5 heaters demand levels, respectively?

- 65-69; 70-88.
  - 65-84; 85-99.
  - 65-84; 85-99.
  - 65-89; 90-99.
319. *CSO: 2E4a LOS: 2E4b*  
 All of the following are advantages of a simulation model **except** that it
- allows what-if type of questions.
  - does not interfere with the real world systems.
  - generates optimal solutions to problems.
  - allows the study of the interactive effect of variables.

320. CSO: 2E4a LOS: 2E4b

Logan Corporation, located in Boston, has experienced major distribution problems in supplying key Los Angeles-based customers. Delivery times have been as follows over the last four months.

<u>Delivery Time in Days</u>	<u>Number of Times Occurring</u>
5	12
6	18
7	15
8	9
9	6

The company's marketing manager wants to simulate the distribution process by assigning random numbers to delivery times and to other random variables. If the marketing manager uses 100 different random numbers to simulate the process, an appropriate assignment of random numbers to a 6-day delivery time would be

- a. 09-14.
- b. 30-60.
- c. 45-74.
- d. 00-18.

#### Section F: Professional Ethics

321. CSO: 2F1a LOS: 2F1c

Recently Fan Club Inc. submitted a budget for the coming year to management. Included in the budget were the plans for a new product, a rechargeable fan. The new fan will not only last longer than the competitor's product but is also more quiet. While not yet approved, the budget called for aggressive advertising to support its sales targets, as the business community was not yet aware that Fan Club was close to production of a new fan. A member of the management accounting staff "shared" the budget with a distributor. In accordance with IMA's "Statement of Ethical Professional Practice," which one of the following would **best** represent an ethical conflict in this situation?

- a. The budget has not been approved and therefore is not for publication.
- b. The price has not been established, so expectations must be managed.
- c. The staff member exposed the company to a potential lawsuit.
- d. The employee should refrain from disclosing confidential information.

## CMA Part 2 – Financial Decision Making Answers to Examination Questions for Practice

### Section A: Financial Statement Analysis

1. Correct answer a. Gordon's common-size gross profit percentage has decreased as a result of an increasing common-size trend in cost of goods sold as shown below.

	Year 1	Year 2	Year 3	Year 4
Sales	100%	100%	100%	100%
Cost of goods sold (÷ Sales)	60.0%	60.3%	60.7%	60.7%
Gross profit (÷ Sales)	40.0%	39.6%	39.2%	39.2%

2. Correct answer a. Broomall's working capital is \$40,000 calculated as follows.

$$\begin{array}{rcl}
 \text{Current assets} - \text{Current liabilities} & = & \text{Net working capital} \\
 \$10,000 + \$20,000 + \$8,000 + \$30,000 + \$12,000 & = & \$80,000 \text{ current assets} \\
 \qquad \qquad \qquad \$15,000 + \$25,000 & = & \$40,000 \text{ current liabilities} \\
 \qquad \qquad \qquad \$80,000 - \$40,000 & = & \underline{\$40,000} \text{ net working capital}
 \end{array}$$

3. Correct answer b. When merchandise is purchased on credit, accounts payable increases and inventory increases by the same amount so net working capital remains unchanged.
4. Correct answer c. If \$100,000 is used to purchase inventory, the firm's quick ratio will decrease. Since inventory is not included in the calculation of current assets for the quick ratio, current assets will decrease while liabilities remain unchanged.
5. Correct answer d. Grimaldi's quick ratio at the end of the year is 1.52 as shown below.

$$\begin{array}{rcl}
 (\text{Current assets} - \text{Inventory}) \div \text{Current liabilities} & = & \text{Quick ratio} \\
 (\$62,000 + \$35,000 + \$47,000) \div (\$84,000 + \$11,000) & = & \underline{1.52}
 \end{array}$$

6. Correct answer c. Davis' current ratio will be lower than 2.3 times as shown below.

$$\begin{array}{rcl}
 \text{Before purchase:} & \$7,500,000 \div X & = 2.3 \\
 & \qquad \qquad \qquad X & = \$3,260,870 \\
 \text{After purchase: } (\$7,500,000 + \$750,000) \div (\$3,260,870 + \$750,000) & = & \underline{2.05}
 \end{array}$$

7. Correct answer d. Markowitz's current ratio will be reduced as an increase in the allowance for uncollectible accounts will reduce total current assets while current liabilities remain unchanged.

8. Correct answer b. Fortune's net working capital is \$45,000 as shown below.

$$(\$10,000 + \$60,000 + \$25,000 + \$5,000) - (\$40,000 + \$10,000 + \$5,000) = \underline{\$45,000}$$

9. Correct answer b. To increase its acid test ratio, Gratska should sell auto parts on account. This transaction will increase accounts receivable and thus the numerator of the ratio. Inventory is not included in the ratio so the change in inventory will not affect the ratio.
10. Correct answer c. The purchase will adversely affect the quick ratio by reducing the cash balance. Since inventory is not included in the quick ratio, the change in inventory will not offset the reduction in cash.
11. Correct answer d. Boyd's current ratio is 2.97 as calculated below.

$$\begin{aligned} \text{Current assets} \div \text{Current liabilities} &= \text{Current ratio} \\ (\$62,000 + \$47,000 + \$35,000 + \$138,000) \div (\$84,000 + \$11,000) &= \underline{2.97} \end{aligned}$$

12. Correct answer d. A comparison of current assets with current liabilities gives an indication of the short-term debt-paying ability of a firm. Both working capital and the current ratio compare current assets with current liabilities and, therefore, measure credit worthiness.
13. Correct answer d. The current ratio and the quick ratio both compare current assets with current liabilities, however, the quick ratio eliminates inventory from current assets as it may not be readily converted into cash. Therefore, the disparity between the ratios is caused by the high level of inventory.
14. Correct answer d. The acid test (quick) ratio does not include inventory in the calculation of current assets and, therefore, measures debt-paying ability without liquidating inventory.
15. Correct answer b. The purpose of the acid test ratio is to measure debt-paying ability using highly liquid assets. Items such as prepaid insurance may be excluded as they do not represent current cash flow.
16. Correct answer d. Dedham's acid test ratio is 1.05 as shown below.

$$(\$10,000 + \$20,000 + \$12,000) \div (\$15,000 + \$25,000) = \underline{1.05}$$

17. Correct answer b. Because the payment will have a proportionally greater affect on current liabilities than on current assets, the company's current ratio will increase.
18. Correct answer a. Sterling is the most highly leveraged corporation because it has the greatest percentage of debt or financing with a fixed charge, e.g., interest.
19. Correct answer b. Sahara's degree of financial leverage is 1.36 as shown below.

$$\begin{aligned} \text{Degree of financial leverage} &= \text{EBIT} \div \text{EBT} \\ &= (\$1,320,000 + \$880,000 + \$800,000) \div (\$1,320,000 + \$880,000) \\ &= \$3,000,000 \div \$2,200,000 \\ &= \underline{1.36} \end{aligned}$$

20. Correct answer c. The degree of operating leverage measures the percent change in EBIT caused by a percent change in sales. Therefore, a degree of operating leverage of 3 indicates that a 1% change in sales will cause a 3% change in EBIT.
21. Correct answer a. Financial leverage is defined as the use of financing with a fixed charge such as interest. Firms with a high degree of financial leverage make significant use of debt and, therefore, have high debt-to-equity ratios.
22. Correct answer a. Financial leverage is defined as the use of financing with a fixed charge such as interest. Since debt is financing with a fixed charge, the use of debt increases financial leverage.
23. Correct answer d. Earnings to Mineral's shareholders will increase by 7.5% as shown below.

$$\begin{aligned}
 \text{Degree of financial leverage} &= \% \text{ change in net income} \div \% \text{ change in EBIT} \\
 1.5 &= X \div 5\% \\
 X &= \underline{7.5\%}
 \end{aligned}$$

24. Correct answer a. Because of the magnification of financial leverage, a decrease in earnings before interest and taxes will result in a proportionally larger decrease in earnings per share.
25. Correct answer c. Mica's debt-to-equity ratio is 32.2% as shown below.

$$\begin{aligned}
 \text{Debt-to-equity ratio} &= \text{Total debt} \div \text{Equity} \\
 &= (\$84,000 + \$11,000 + \$77,000) \div (\$300,000 + \$28,000 + \$206,000) \\
 &= \$172,000 \div \$534,000 \\
 &= \underline{32.2\%}
 \end{aligned}$$

26. Correct answer c. Since Borglum is seeking a supplier that is stable, it should select Rockland as this supplier has a relatively low level of financial risk indicated by its debt/equity ratio and degree of financial leverage, both of which are below the industry average, and a current ratio that is above the industry average.
27. Correct answer d. The debt-to-total assets ratio indicates the percentage of assets financed by creditors and helps to determine how well creditors are protected in case of insolvency. From the perspective of debt-paying ability, the lower this ratio, the better.
28. Correct answer c. Since Easton Bank is seeking the company that is most likely to meet its loan obligations, the bank should select Astor. Both the degree of financial leverage and the debt/equity ratio are measures of debt-paying ability; Astor is below the industry average for both measures, indicating a low level of financial risk.

29. Correct answer a. The company's debt/equity ratio is .5 to 1 as shown below.

$$\begin{aligned} \text{Current liabilities} &= \$640,000 \div 3.2 \\ &= \$200,000 \\ \text{Equity} &= \$990,000 - (\$200,000 + \$130,000) \\ &= \$660,000 \\ \text{Debt/equity ratio} &= (\$130,000 + \$200,000) \div \$660,000 \\ &= \underline{.5 \text{ to } 1} \end{aligned}$$

30. Correct answer b. The company's times-interest earned ratio is 1.0. The ratio is calculated as EBIT  $\div$  interest expense. Since interest expense is equal to EBIT, the ratio is 1.0.

31. Correct answer c. Since Marble Savings Bank is seeking the company that is most likely to meet its loan obligations, the bank should select Nutron. Both the degree of financial leverage and the debt/equity ratio are measures of debt-paying ability; Nutron is below the industry average for both measures, indicating a low level of financial risk.

32. Correct answer c. As shown by the data, Strickland's competitor has a greater degree of financial leverage and a higher debt/equity ratio. The two measures indicate that the competitor makes greater use of outside financing than Strickland. Strickland should, therefore, consider increased outside borrowing to increase flexibility and fund research and development.

33. Correct answer c. Lowell's accounts receivable turnover in days is 36.5 as shown below.

$$\begin{aligned} \text{Accts receivable turnover (days)} &= 365 \div (\text{Credit sales} \div \text{Average accounts receivable}) \\ &= 365 \div [\$220,000 \div (\$20,000 + \$24,000) \div 2] \\ &= 365 \div (\$220,000 \div \$22,000) \\ &= 365 \div 10 \\ &= \underline{36.5 \text{ days}} \end{aligned}$$

34. Correct answer c. Maydale's accounts receivable turnover ratio is 10.00 as shown below.

$$\begin{aligned} \text{Accts receivable turnover ratio} &= \text{Credit sales} \div \text{Average accounts receivable} \\ &= \$3,600,000 \div [(\$320,000 + \$400,000) \div 2] \\ &= \$3,600,000 \div \$360,000 \\ &= \underline{10.00} \end{aligned}$$



35. Correct answer d. Both Zubin's inventory turnover and accounts receivable turnover ratios will decrease under these circumstances. The numerator values of these are cost of goods sold and credit sales, respectively. If these values both decline, the value of both ratios will decline.

36. Correct answer b. Lampasso's inventory turnover ratio is 3.5 times as shown below.

$$\begin{aligned}\text{Inventory turnover ratio} &= \text{Cost of goods sold} \div \text{Average inventory} \\ &= \$24,500 \div [(\$6,400 + \$7,600) \div 2] \\ &= \$24,500 \div \$7,000 \\ &= \underline{3.5 \text{ times}}\end{aligned}$$

37. Correct answer c. Garland's inventory turnover ratio is 4.01 as shown below.

$$\begin{aligned}\text{Inventory turnover ratio} &= \text{Cost of goods sold} \div \text{Average inventory} \\ &= \$527,000 \div [(\$125,000 + \$138,000) \div 2] \\ &= \$527,000 \div \$131,500 \\ &= \underline{4.01}\end{aligned}$$

38. Correct answer b. Makay's inventory turnover ratio is 5.0 times as shown below.

$$\begin{aligned}\text{Inventory turnover ratio} &= \text{Cost of goods sold} \div \text{Average inventory} \\ &= \$140,000 \div [(\$30,000 + \$26,000) \div 2] \\ &= \$140,000 \div \$28,000 \\ &= \underline{5.0 \text{ times}}\end{aligned}$$

39. Correct answer c. Globetrade's current ratio would decrease as a result of the change to LIFO because the value of ending inventory would be lower thus decreasing the firm's current assets. Globetrade's inventory turnover ratio would increase as a result of the change to LIFO because the cost of goods sold would increase.

40. Correct answer b. Lancaster's accounts receivable turnover ratio is 10.15 as shown below.

$$\begin{aligned}\text{Accts. receivable turnover} &= \text{Credit sales} \div \text{Average accounts receivable} \\ &= [\$1,700,000 \times (1 - .06)] \div [(\$168,000 + \$147,000) \div 2] \\ &= \$1,598,000 \div \$157,500 \\ &= \underline{10.15}\end{aligned}$$

41. Correct answer d. Cornwall's days' sales in accounts receivable is 23 as shown below.

$$\begin{aligned}\text{Days' sales in Accts. Rec.} &= \text{Average accounts receivable} \div (\text{Credit sales} \div 360) \\ &= [(\$68,000 + \$47,000) \div 2] \div (\$900,000 \div 360) \\ &= \$57,500 \div \$2,500 \\ &= \underline{23 \text{ days}}\end{aligned}$$

42. Correct answer a. Both measures have increased because both sales and cost of goods sold have increased while average accounts receivable and average inventory have remained the same.

43. Correct answer c. Caper's fixed asset turnover is 2.3 times calculated as follows.

$$\begin{aligned}\text{Fixed asset turnover} &= \text{Sales} \div \text{Average net property, plant, \& equipment} \\ &= \$3,000,000 \div \$1,300,000 \\ &= \underline{2.3 \text{ times}}\end{aligned}$$

44. Correct answer b. The accounts payable turnover is 7.0 times as shown below.

$$\begin{aligned}\text{Accounts payable turnover} &= \text{Credit purchases} \div \text{Average accounts payable} \\ &= \$24,500^* \div [(\$3,320 + \$3,680) \div 2] \\ &= \$24,500 \div \$3,500 \\ &= \underline{7.0 \text{ times}}\end{aligned}$$

\*COGS used as credit purchases

45. Correct answer c. The only measure not affected by the purchase of its own common stock is Douglas' net profit margin. Both the debt/equity ratio and the earnings per share are affected by the number of outstanding shares of common stock while the current ratio is affected by the amount of cash held.

46. Correct answer a. Beechwood's return on shareholders' equity is 19.2% as shown below.

$$\begin{aligned}\text{ROE} &= \text{Net income} \div \text{Average equity} \\ &= \$96,000 \div [(\$300,000 + \$12,000 + \$155,000 + \$300,000 + \$28,000 + \$206,000) \div 2] \\ &= \$96,000 \div \$496,000 \\ &= \underline{19.2\%}\end{aligned}$$

47. Correct answer b. Moreland's total asset turnover is 1.37 as calculated below.

$$\begin{aligned}\text{Total asset turnover} &= \text{Sales} \div \text{Average total assets} \\ &= \$900,000 \div [(\$48,000 + \$68,000 + \$125,000 + \$325,000 + \$62,000 \\ &\quad + \$35,000 + \$47,000 + \$138,000 + \$424,000) \div 2] \\ &= \$900,000 \div \$657,000 \\ &= \underline{1.37}\end{aligned}$$

48. Correct answer b. Interstate's additional investment in operating assets will increase the total value of the firm's net property, plant, and equipment and will, therefore, decrease the operating asset turnover and the return on operating assets. The firm's operating income margin will be unaffected by this investment.

49. Correct answer b. If Colonie increases its inventory turnover, the value of inventory will likely be lower which will lower the firm's total assets. Decreasing the use of equity financing will stabilize (or reduce) the amount of equity outstanding. Both lower total assets and lower total equity would result in an increase in Colonie's return on equity.

50. Correct answer a. Merit's book value per share is \$1.88 as calculated below.

$$\begin{aligned}
 \text{Book value per share} &= (\text{Total equity} - \text{Preferred equity}) \div \text{Common shares outstanding} \\
 &= (\$26,433,841^* - \$3,554,405) \div 12,195,799 \\
 &= \$22,879,436 \div 12,195,799 \\
 &= \underline{\$1.88}
 \end{aligned}$$

$$*\$24,209,306 + \$2,861,003 - \$223,551 - \$412,917$$

51. Correct answer b. Because a stock dividend increases the number of common shares outstanding, Donovan's book value per common share will decrease.

52. Correct answer c. Because the market price per share has increased while earnings per share remained the same, Arnold's price/earnings ratio has increased showing a positive trend in growth opportunities in Year 2.

53. Correct answer c. The estimated per share value of Clark's common stock is \$15.00 as calculated below.

$$\begin{aligned}
 \text{Estimated value per share} &= (\text{Net income} \div \text{Shares outstanding}) \times \text{Price/earnings ratio} \\
 &= (\$3,750,000 \div 3,000,000) \times 12 \\
 &= \underline{\$15.00}
 \end{aligned}$$

54. Correct answer b. The value per share of Kell's common stock is \$16.50 as shown below.

$$\begin{aligned}
 \text{Market to book ratio} &= \text{Current price} \div \text{Book value per share} \\
 1.5 &= X \div [(\$3,000,000 + \$24,000,000 + \$6,000,000) \div 3,000,000] \\
 1.5X &= \$11.00 \\
 X &= \underline{\$16.50}
 \end{aligned}$$

55. Correct answer a.

Beg. Balance	100,000	x 3/12	x 1.1	27,500
April 1st	110,000	x 3/12	x 1.1	30,250
July 1st	121,000	x 3/12		30,250
October 1st	116,000	x 3/12		<u>29,000</u>
				<u>117,000</u>

56. Correct answer c. ABC's earnings per share is \$4.38 as shown below.

Weighted average shares	1,060,000 x 5/12	441,667
	1,120,000 x 7/12	<u>653,333</u>
		1,095,000

$$\begin{aligned}\text{Earnings per share} &= (\text{Net income} - \text{Preferred dividends}) \div \text{Weighted average shares} \\ &= [\$5,300,000 - (10\% \times \$100 \times 50,000)] \div 1,095,000 \\ &= \$4,800,000 \div 1,095,000 \\ &= \underline{\$4.38}\end{aligned}$$

57. Correct answer c. Devlin's price/earnings ratio is 7.08 as shown below.

$$\begin{aligned}\text{Price/earnings ratio} &= \text{Market price per share} \div \text{Earnings per share} \\ &= \$34 \div \$4.80 \\ &= \underline{7.08}\end{aligned}$$

58. Correct answer b. Appleseed's price/earnings ratio is 9.09 as shown below.

$$\begin{aligned}\text{Earnings per share} &= (\text{Net income} - \text{Preferred dividends}) \div \text{Common shares outstanding} \\ &= [\$588,000 - (\$6 \times 10,000)] \div 120,000 \\ &= \$528,000 \div 120,000 \\ &= \$4.40 \\ \text{Price/earnings ratio} &= \text{Market price per share} \div \text{Earnings per share} \\ &= \$40 \div \$4.40 \\ &= \underline{9.09}\end{aligned}$$

59. Correct answer d. Archer's stock is undervalued by approximately 25% as calculated below.

$$\begin{aligned}\text{Estimated market value} &= \text{Industry average P/E ratio} \times \text{Archer earnings per share} \\ &= 14.00 \times \$3.20 \\ &= \$44.80 \\ \text{Archer market difference} &= \$44.80 - \$36.00 \\ &= \$8.80 \\ \text{Percentage difference} &= \$8.80 \div \$36.00 \\ &= \underline{24.4\%}\end{aligned}$$

60. Correct answer a. The price/earnings (P/E) ratio expresses the relationship between the market price of a stock and the stock's earnings per share. A steady drop in a firm's P/E ratio could, therefore, indicate that earnings per share has been increasing while the market price of the stock has held steady.

61. Correct answer c. Collins earnings per share is \$2.90 as shown below.

$$\begin{aligned} \text{Earnings per share} &= (\text{Net income} - \text{Preferred dividends}) \div \text{Common shares outstanding} \\ &= (\$350,000 - \$60,000^*) \div 100,000 \\ &= \underline{\underline{\$2.90}} \end{aligned}$$

$$*\text{Preferred dividends} = (\$100 \times .06) \times 10,000 = \$60,000$$

62. Correct answer c. When the common shares outstanding increase as the result of a stock dividend or a stock split, retroactive recognition must be given to these events for all comparative earnings per share presentations. Therefore, Ray Company would 1,000,000 shares for computing earnings per share.

63. Correct answer b. Esther's earnings per share was \$8.06 as shown below.

Weighted average shares	<u>Shares</u>	<u>Months</u>	<u>Weighted Average</u>
	10,000	5/12	4,170
	12,000	7/12	<u>6,996</u>
			11,166

$$\begin{aligned} \text{Preferred dividends} &= (\$100 \times .06) \times 5,000 \\ &= \$30,000 \end{aligned}$$

$$\begin{aligned} \text{Earnings per share} &= (\text{Net income} - \text{Preferred dividends}) \div \text{Common shares outstanding} \\ &= (\$120,000 - \$30,000) \div 11,166 \\ &= \underline{\underline{\$8.06}} \end{aligned}$$

64. Correct answer b. Ray Company's weighted average number of shares for calculating earnings per share is 137,500 calculated as follows.

Weighted average shares	<u>Shares</u>	<u>Months</u>	<u>Weighted Average</u>
	120,000	2/12	20,000
	108,000	3/12	27,000
	138,000	5/12	57,500
	198,000	2/12	<u>33,000</u>
			<u>137,500</u>

65. Correct answer a. Dyle's yield on common stock is 11.11% as shown below.

$$\begin{aligned} \text{Dividend yield} &= \text{Dividends per common share} \div \text{Market price per common share} \\ &= (\$700,000 \div 350,000) \div \$18 \\ &= \underline{\underline{11.11\%}} \end{aligned}$$

66. Correct answer c. Oakland's dividend yield was 2.00% calculated as follows.

$$\begin{aligned} \text{Dividend yield} &= \text{Dividends per common share} \div \text{Market price per common share} \\ &= (4 \times \$0.20) \div \$40.00 \\ &= \underline{\underline{2.00\%}} \end{aligned}$$

67. Correct answer c. Dividend yield indicates the relationship between the dividends per common share and the market price per common share and is calculated by dividing the dividends by the market price.

68. Correct answer d. Mayson's dividend yield was 3.33% as shown below.

$$\begin{aligned}\text{Dividend yield} &= \text{Dividends per common share} \div \text{Market price per common share} \\ &= \$1 \div \$30 \\ &= \underline{3.33\%}\end{aligned}$$

69. Correct answer d. Arnold's dividend yield has declined when compared to Year 1.

$$\begin{aligned}\text{Dividend yield} &= \text{Dividends per common share} \div \text{Market price per common share} \\ \text{Year 1} &= \$1 \div \$50 = 2.00\% \\ \text{Year 2} &= \$1 \div \$60 = 1.67\%\end{aligned}$$

70. Correct answer a. A firm's functional should be the currency of the primary economic environment in which the firm operates and should be selected on the basis of several economic factors including cash flow, sales price, and financing indicators.

71. Correct answer d. A firm's functional should be the currency of the primary economic environment in which the firm operates and should be selected on the basis of several economic factors including cash flow, sales price, and financing indicators.

72. Correct answer b. Assets acquired for cash, with financing leases, or with a line of credit must all be presented on a firm's balance sheet while assets acquired with operating leases are not included on the balance sheet (e.g., off-balance-sheet financing).

73. Correct answer d. Economic profit is defined as revenue minus all explicit and implicit costs. The implicit costs are generally referred to as opportunity costs.

74. Correct answer c. Economic profit is defined as revenue minus all explicit and implicit costs. The implicit costs are generally referred to as opportunity costs.

75. Correct answer d. Economic profit is defined as revenue minus all explicit and implicit costs. The implicit costs are generally referred to as opportunity costs.

76. Correct answer d. The economic cost of Williams' MBA studies is \$60,000.

Opportunity cost of quitting job	\$35,000
Explicit cost of studies	<u>25,000</u>
Economic cost	<u>\$60,000</u>

77. Correct answer b. Lark's economic profit was (\$25,000) as shown below.

$$\begin{aligned}\text{Economic profit} &= (\text{Net income} + \text{interest}) - (\text{Debt} + \text{Equity Opportunity Cost}) \\ &= (\$350,000 + \$100,000) - [(\$1,000,000 \times .1) + (\$2,500,000 \times .15)] \\ &= \$450,000 - \$475,000 \\ &= \underline{\underline{\$25,000}}\end{aligned}$$

## Section B: Corporate Finance

78. Correct answer b. Systematic risk is the variability of return on stocks or portfolios associated with changes in return on the market as a whole and is measured by the covariance between the security's return and the general market.

79. Correct answer a. Interest rate risk is the variation in the market price of a bond caused by changes in interest rates. The longer the maturity (duration) of the bond, the greater the price fluctuation associated with the given change in market required return.

80. Correct answer c. The expected current value of Frasier's common stock is \$20 as shown below.

$$\begin{aligned}\text{Dividend} &= \text{Payout ratio} \times \text{Earnings per share} \\ &= .35 \times \$4.00 \\ &= \$1.40 \\ \text{Required return} &= \text{Risk-free rate} + \text{Beta} (\text{Market rate} - \text{Risk-free rate}) \\ &= .07 + 1.25 (.15 - .07) \\ &= .17 \\ \text{Value of stock} &= \text{Dividend} \div (\text{Required return} - \text{Dividend growth rate}) \\ &= \$1.40 \div (.17 - .10) \\ &= \underline{\underline{\$20.00}}\end{aligned}$$

81. Correct answer d. Beta is an index of systematic risk and measures the sensitivity of a stock's returns to changes in returns on the market portfolio. A firm's beta is determined by the risk characteristics of the firm. Of the options given, the payout ratio has the least impact on the firm's riskiness and therefore its beta value.

82. Correct answer c. If a firm has a beta value of 1.0, the stock has the same systematic risk as the market as a whole and should rise and fall with the market.

83. Correct answer b. A futures contract provides for delivery of a commodity at a specified price on a stipulated future date. If the price of wheat is expected to rise, the contract protects future cash flow.

84. Correct answer a. A call provision is a feature in an indenture that permits the issuer to repurchase securities at a fixed price before maturity.

85. Correct answer d. Protective clauses or restrictions in bond indentures and loan agreements are known as covenants and can include items such as working capital requirements and capital expenditure limitations.

86. Correct answer a. Protective clauses or restrictions in bond indentures and loan agreements are known as covenants and can include items such as working capital requirements and capital expenditure limitations.
87. Correct answer d. All of the restrictions listed are likely to be included as protective covenants in the indenture.
88. Correct answer c. The longer the maturity (duration) of the bond, the greater the price fluctuation associated with a given change in market required return.
89. Correct answer d. A firm would be inclined to issue debt rather than equity when the effective tax rate is high as the interest expense associated with debt reduces income and therefore reduces tax expense.
90. Correct answer a. A bond is a long-term debt instrument with a final maturity generally being 10 years or more. If the security has a final maturity shorter than 10 years, it is generally called a note.
91. Correct answer c. The post split price of the stock should be greater than \$40.00 if the dividend changed to \$.55 as the dividend yield will have increased.
92. Correct answer c. The record date, set when a dividend is declared, is the date on which an investor must be a shareholder in order to be entitled to receive the upcoming dividend.
93. Correct answer c. Refunding is replacing an old debt issue with a new one, usually to lower interest cost. Therefore, refunding is not a method for retiring preferred stock.
94. Correct answer c. Unlike interest expense, dividends are not tax deductible to the issuer.
95. Correct answer c. A disadvantage of preferred stock to the issuer is that it generally sells on a higher yield basis than bonds.
96. Correct answer c. If a firm pays off its only outstanding debt, the cost of capital is likely to increase because the cost of equity is greater than the cost of debt. If the Treasury Bond yield increases, the overall required rate of return will likely increase causing an increase in the cost of capital.
97. Correct answer d. Stability's cost of capital is 12.80% as calculated below.

Long-term debt	\$10,000,000	40% x 8%	3.20%
Common stock	10,000,000	40% x 15%	6.00%
Retained earnings	<u>5,000,000</u>	20% x 18%	<u>3.60%</u>
	\$25,000,000		<u>12.80%</u>

98. Correct answer a. Kielly's cost of capital is 12.22% as shown below.

Debt	30% x [11% (1 - .4)]	1.98%
Preferred stock	24% x 12%	2.88%
Equity	46% x 16%	<u>7.36%</u>
		<u>12.22%</u>



99. Correct answer b. Albion's cost of capital is 13.1% as calculated below.

Capital	Market Value ('000)	Proportion of Total Financing	Market Return	Weighted Cost
Long-term debt (30,000 bonds x \$1,083.34)	\$32,500	26%	$ [.08 \times (1 - .4)] = .048$	1.25%
Preferred stock (100,000 shares x \$125)	12,500	10%	$ 1,200(\text{dividend}) / 12,500 (\text{market value}) = .096$	0.96%
Common stock (5,000,000 shares x \$16)	<u>80,000</u>	<u>64%</u>	.17	<u>10.88%</u>
	<u>125,000</u>	<u>100%</u>		<u>13.09%</u>

100. Correct answer c. Thomas' cost of capital is 10.95% as shown below.

Long-term debt	$ [.08 \times (1 - .4)] \times .30$	1.44%
Preferred stock	$ .11 \times .25$	2.75%
Common stock	$ .15 \times .45$	<u>6.75%</u>
		<u>10.94%</u>

101. Correct answer d. If Joint Products exchanges debt for equity, the firm's cost of capital is likely to increase as the cost equity is greater than the cost of debt due to the tax deductibility of interest expense.

102. Correct answer d. Cox's cost of preferred stock capital is 9.20% as shown below.

$$\begin{aligned}
 \text{Cost of preferred stock} &= \text{Stated annual dividend} \div \text{Market price} - \text{cost of issue} \\
 &= \$8 \div (\$92 - \$5) \\
 &= \underline{9.20\%}
 \end{aligned}$$

103. Correct answer a. Since common stock equity is the sum total of common stock at par, additional paid-in capital, and retained earnings, the appropriate cost retained earnings is the cost of common stock.

104. Correct answer c. The cost of capital for Hatch's retained earnings is equal to the required rate of return on the company's common stock or 18.08% as calculated below using the constant growth model.

$$\begin{aligned}
 \text{Required rate of return} &= (\text{Dividend next period} \div \text{Value}) + \text{Growth rate} \\
 &= [(\$3 \times 1.09) \div \$36] + .09 \\
 &= .0908 + .09 \\
 &= \underline{18.08\%}
 \end{aligned}$$

105. Correct answer c. The cost of capital for OFC's retained earnings is equal to the required rate of return on the company's common stock or 15.8% as shown below.

$$\begin{aligned} \text{Required rate of return} &= (\text{Dividend next period} \div \text{Value}) + \text{Growth rate} \\ &= [(\$2 \times 1.10) \div \$38] + .10 \\ &= \underline{15.8\%} \end{aligned}$$

106. Correct answer b. Angela's long-term debt is 45% of its capital structure as shown below.

$$\begin{aligned} \text{Cost of debt} &= .08 \times (1 - .4) \\ &= .048 \\ \text{WACC} &= .15X + .048(1-X) = .1041 \\ &= .102X = .0561 \\ \text{Preferred equity} &= X = .55 \\ \text{Debt} &= 1 - X = \underline{.45} \end{aligned}$$

107. Correct answer c. An increase in the return on marketable securities would cause a decrease in the optimal cash balance. The higher the denominator value, the lower the resulting solution.
108. Correct answer c. The reasons for holding cash do not include the motive to make a profit while the other three options are appropriate reasons for holding cash.
109. Correct answer d. A lock-box system is used for managing cash inflows rather than cash outflows.
110. Correct answer d. Powell would need to reduce its average collection time by 1.5 days in order to justify the use of the lockbox as shown below.

$$\begin{aligned} \text{Daily collections:} & 300 \times \$2,500 = \$750,000 \\ \text{Daily interest:} & \$750,000 \times .08 = \$60,000 \\ \text{Reduction in days:} & \$90,000 \div \$60,000 = \underline{1.5 \text{ days}} \end{aligned}$$

111. Correct answer a.

$$\begin{aligned} \text{Opening balance:} & \$2,000,000 \\ \text{January} & 2,000,000 = \$2,000,000 \times .04 / 12 = + 6,667 \\ \text{February} & +2,000,000 = \$4,000,000 \times .04 / 12 = +13,333 \\ \text{March} & +1,000,000 = \$5,000,000 \times .04 / 12 = +16,667 \\ \text{April} & -5,000,000 = 0 \\ \text{May} & -3,000,000 = \$3,000,000 \times .08 / 12 = - 20,000 \\ \text{June} & -2,000,000 = \$5,000,000 \times .08 / 12 = \underline{- 33,333} \\ & = -16,667 \end{aligned}$$

112. Correct answer b.
- $$\begin{aligned} \text{Savings from trade discount} &= 1\% \times \$25,000 \times 24 = \$6,000 \\ \text{Interest to bank} &= 10\% \times \$24,750 / 12 \times 24 = \$4,950 \\ \text{Net savings} &= \$6,000 - \$4,950 = \$1,050 \end{aligned}$$

113. Correct answer d. Rolling Stone should use of the methods presented except the use of drafts as shown below.

Lockbox cost:	\$25 x 170	=	\$4,250
Savings	\$5,240 - \$4,250	=	\$990
Drafts cost:	4,000 x \$2	=	\$8,000
Loss	\$6,500 - \$8,000	=	\$(1,500)
Bank Float:	\$1,000,000 x .02	=	\$20,000
Savings	\$22,000 - \$20,000	=	\$2,000
Electronic Trans.	700 x \$18	=	\$12,600
Savings	\$14,000 - \$12,600	=	\$1,400

114. Correct answer a. In order to justify the cost of a wire transfer, the transfer amount should be at least \$21,000 as shown below.

Transfer amount	.09A x (2 ÷ 360)	=	\$10.50
	.09A	=	\$1,890
	A	=	<u>\$21,000</u>

115. Correct answer b. The use of a zero balance account can reduce all of the options presented except the disbursement float. Disbursement float refers to the period between the payment of an invoice and the clearing of the payment through the company's bank. This time period is unaffected by the use of a zero balance account.

116. Correct answer d. Typically, municipal bonds are tailored for the long-term investor while T-bills, money market funds, and commercial paper are primarily used for short-term investing.

117. Correct answer d. Treasury bills are direct obligations of the U.S. government (no default risk), sold at discount (carry no coupon rate), and are redeemed at full face value at maturity. The interest income on these securities is taxed at the federal level but is exempt from state and local taxes.

118. Correct answer b. At 12%, the bank borrowing represents the lowest cost of funds as shown below.

Trade discount:	(.02 ÷ .98) x (360 ÷ 60)	=	<u>12.24%</u>
Commercial paper:	\$9.1 - \$8.8	=	\$.3
	(\$.3 ÷ \$9.1) x 4	=	<u>13.1%</u>

119. Correct answer a.  $\$2,000 \times 20\% + \$400,000 / 360 = 1,111.11 \times 45 = \$50,000$ .

120. Correct answer c. Because Northville's change in credit terms will most likely shorten the cash conversion cycle, it is least likely that the company will need to increase short-term borrowing.

121. Correct answer a. Snug-fit's return on the incremental sales would be 34.0% as shown below.

$$\begin{aligned} \text{Estimated bad debt loss} &= \$80,000 \times .06 \\ &= \$4,800 \\ \text{Gross profit} &= \$80,000 \times .4 \\ &= \$32,000 \\ \text{Return on sales} &= (\$32,000 - \$4,800) \div \$80,000 \\ &= \underline{34.0\%} \end{aligned}$$

122. Correct answer d. A credit manager would be most interested in liquidity ratios as these measure a firm's ability to convert assets to cash and thereby pay financial obligations.

123. Correct answer b. Foster should implement Plan B as this plan results in the highest gross profit as shown below.

$$\begin{aligned} \text{Plan B:} &= \text{Gross profit} - \text{Bad debt/Collection costs} - \text{Incremental cost of capital} \\ &= (\$250,000 \times .2) - (\$3,000 + \$2,000) - [(\$90,000 - \$60,000) \times .15] \\ &= \$50,000 - \$5,000 - \$4,500 \\ &= \underline{\$40,500} \end{aligned}$$

Results for other plans: Plan A \$30,000; Plan C \$40,000; Plan D \$36,500

124. Correct answer c. A company should consider liberalizing its credit policy if it has a low cost of borrowing and the opportunity for repeat sales. Steady customers would be attracted by a liberal credit policy and if the company needs to borrow funds because of slower than expected payments, the cost would not be too high. Factors I and IV have no relationship to credit policy.

125. Correct answer c. Computer Services would need to know the cost of the investment in additional receivables or the opportunity cost of funds.

$$\begin{array}{r} 126. \text{ Correct answer b. } \$13,000 \times 20\% = \quad \quad \quad \$2,600 \text{ CM} \\ \text{Less } (2,000 + 2,300) \times 10\% = \quad \quad \quad 430 \\ \text{Less} \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad 125 \\ \text{Less} \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \underline{125} \\ \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \quad \underline{\underline{1,920}} \end{array}$$

Options a,b,c produce lower amounts, as follows: \$1,850, \$1,650, \$1,300.

127. Correct answer a. The cost of not taking the trade discount (20.98%) is greater than the 12% cost of borrowing so Global should pay within the first 10 days.

$$\text{Trade discount} = (.02 \div .98) \times (360 \div 35) = \underline{20.98\%}$$

128. Correct answer b. Locar's average collection period was 26.7 days as shown below.

$$\begin{aligned} \text{Average collection period} &= (\text{Receivables} \times \text{Annual days}) \div \text{Credit sales} \\ &= (\$1,380,000 \times 360) \div \$18,600,000 \\ &= \underline{26.7 \text{ days}} \end{aligned}$$

129. Correct answer d. Atlantic should collect \$25,000 of receivables, purchase \$10,000 of inventory and reduce current liabilities by \$15,000. This is the only option that reduces short-term debt and thus lowers the cost of debt while satisfying the loan covenant.

130. Correct answer c. Storage costs, insurance, and opportunity cost of funds invested in inventory are all costs of carrying inventory while shipping costs are related to sales of inventory.

131. Correct answer d. The total cost that Valley will incur is \$12,100 as shown below.

Ordering cost	8 x \$200	\$ 1,600
Carrying average inventory	(50 ÷ 2) x \$100	2,500
Lost discounts	(400 x \$500) x .04	<u>8,000</u>
		<u>\$12,100</u>

132. Correct answer c. The carrying cost per unit is \$120 as shown below.

$$\begin{aligned} \text{Carrying cost} &= (\$400 + \$20) \times 25\% + \$15 \\ &= \$120 \end{aligned}$$

133. Correct answer d. The carrying cost of inventory is \$8,160 as shown below.

$$\begin{aligned} \text{Carrying cost} &= [2,400 + (2,000 \div 2)] \times (\$12 \times .20) \\ &= \underline{\underline{\$8,160}} \end{aligned}$$

134. Correct answer d. If new competition opens in the company's market area, the company's sales are likely to decline and safety stock cannot protect against this event.

135. Correct answer c. If ordering costs increase, the EOQ model would increase the order quantity. If the carrying cost increased, the EOQ model would decrease the order quantity. Purchase price and safety stock do not affect the EOQ model.

136. Correct answer d. Quantity discounts are not explicitly considered in the EOQ model as purchase price does not affect the model.

137. Correct answer d. The EOQ model assumes that order delivery times are consistent and that lead times do not vary. The other statements about EOQ are false.

138. Correct answer d. A decrease in carrying costs would result in an increase in the EOQ as it would be less costly to store units. A decrease in sales or ordering costs would decrease EOQ while the EOQ is unaffected by safety stock.

139. Correct answer b. Burke will pay the bank \$52,500 as shown below.

	<u>4/1</u>	<u>4/30</u>	<u>5/31</u>	<u>6/30</u>
Balance	\$2 mil.	\$4 mil.	(\$3 mil.)	\$4 mil.
2 mths. unused credit line		2 x (\$5,000,000 x .0025)		\$25,000
1 mth. \$3 mil. borrowed		\$3,000,000 x (.09 ÷ 12)		22,500
1 mth. \$2 mil. unused		\$2,000,000 x .0025		<u>5,000</u>
				<u>\$52,500</u>

140. Correct answer d. Ideally, permanent assets are financed with long-term debt of matching maturities. The greater the portion of assets financed by short-term debt, the greater the risk that the firm will not be able to meet these obligations.

141. Correct answer a. Texas Corporation should purchase the 90-day investment as it has the highest annual yield as shown below.

90-day:	$\$80,000 \times .95 = \$76,000$ ;	$(\$80,000 - \$76,000) \div \$76,000 = .05 \times 4 =$	20%
180-day:	$\$75,000 \times .94 = \$70,500$ ;	$(\$75,000 - \$70,500) \div \$70,500 = .06 \times 2 =$	12%
270-day:	$\$100,000 \times .95 = \$95,000$ ;	$\$5,000 \div \$95,000 = (.05 \div 3) \times 4 =$	7%
360-day:	$\$60,000 \times .90 = \$54,000$ ;	$\$6,000 \div \$54,000 = .11 \times 1 =$	11%

142. Correct answer d. The firm should seek an unsecured short-term loan to finance additional capital needs during the busy season. A transaction loan is generally for one specific purpose like completing a specific contract while term and installment loans are generally one year or greater.

143. Correct answer d. A commercial bank would likely be able to provide its customers with all of these financing vehicles.

144. Correct answer b.

Cost of commercial paper financing:  $\$12,000,000 \times 3/12 \times 7\% = \$210,000$  expense

July investment:  $\$4,000,000 \times 4\% / 12 = \$13,333$  income.

No investment in August

September:  $\$2,000,000 \times 4\% / 12 = \$6,667$  income. Net cost:  $\$210,000 - \$13,333 - \$6,667 = \$190,000$

Line of credit financing: July  $\$8,000,000 \times 8\% / 12 = \$53,333$

Aug  $12,000,000 \times 8\% / 12 = 80,000$

Sep  $10,000,000 \times 8.5\% / 12 = \underline{78,833}$

Total  $\$204,166$

$\$204,166 - \$190,000 = \$14,166$  advantage to commercial paper

145. Correct answer b. The cost of foregoing the trade discount is 18.4% as shown below.

$$\begin{aligned} \text{Trade discount} &= (.02 \div .98) \times (360 \div 40) \\ &= \underline{18.4\%} \end{aligned}$$

146. Correct answer d. The effective annual interest rate cost is 13.9% as shown below.

$$\begin{aligned} \text{Effective interest rate} &= (.03 \div .97) \times (360 \div 80) \\ &= \underline{13.9\%} \end{aligned}$$

147. Correct answer d. The effective interest rate to the borrower is 13.64% as shown below.

$$\begin{aligned} \text{Effective interest rate} &= .12 \div (1 - .12) \\ &= \underline{13.64\%} \end{aligned}$$

148. Correct answer d. The face value of the note should be \$329,670 as shown below.

$$\begin{aligned} \text{Effective interest rate} &= .09 \div .91 \\ &= .0989 \\ \text{Face value of note} &= \$300,000 \times 1.0989 \\ &= \underline{\$329,670} \end{aligned}$$

149. Correct answer c. Keller would need to borrow \$176,471 as shown below.

$$\begin{aligned} \text{Interest rate} &= (\$150,000 \times .08) \div [\$150,000 - (\$150,000 \times .15)] \\ &= \$12,000 \div \$127,500 \\ &= .0943875 \\ \text{Funds required} &= \$150,000 + [(\$150,000 \times .15) \div 2] \\ &= \$161,250 \times 1.0943875 \\ &= \underline{\$176,471} \end{aligned}$$

150. Correct answer b. The compensating balance required is \$3,000,000 as shown below.

$$\begin{aligned} \text{Effective interest rate} &= (\$100,000,000 \times .10) \div X = 10.31 \\ X &= \$97,000,000 \\ \text{Compensating balance} &= \$100,000,000 - \$97,000,000 \\ &= \underline{\underline{\$3,000,000}} \end{aligned}$$

151. Correct answer c. The effective interest rate is 8.75% as shown below.

$$\begin{aligned} \text{Effective interest rate} &= (\$100,000 \times .07) \div [\$100,000 - (\$100,000 \times .20)] \\ &= \$7,000 \div \$80,000 \\ &= \underline{\underline{8.75\%}} \end{aligned}$$

152. Correct answer b. The compensating balance required is \$2,440,000 as shown below.

$$\begin{aligned} \text{Effective interest rate} &= (\$100,000,000 \times .10) \div X = 10.25 \\ X &= \$97,560,000 \\ \text{Compensating balance} &= \$100,000,000 - \$97,560,000 \\ &= \underline{\underline{\$2,440,000}} \end{aligned}$$

153. Correct answer b. Frame will pay \$1,131,250 as shown below.

$$\begin{aligned} \text{Interest} &= (\$10,000,000 \times .02) + (\$20,000,000 \times .04) + (\$5,000,000 \times .02) \\ &= \$1,100,000 \\ \text{Fees} &= [\$10,000,000 \times (.005 \div 12 \times 3)] + [\$15,000,000 \times (.005 \div 12 \times 3)] \\ &= \$31,250 \\ \text{Total} &= \$1,100,000 + \$31,250 \\ &= \underline{\underline{\$1,131,250}} \end{aligned}$$

154. Correct answer c. The effective interest rate is 8.42% as shown below.

$$\begin{aligned} \text{Effective interest rate} &= (\$100,000,000 \times .08) \div (\$100,000,000 - \$5,000,000) \\ &= \$8,000 \div \$95,000,000 \\ &= \underline{\underline{8.42\%}} \end{aligned}$$

155. Correct answer d. The residual theory of dividends treats dividends as strictly a financing decision with the payment of cash dividends determined solely by the availability of acceptable investment proposals.

156. Correct answer b. Mason should invest in all projects that have an IRR greater than the cost of capital. In this case, that means  $A + B + C = \$200k + \$350k + \$570k = \$1,120,000$ . This will be financed 40% debt and 60% equity, or  $\$1,120,000 \times 60\% = \$672,000$  equity. Since the \$1 million is available internally,  $\$1,000,000 - \$672,000 = \$328,000$  will not be need for projects, \$328,000 can be paid as dividends under the residual dividend policy.

157. Correct answer d. The liquidity of a company is a prime consideration in dividend decisions because dividends represent a cash outflow. A growing company may be profitable but not liquid or a company may wish a liquidity cushion to provide flexibility.



158. Correct answer b. After a stock-split, a company rarely maintains the same per share dividend but usually reduces to half or slightly about half. Therefore, total dividend payouts remain approximately the same.
159. Correct answer a. The company will pay \$12,000 in common stock dividends on the 20,000 shares outstanding (25,000 issued – 5,000 treasury stock) at \$.60 per share.
160. Correct answer a. If the U.S. inflation rate declines relative to the Swiss inflation rate, the U.S. dollar will purchase a greater number of Swiss francs resulting in the depreciation of the Swiss franc.
161. Correct answer c. If the U.S. dollar appreciates against the British pound, it will take fewer dollars to purchase British goods thus increasing the demand for these products.
162. Correct answer c. If Country A has more exports than imports, its demand for foreign currency will diminish resulting in the appreciation of A's currency.
163. Correct answer d. If R's real interest rates are lower than the real interest rates in T, there will be lower demand for R currency investments resulting in the depreciation of R's currency relative to T's currency.

### Section C: Decision Analysis

164. Correct answer c. Garner could incur up to \$270,000 of expense and still break even due to savings of \$270,000 as shown below.

Interest expense avoided	=	$(3 \times \$1,500,000) \times [(.07 \div 12) \times 8]$
	=	$\$4,500,000 \times .046666$
	=	$\$210,000$
Additional income earned	=	$(3 \times \$1,500,000) \times [(.04 \div 12) \times 4]$
	=	$\$4,500,000 \times .013333$
	=	$\$60,000$
Total savings	=	$\$210,000 + \$60,000$
	=	<u><math>\\$270,000</math></u>

165. Correct answer c. Bolger's breakeven point would increase by 375 units as shown below.

Current breakeven point:	(\$300 - \$210)X	=	\$360,000
	\$90 X	=	\$360,000
	X	=	4,000 units
Future breakeven point:	(\$300 - \$220)X	=	\$350,000
	\$80X	=	\$350,000
	X	=	4,375 units
Difference	4,375 - 4,000	=	<u>375 units</u>

166. Correct answer b. Phillips breakeven volume is 82,500 units, and the company's anticipated operating income is \$9,250,000 as calculated below.

Breakeven point:	(\$160 - \$60) X	=	(\$55 x 150,000)
	\$100X	=	\$8,250,000
	X	=	<u>82,500 units</u>
Operating income	= [(\$160 - \$60) x 175,000]	-	\$8,250,000
	=		<u>\$9,250,000</u>

167. Correct answer c. Cost-volume-profit analysis assumes that variable costs do not change with a change in volume; therefore, option C is the correct response. All other assumptions presented are correct.

168. Correct answer b. At the breakeven point, Ace would sell 9,231 units of Product C based on a sales mix of 80% Product C.

Breakeven point:	80% C contribution + 20% F contribution = Fixed costs	
	[ (.8 x \$2) + (.2 x \$5) ] x A	= \$30,000
	\$2.60A	= \$30,000
	A	= 22,538.46
Product C breakeven point:	11,538.46 x 80%	= <u>9,231 units</u>

169. Correct answer c.	12 x 3,500 = 42,000	.28	
	20 x 3,000 = 60,000	.40	
	12 x 4,000 = <u>48,000</u>	.32	
	150,000		

.28 x (18-3) = 4.2	
.40 x (15-1) = 5.6	
.32 x (20-0) = <u>6.4</u>	
16.2 weighted CM	

Fixed: 165,000 + 249,000 + 316,000 + 565,000 = 1,295,000 / 16.2 = 79,938

170. Correct answer d. In order to achieve a net income of \$1.3 million, Carson will need to sell 90,000 units as shown below.

$$\begin{aligned}
 \$100x - \$75x - \$250,000 &= \$1,300,000 \div (1 - .35) \\
 \$25x - \$250,000 &= \$2,000,000 \\
 \$25x &= \$2,250,000 \\
 x &= \underline{\underline{90,000 \text{ units}}}
 \end{aligned}$$

171. Correct answer b. Metal Craft would need to sell 54,300 Model No. 153 socket sets in order to generate \$161,200 in operating income based on the following calculation.

Sales mix: Model 109: 20%; Model 145: 50%; Model 153: 30%

$$\begin{aligned}
 \text{Breakeven: } (.2 \times \$10 - \$5.50)A + (.5 \times \$15 - \$8)A + (.3 \times \$20 - \$14)A &= \$161,200 \\
 \phantom{\text{Breakeven: }} & \$ .90A + \$3.50A + \$1.80A = \$1,122,200 \\
 \phantom{\text{Breakeven: }} & \$6.20A = \$1,122,200 \\
 \phantom{\text{Breakeven: }} & A = 181,000 \text{ sets}
 \end{aligned}$$

$$\text{Model 153 breakeven: } 181,000 \text{ sets} \times 30\% = \underline{\underline{54,300 \text{ sets}}}$$

172. Correct answer d. The total attendance for “Mr. Wonderful” would need to be 31,000 to produce an after-tax contribution of \$210,000 as shown below.

$$\begin{aligned}
 (\$18 - \$3)A - \$165,000 &= \$210,000 \div (1 - .3) \\
 \$15 A &= \$465,000 \\
 A &= \underline{\underline{31,000}}
 \end{aligned}$$

173. Correct answer d. Robin Company’s required sales would be \$1,200,000 as shown below.

$$\begin{aligned}
 (1 - \text{tax rate}) \times (\text{Contribution} - \text{Fixed costs}) &= \text{Return on sales} \\
 (1 - .4) \times (.30A - \$240,000) &= .06A \\
 .12A &= \$144,000 \\
 A &= \underline{\underline{\$1,200,000}}
 \end{aligned}$$

174. Correct answer c. Selling price: \$45  
 Variable cost = 37% (2% + 25% + 10%)  
 Contribution margin % = 63%  
 Contribution margin \$ = 45 x 63% = \$28.35

$$\begin{aligned}
 28.35X - 104,720^* &= .2 \times 45X \\
 28.35X &= 9X + 104,720 \\
 19.35X &= 104,720 \\
 X &= \underline{\underline{5,412}}
 \end{aligned}$$

$$* \text{ FIXED: } 35,000 + 18,500 + 9,320 + 7,500 + 4,400 + 30,000 = 104,720$$

175. Correct answer b. To earn an 8% after-tax return on the \$300,000 investment, Zipper Company would require sales totaling \$914,286 as shown below.

$$\begin{aligned}
 \text{Contribution} - \text{Fixed costs} &= 8\% \text{ of investment} \div (1 - \text{tax rate}) \\
 .7A - \$600,000 &= (.08 \times \$300,000) \div (1 - .4) \\
 .7A - \$600,000 &= \$24,000 \div .6 \\
 .7A &= \$600,000 + \$40,000 \\
 A &= \underline{\$914,286}
 \end{aligned}$$

176. Correct answer b. Breakeven quantity can be defined as the point where operating income is equal to zero. Therefore, revenue must equal total costs.
177. Correct answer b. To maximize contribution, Eagle Brand should produce 250 units of Product X at \$20 contribution per unit for a total of \$5,000. Option D provides a higher contribution but Eagle does not have enough raw material to produce all these units.
178. Correct answer b. Silverstone's profits this will be \$80,000 as shown below.

$$\begin{aligned}
 \text{Contribution margin} &= 1 - (\$270,000 \div \$450,000) \\
 &= 40\% \\
 \text{Profit} &= (.4 \times \$500,000) - \$120,000 \\
 &= \underline{\$80,000}
 \end{aligned}$$

179. Correct answer c. Breeze's operating profit would increase by \$1,000. Operating profit equals contribution minus fixed costs. If contribution increases while fixed costs remain the same, operating profit will increase by the same amount.
180. Correct answer a. Wilkinson's income would be \$30,500 as shown below.

$$\begin{aligned}
 \text{Income} &= (\text{Contribution margin} \times \text{selling price} \times \text{units}) - \text{Fixed costs} \\
 &= (.45 \times \$30 \times 3,000) - \$10,000 \\
 &= \underline{\$30,500}
 \end{aligned}$$

181. Correct answer b. The maximum contribution margin that Cervine can generate is \$689,992 as shown below.

$$\begin{aligned}
 \text{Contribution Product A} &= \$100 - \$53 - \$10 &= \$37 \\
 \text{Contribution Product B} &= \$80 - \$45 - \$11 &= \$24 \\
 \text{Hours Product A} &= 10,000 \text{ units} \times 2 \text{ hours} &= 20,000 \text{ hours} \\
 \text{Units Product B} &= (40,000 \text{ hrs.} - 20,000 \text{ hrs.}) \div 1.5 &= 13,333 \text{ units} \\
 \text{Contribution} &= (\$37 \times 10,000) + (\$24 \times 13,333) &= \underline{\$689,992}
 \end{aligned}$$

182. Correct answer c. Specialty Cakes will break even by producing 4,947 round cakes and 14,842 heart-shaped cakes as shown below.

$$\begin{array}{rcl}
 \text{Breakeven: } (.25 \times \$4A) + (.75 \times \$5A) & = & \$94,000 \\
 & & \$4.75A & = & \$94,000 \\
 & & A & = & 19,789 \text{ units} \\
 \text{Round cakes: } .25 \times 19,789 & = & \underline{4,947} \\
 \text{Heart-shaped cakes: } .75 \times 19,789 & = & \underline{14,842}
 \end{array}$$

183. Correct answer a. If the change is implemented, Lazar's total contribution margin would increase by \$125,000 as shown below.

$$\begin{array}{rcl}
 \text{Decrease in direct material: } .5 \times \$5 & = & \$2.50 \\
 \text{Increase in variable overhead: } (\$3 \div 2 \text{ hrs.}) \times 3.5 \text{ hrs.} - \$3 & = & \$2.25 \\
 \text{Reduction in cost: } \$2.50 - \$2.25 & = & \$.25 \\
 \text{Increase in contribution: } \$.25 \times 500,000 \text{ units} & = & \underline{\$125,000}
 \end{array}$$

184. Correct answer c. If Ticker's sales mix shifts toward Product A, operating income will decrease if the number of units sold remains constant. Since A's contribution margin is lower than Product B's, there will be less contribution toward covering fixed costs resulting in lower operating income.
185. Correct answer b. The maximum contribution that Lazar can generate is \$2,000,000 by producing 250,000 trunks. Since the contribution margin for trunks (\$8) is more than twice the contribution margin for crates (\$3), the fact that trunks utilizes twice the machine hours is negated.
186. Correct answer d. The opportunity cost is Johnson's best alternative use of both the \$200 and the two hours. Opportunity cost is the contribution foregone by not using a limited resource in its next best alternative use.
187. Correct answer c. The benefits sacrificed by selecting an alternative use of resources is opportunity cost. Opportunity cost is the contribution foregone by not using a limited resource in its next best alternative use.
188. Correct answer d. Relevant costs and relevant revenues are those costs and revenues expected in the future that differ among alternative courses of action being considered. These are the items that affect decision making.
189. Correct answer a. A sunk cost is a past cost that cannot be changed no matter what action is taken. Therefore, joint costs incurred prior to a decision would be considered sunk.
190. Correct answer d. Since Blaze is uncertain what the sales of the new product will be and his risk tolerance is low, he should choose to pay 30% of his revenue to the mall management. As a consequence, his expenses will match his revenues and the project risk will be low.
191. Correct answer d. Benefits lost by choosing one alternative over another are referred to as opportunity costs.

192. Correct answer d. The cost of the crane to move materials would most likely be treated as a sunk cost in differential cost analysis as this cost is not likely to differ among alternatives.
193. Correct answer c. The relevant unit cost to manufacture the ice-makers is \$30 each for a total relevant cost of \$600,000. Under either alternative, there would be \$4 per unit of fixed cost remaining, therefore, this \$4 becomes irrelevant to the decision and can be deducted from the total unit cost of \$34 leaving \$30 of relevant cost.
194. Correct answer c. Plan Z is the most profitable (\$28,000), Plan X is next (\$24,000) with Plan Y the least profitable (\$20,400).

$$\begin{array}{rcl}
 \text{Plan Z: } (\$32 - \$30) \times 14,000 & = & \underline{\$28,000} \\
 \text{Plan X: } [\$36 - \$3 - (\$36 \times .1)] \times 10,000 & = & \underline{\$24,000} \\
 \text{Plan Y: } [\$38 - \$30 - (\$38 \times .1)] \times 12,000 & = & A + \$30,000 \\
 & & \$50,400 = A + \$30,000 \\
 & & A = \underline{\$20,400}
 \end{array}$$

195. Correct answer b. Auburn's average total cost at an output level of three units is \$850 as shown below.

$$\begin{array}{rcl}
 \text{Average total cost} & = & (\$2,000 \div 3) + (\$550 \div 3) \\
 & = & \underline{\$850}
 \end{array}$$

196. Correct answer a. Kelso's average total cost at an output level of 11 units is \$113.64 as shown below.

$$\begin{array}{rcl}
 \text{Average total cost} & = & (\$1,000 \div 11) + (\$250 \div 11) \\
 & = & \underline{\$113.64}
 \end{array}$$

197. Correct answer b. Harper's short-run marginal cost is \$130 per unit as calculated below.

$$\begin{array}{rcl}
 \text{Marginal cost} & = & (\$3,325,000 - \$3,000,000) \div (22,500 - 20,000) \\
 & = & \underline{\$130}
 \end{array}$$

198. Correct answer b. Auburn's marginal cost for the 7<sup>th</sup> unit is \$210 as shown below.

$$\begin{array}{rcl}
 \text{Marginal cost} & = & \$1,250 - \$1,040 \\
 & = & \underline{\$210}
 \end{array}$$

199. Correct answer a. Kelso's marginal cost for the 12<sup>th</sup> unit is \$180 as shown below.

$$\begin{array}{rcl}
 \text{Marginal cost} & = & \$480 - \$300 \\
 & = & \underline{\$180}
 \end{array}$$

200. Correct answer a. If the total cost is \$800 and average variable cost is \$5 per unit, the average fixed cost is \$3 per unit.

$$\begin{aligned} (\$5 \times 100 \text{ units}) + (A \times 100 \text{ units}) &= \$800 \\ 100A &= \$300 \\ A &= \underline{\$3} \end{aligned}$$

201. Correct answer b. Crawford's marginal cost of the 23<sup>rd</sup> unit is \$40 as shown below.

$$\begin{aligned} \text{Marginal cost} &= \$1,330 - \$1,290 \\ &= \underline{\$40} \end{aligned}$$

202. Correct answer c. The level that would produce the highest operating income for Parker is 14 units as shown below.

$$\begin{aligned} 8 \text{ units: } &8(\$100,000 - \$50,000) - \$400,000 = 0 \\ 10 \text{ units: } &10(\$100,000 - \$50,000) - \$400,000 = \$100,000 \\ 14 \text{ units: } &14(\$100,000 - \$45,000) - \$600,000 = \underline{\$170,000} \\ 17 \text{ units: } &17(\$100,000 - \$45,000) - \$800,000 = \$135,000 \end{aligned}$$

203. Correct answer c. If Johnson accepted the special order, the company's operating income would increase by \$37,500 as shown below.

Special order price	\$2.50
Less variable cost*	<u>5.00</u>
Contribution margin	\$2.50
Contribution to operating income:	15,000 x \$2.50 = <u>\$37,500</u>

\*Fixed costs and selling costs are not relevant

204. Correct answer c. If the Robo Division submits a bid for \$8,000,000, the division will lose \$500,000 but GMT will gain \$1,700,000 as the transfer price is not relevant to GMT.

$$\begin{aligned} \text{Robo Division: } &\$8,000,000 - \$3,700,000 - \$4,800,000 = (\$500,000) \\ \text{GMT Industries: } &\$8,000,000 - \$1,500,000 - \$4,800,000 = \$1,700,000 \end{aligned}$$

205. Correct answer b. BCC should submit a bid of \$772 per unit as this price covers all incremental costs.

Material	\$500	
Direct labor	240	(\$20 x 12)
Variable overhead	24	(\$2 x 12)
Administrative costs	<u>8</u>	
Bid price	<u>\$772</u>	

206. Correct answer d. When making a special order decision, Bedford would need to cover incremental costs which include variable costs of the product (I) and direct fixed costs of the order (III). In addition, Bedford should consider if there is a more beneficial use of the idle capacity, the opportunity cost of the decision (IV).

207. Correct answer a. Since Raymund has idle capacity, the company needs to cover only the incremental variable costs of \$10 ( $\$50,000 \div 5,000$ ) per unit so this should be the bid price to gain a new customer.
208. Correct answer b. The price that Hickory paid for the 4,500 pounds of Kaylene (\$3.40/lb.) is irrelevant; it is a sunk cost. The future price of Kaylene (\$4.05/lb.) is relevant to future operations.
209. Correct answer b. The minimum price that Gardner should charge for the special order is \$96.50 per unit. This price covers the variable cost of KT-6500 plus the forgone contribution from Product XR-2000 as shown below.

Hours required for 1,000 units of KT-6500	3,000 hours
Units of XR-2000 not produced: 3,000 hours $\div$ 4	750 units
XR-2000 contribution: \$105 - \$24 - \$10 - \$5 - \$4	\$62 per unit
KT-6500 bid price:	= $[(750 \times \$62) \div 1000] + \$27 + \$12 + \$6 + \$5$
	= $\$46.50 + \$27 + \$12 + \$6 + \$5$
	= <u>\$96.50</u>

210. Correct answer a. Green should accept the offer of \$280,000 as it will cover all incremental costs and increase operating profit.

Selling price	\$280,000	
Direct material	66,000	
Direct labor	120,000	
Variable overhead	48,000	(.4 x \$120,000)
Administrative costs	<u>12,000</u>	(.1 x \$120,000)
Contribution	<u>\$ 34,000</u>	

211. Correct answer c. The option (a) of purchasing externally is more costly than the manufacturing internally, because Fixed OH costs are not avoidable. The option (b) is not possible due to the capacity restrictions. This leaves options (c) and (d), with option (d) being more costly than (c).
212. Correct answer c. The relevant cost to make the ice-makers is \$600,000; to buy the units, the relevant cost is \$528,000 as shown below.

Make:	20,000 x (\$34 - \$4*)	=	\$600,000
Buy:	(\$28 x 20,000) - (\$80,000 x .4)	=	\$528,000

\*The \$4 of remaining fixed overhead applies to both alternatives and is irrelevant to the decision.

213. Correct answer b. Sunshine should not use the manufacturer's machine cost of \$.50 as it is based on 1.6 million units. Since Sunshine plans to produce 1.2 million units, the relevant cost is \$.67 ( $\$800,000 \div 1.2$  million).



214. Correct answer d. For Aril to benefit from purchasing the units rather than making the units, the purchase price must be less than \$14 as shown below.

$$\begin{aligned}
 \text{Remaining fixed cost/unit} &= (\$150,000 \times .6) \div 30,000 \\
 &= \$3 \\
 \text{Relevant cost to make unit} &= \$3 + \$11 \\
 &= \underline{\$14}
 \end{aligned}$$

215. Correct answer b. The \$50,000 trade-in allowance is relevant to Verla's decision as it decreases the cash outflow at time zero when the machine is purchased.

216. Correct answer c. Jones should process Product C further because the incremental revenue exceeds the incremental cost. Product B should be sold at split-off as the incremental revenue is less than the incremental cost.

$$\begin{aligned}
 \text{Product C: } [70,000 \times (\$12.50 - \$10.25)] - \$140,000 &= \$17,500 \\
 \text{Product B: } [20,000 \times (\$8.00 - \$5.50)] - \$60,000 &= (\$10,000)
 \end{aligned}$$

217. Correct answer b. Oakes should continue to process Beracyl as the incremental revenue exceeds the incremental cost of processing; Mononate should be sold at split-off as the incremental revenue is less than the incremental cost of further processing.

$$\begin{aligned}
 \text{Beracyl: } [60,000 \times (\$18 - \$15)] - \$115,000 &= \$65,000 \\
 \text{Mononate: } [40,000 \times (\$10 - \$7)] - \$125,000 &= (\$5,000)
 \end{aligned}$$

218. Correct answer d. Whitman's contribution margin will be \$380,000 if the Restaurant segment is discontinued as shown below.

$$\begin{aligned}
 \text{Contribution:} &= [.95 \times (\$400,000 + \$500,000)] - [.95 \times (\$300,000 + \$200,000)] \\
 &= \$855,000 - \$475,000 \\
 &= \underline{\$380,000}
 \end{aligned}$$

219. Correct answer d. Whitman's segments have the following contribution margin ratios:

Merchandising	$\$500,000 - \$300,000 = \$200,000 \div \$500,000$	=	40%
Automotive	$\$400,000 - \$200,000 = \$200,000 \div \$400,000$	=	50%
Restaurant	$\$100,000 - \$70,000 = \$30,000 \div \$100,000$	=	30%

220. Correct answer a. The costs relevant to this decision are the incremental costs of production of \$20,000 material and \$5,000 labor. The cost of the machinery is a sunk cost and therefore irrelevant.

221. Correct answer c. Reynolds should continue to produce and sell the fertilizer as it contributes \$2.50 (\$18.50 - \$12.25 - \$3.75) per bag toward coverage of fixed costs.

222. Correct answer c. Parklin's operating income will go from \$500 to (\$1,500) if Segment B is closed, a decrease of \$2,000.

Sales	\$10,000	
Variable cost of goods sold	4,000	
Fixed cost of goods sold	2,500	(+\$1,000 from Segment B)
Gross margin	3,500	
Variable selling & admin.	2,000	
Fixed selling & admin.	<u>3,000</u>	(\$1,500 from Segment B)
Operating loss	<u>(\$1,500)</u>	

223. Correct answer b. Grapevine should consider items 1, 2, and 3. Item 1 will affect future revenue. Items 2 and 3 will be eliminated and lower Grapevine's future costs. Item 4 will continue and is irrelevant. Items 5 and 6 are sunk costs and also irrelevant.

224. Correct answer c. The production and sale of the new dolls would decrease the company's profit by \$39,200 as shown below.

Contribution	\$400,000	[10,000 x (\$100 - \$60)]
Fixed costs	<u>456,000</u>	
Operating income	-56,000	
Tax savings @30%	<u>16,800</u>	
Net loss	<u><u>-\$39,000</u></u>	

225. Correct answer b. The company should continue the Oak Division as it is currently covering \$13,000 of its \$14,000 fixed costs. If the division is eliminated, \$7,000 of fixed costs will remain causing a \$6,000 decline in the company's operating profit (\$7,000 - \$1,000).

226. Correct answer a. If the company can produce all the units required (no constraint), the prime consideration should be the product's contribution margin. If production is constrained by the number of machine hours, the company should focus on the contribution margin per machine hour.

227. Correct answer b. The maximum net profit Elgers can earn is \$67,200 as shown below.

Contribution	\$160,000	[40,000 x (\$12 - \$8)]
Fixed costs	<u>48,000</u>	
Operating profit	112,000	
Tax @ 40%	<u>44,800</u>	
Net profit	<u><u>\$ 67,200</u></u>	

228. Correct answer a. If Dayton sold 30,000 units, the net income would be \$24,000.

Contribution	\$90,000	[30,000 x (\$10 - \$7)]
Fixed costs	<u>42,000</u>	
Gross profit	48,000	
Tax @50%	<u>24,000</u>	
Net income	<u>\$24,000</u>	

229. Correct answer b. If Raymund installs the automated process, the monthly operating income would be \$10,000 as shown below.

Reduction in variable costs:  $(\$50,000 \div 5,000) = \$10 - \$5 = \$5$

Sales	\$100,000	
Variable manufacturing	25,000	(\$5 x 5,000)
Variable selling	<u>15,000</u>	
Contribution	60,000	
Fixed manufacturing	46,000	
Fixed selling	<u>4,000</u>	
Operating income	<u>\$ 10,000</u>	

230. Correct answer c. The only combination of factors that is correct is a variable cost ratio of 32% and operating income of \$9,600,000.

Variable cost ratio:  $\$60 - (\$60 \times .2) = \$48 \div \$150 = 32\%$

Contribution margin	\$17,850,000	[175,000 x (\$150 - \$48)]
Fixed costs*	<u>8,250,000</u>	
Operating income	<u>\$ 9,600,000</u>	

\*Current fixed costs \$9,000  $(\$60 \times 150,000) - \$750,000$  eliminated

231. Correct answer b. The relevant contribution margins per machine hour are Product A \$18.50 and Product B \$16.00 as shown below.

Product A:	$\$100 - \$53 - \$10 = \$37 \div 2 \text{ hours} =$	\$18.50
Product B:	$\$80 - \$45 - \$11 = \$24 \div 1.5 \text{ hours} =$	\$16.00

232. Correct answer a. Lark should make 30,000 units of Product A, 14,000 units of Product B (utilizing the remaining machine hours), and outsource 6,000 units of Product B because this alternative makes the greatest contribution as shown below.

Hours:	$(30,000 \text{ A units} \times 3 \text{ hours}) = 90,000 \text{ hours}$	
	$160,000 \text{ hours} - 90,000 \text{ hours} = 70,000 \text{ hours remaining}$	
	$70,000 \div 5 \text{ hours for B unit} = 14,000 \text{ units of Product B}$	
Contribution:	$= [(\$75 - \$30) \times 30,000] + [(\$125 - \$48) \times 14,000] + [(\$125 - \$60) \times 6,000]$	
	$= \$1,350,000 + \$1,078,000 + \$390,000$	
	$= \$2,818,000$	

233. Correct answer a. Aspen should utilize the internal hours to manufacture 12,000 units of Product XT because the total contribution is greater than the contribution for Product RP.

$$\begin{array}{l} \text{Product XT:} \quad (\$60 - \$37 - \$12 - \$6) \times 12,000 \quad = \quad \$60,000 \\ \text{Product RP:} \quad (\$45 - \$24 - \$13 - \$3) \times 8,000 \quad = \quad \$40,000 \end{array}$$

234. Correct answer a. The demand curve would shift to the left (fewer bagels demanded) if the cost of muffins decreased making muffins more desirable.
235. Correct answer b. An increase in consumer income would increase demand and cause a shift to the right. An increase in price is movement along the curve to a higher price.
236. Correct answer c. If the demand for a product is elastic, a percentage change in price results in a larger percentage change in demand. If the product price is increased, the demand will decrease by a larger percentage resulting in a decrease in total revenue.
237. Correct answer a. Full costing does not simplify the identification of unit fixed costs with specific products. No matter what the costing method, fixed costs are generally arbitrarily allocated to products on a basis such as direct labor hours or machine hours.
238. Correct answer d. The market-clearing (equilibrium) price is the price where quantity demanded equals quantity supplied. The current market-clearing price is \$50; if prices increase in the long-run, \$70 is a reasonable equilibrium price.
239. Correct answer d. If the demand for a product is elastic, a percentage change in price results in a larger percentage change in demand. If the product price is increased by 1%, the demand will decrease by more than 1%.
240. Correct answer a. If the demand for a product is elastic, a percentage change in price results in a larger percentage change in demand. If the product price is decreased, the demand will increase by a larger percentage resulting in an increase in total revenue.
241. Correct answer c. Leader's markup percentage would be 133.3% as shown below.

$$\begin{array}{l} \text{Per unit return on investment} \quad = \quad (\$20,000,000 \times .2) \div 10,000 \\ \quad \quad \quad \quad \quad \quad \quad \quad = \quad \$400 \\ \text{Markup percentage} \quad \quad \quad = \quad \$400 \div \$300 \\ \quad \quad \quad \quad \quad \quad \quad \quad = \quad \underline{133.3\%} \end{array}$$

242. Correct answer d. Cost-based pricing is particularly suited to suppliers who provide unique services and products. Therefore, the best situation presented is the make-to-order, state-of-the-art application.

243. Correct answer d. Bcc should bid \$1,026.30 per unit as shown below.

Direct material	\$ 500.00	
Direct labor	340.00	(\$20 x 17)
Variable overhead	34.00	(\$2 x 17)
Fixed overhead	51.00	(\$3 x 17)
Administrative cost	8.00	
Subtotal	<u>\$ 933.00</u>	
10% return	93.30	
Total	<u>\$1,026.30</u>	

244. Correct answer a. Cost-based pricing is particularly suited to suppliers who provide unique products and services.

245. Correct answer c. Market-based costing is particularly suited to companies operating in a competitive environment. Therefore, option c is not characteristic.

246. Correct answer a. Almelo's mark-up level is 12.5% as shown below.

Markup:	\$9 - \$6 cost - \$2 Fixed overhead = \$1
Markup %:	\$1 ÷ \$8 = <u>12.5%</u>

247. Correct answer d. Fennell's target price is \$268 as shown below.

15% after-tax ROI	=	[((\$3,000,000 + \$1,000,000) x .15]
	=	\$600,000
Per unit ROI	=	\$600,000 ÷ 25,000
	=	\$24
Target price	=	\$200 + (\$700,000 ÷ 25,000) + [\$24 x (1 - .4)]
	=	\$200 + \$28 + \$40
	=	<u>\$268</u>

248. Correct answer c. A monopolist seeking to maximize total profit will produce up to the output at which marginal revenue equals marginal cost. To sell beyond this point, the price would need to be lowered and marginal cost would exceed marginal revenue.

249. Correct answer c. Economic profit is revenue minus both explicit and implicit costs, e.g., opportunity costs. Therefore, in purely competitive markets, economic profits are not likely to be positive.

#### Section D: Risk Management

250. Correct answer a. The situation that occurs annually with an exposure of \$2,250 (\$15,000 x .15) represents the highest loss exposure. The exposure of the other situations are \$1,875 (\$75,000 x .2 ÷ 8), \$2,000 (\$200,000 x .2 ÷ 20) and \$2,000 (\$400,000 x .5 ÷ 100).

## Section E: Investment Decisions

251. Correct answer d. Capital investments generally provide benefits into the future and, therefore, the expenditure is allocated over a period of time (depreciation). Refinancing existing working capital agreements supports current operations and is not generally treated as capital investment project.
252. Correct answer a. The net present value of the equipment being replaced is least likely to impact the investment decision. This is a sunk cost and does not affect future decisions.
253. Correct answer d. The required rate of return is not a method for evaluating investment projects but is the minimum acceptable return on an investment (discount rate, hurdle rate).
254. Correct answer b. The interest payments on the debt to finance the equipment and the increased levels of accounts payable and inventory represent incremental changes that affect future cash flows and are, therefore, relevant.
255. Correct answer c. The controller should recommend option c as the present value of this option is the highest as shown below.

Option c:	$(\$20,000 \times 6.710) + \$5,000$	=	\$139,200
Option a:			\$135,000
Option b:	$\$40,000 \times 3.312$	=	\$132,480
Option d:	$(\$5,000 \times 6.247) + (\$200,000 \times .463) + \$5,000$	=	\$128,835

256. Correct answer c. Calvin's incremental cash flows in Year 5 are \$26,000 as shown below.

Reduction in labor cost after tax:	$\$30,000 \times .6$	=	\$18,000
Depreciation tax shield	$(\$100,000 \div 5) \times .4$	=	<u>8,000</u>
			<u>\$26,000</u>

257. Correct answer b. Olson's net cash flow for period 3 is \$860,000 calculated as follows.

Cash inflow after tax:	$(\$1,200,000 - \$300,000) \times .6$	=	\$540,000
Tax shield Building:	$(\$2,000,000 \div 10) \times .4$	=	80,000
Tax shield Equipment	$(\$3,000,000 \div 5) \times .4$	=	<u>240,000</u>
			<u>\$860,000</u>

258. Correct answer d. The annual cash flow is \$270,000 as shown below.

From operations:	$\$650,000 - \$270,000 - \$50,000 - \$40,000 - \$8,000$	=	\$242,000
Depreciation tax shield:	$\$70,000 \times .4$	=	<u>28,000</u>
			<u>\$270,000</u>

259. Correct answer c. Kell's 5<sup>th</sup> year cash flow is \$1,120,000 as shown below.

Revenue	\$8,000,000	(100,000 x \$80)
Direct costs	-6,500,000	(100,000 x \$65)
Indirect costs	- 500,000	
Return of working capital	+ 400,000	
Salvage value	+ 300,000	
Equipment removal	- 100,000	
Cash flow	\$1,600,000	
Cash flow after tax (x .6)		\$ 960,000
Tax shield [(\$1,500,000 - \$300,000) ÷ 3] x .4		<u>160,000</u>
		<u>\$1,120,000</u>

260. Correct answer d. Kell's initial investment is \$1,900,000 as shown below.

Equipment	\$1,200,000
Installation	300,000
Working capital	<u>400,000</u>
Initial investment	<u>\$1,900,000</u>

261. Correct answer d. Colvern's cash flow is \$22,800 as shown below.

After-tax cash savings:	\$28,400 x .6	=	\$17,040
Depreciation tax shield:	\$16,000 x .4	=	6,400
Loss of depreciation tax shield:	\$1,600 x .4	=	<u>640</u>
			<u>\$22,800</u>

262. Correct answer c. The first year cash flow for Skytop's project is \$67,000 as shown below.

Incremental cash inflows	\$75,000 x .6	=	\$45,000
Depreciation tax shield	(\$275,000 x .2) x .4	=	<u>22,000</u>
			<u>\$67,000</u>

263. Correct answer d. Year 0 cash outflows for Skytop total \$202,000 as shown below.

Sale of old equipment	\$ 80,000		New
equipment and installation	-275,000		
Additional A/R and inventory	- 30,000		
Additional accounts payable	+ 15,000		
Tax shield/loss on old equipment	<u>+ 8,000</u>	(\$100K - \$80K) x .4	
Cash outflow	<u>\$202,000</u>		

264. Correct answer c. The overall impact of Mintz's working capital investment is a net outflow of \$17,040 as shown below.

Working capital outflow at Time 0	\$40,000	
Working capital inflow at Time 5	<u>22,680</u>	(\$40,000 x .567)
Net outflow	<u>\$17,040</u>	

265. Correct answer b. A discounted cash flow analysis should not include sunk costs as they will not change and are not relevant. Changes in working capital and inflation affect future costs and should be included.

266. Correct answer b. AGC's initial investment is \$92,800 as shown below.

Sale of old equipment	\$ 3,000	
New equipment	-95,000	
Increase in accounts receivable	- 2,000	
Increase in accounts payable	+ 400	
Tax shield/Loss on sale	<u>+ 800</u>	(\$50,000 - \$45,000 - \$3,000) x .4
Cash outflow	<u>\$92,800</u>	

267. Correct answer c. Calvin's initial cash outflow is \$79,000 as shown below.

Sale of old equipment	\$ 25,000	
Purchase new equipment	-100,000	
Tax on gain from sale	- 4,000	(\$25,000 - \$15,000*) x .4
Cash outflow	<u>\$ 79,000</u>	

\*Accumulated depreciation ( $\$50,000 \div 10$ ) x 7 = \$35,000  
 Book value  $\$50,000 - \$35,000 = \$15,000$

268. Correct answer d.

Revenue	\$ 1,200,000
Cash exp.	-300,000
Depreciation	<u>- 800,000</u>
Pretax Income	<u>\$ 100,000</u>
Tax at 40%	-40,000
Add back depreciation	<u>800,000</u>
	<u>860,000</u>
Sell land	800,000
Tax on gain /land	-120,000
Sell building	500,000
Tax on loss/building	200,000
Sell equipment	250,000
Tax on on gain /equipment	<u>-100,000</u>
	<u>2,390,000</u>



269. Correct answer d. All of these items should be included in the initial investment as they all impact the cash flow of the project.

270. Correct answer b. Calvin's first year cash flow is \$24,000 as shown below.

After-tax cash savings	$\$30,000 \times .6$	\$18,000
Tax shield/new equipment	$(\$100,000 \div 5) \times .4$	8,000
Loss of old tax shield	$(\$50,000 \div 10) \times .4$	<u>2,000</u>
Cash outflow		<u>\$24,000</u>

271. Correct answer a. Using the real rate of 8%, the revenues are \$432,000. Using the nominal rate approach  $(8\% + 3\%) + (.03 \times .08)$ , the revenues are \$444,960.

272. Correct answer d. Kell's 3<sup>rd</sup> year cash flows are \$800,000 as shown below.

After tax cash inflows	$(\$8,000,000 - \$6,500,000 - \$500,000) \times .6$	\$600,000
Depreciation tax shield	$(\$1,500,000 \div 3) \times .4$	<u>200,000</u>
Cash inflow		<u>\$800,000</u>

273. Correct answer a. Both the operating costs and the required rate of return should be adjusted for inflation as inflation will affect both in the future.

274. Correct answer c. Regis would include the operating cash inflows plus the tax shield provided by the depreciation expense. The depreciation expense does not represent a cash transaction and, therefore, is not included.

275. Correct answer c. Atlantic would include the present value of the depreciation tax shield totaling \$34,840 as shown below.

Annual tax shield	$\$20,000 \times .4$	\$8,000
Present value @10%	$\$8,000 \times 4.355$	<u>\$34,840</u>

276. Correct answer c. Webster's net cash flow for Year 3 totals \$1,058,750 as shown below.

Unit price: $\$80 \times .95 = \$76 \times .95 = \$72.20$	
Labor cost: $\$20 \times 1.05 = \$21 \times 1.05 = \$22.05$	
Material cost: $\$30 \times 1.1 = \$33 \times 1.1 = \$36.30$	
Cash inflow: $[125,000 \times (\$72.20 - \$22.05 - \$36.30) - \$300,000] \times .6$	\$ 858,750
Depreciation tax shield: $(\$2,000,000 \div 4) \times .4$	<u>200,000</u>
Net cash flow for Year 3	<u>\$1,058,750</u>

277. Correct answer c. Skytop's after-tax cash flow for Year 5 is \$78,950 as shown below.

Cash inflow after tax	$\$75,000 \times .6$	\$45,000
Depreciation tax shield	$(\$275,000 \times .145) \times .4$	15,950
Sale of equipment		30,000
Less tax on \$30,000 gain @ 40%		<u>12,000</u>
Net cash flow		<u>\$78,950</u>

278. Correct answer a.  $\$1,000,000 \times .32 = \$320,000 \times .4 = \$128,000$

279. Correct answer b. The net present value method calculates the expected monetary gain or loss from a project by discounting all expected future cash inflows and outflows to the present point in time.

280. Correct answer b. The net present value of Kunkle's project will increase approximately \$219,000 as shown below.

Present value of current cash flow	=	$10,000 \times (\$100 - \$70) \times .6$
	=	$\$180,000 \times 5.216$
	=	\$938,880
Present value of reduced cash flow	=	$10,000 \times (\$100 - \$63) \times .6$
	=	$\$222,000 \times 5.216$
	=	\$1,157,952
Increase in net present value	=	$\$1,157,952 - \$938,880$
	=	\$219,072

281. Correct answer c. Allstar's initial investment is \$26,160 as shown below.

Present value of cash inflows	$\$9,000 \times 3.24$	=	\$29,160
Initial investment	$\$29,160 - \$3,000$	=	<u>\$26,160</u>

282. Correct answer a. Smithco's project has a net present value of \$(1,780) as shown below.

Year 0		\$(550,000)
Year 1	$\$(500,000) \times .877$	(438,500)
Year 2	$\$450,000 \times .769$	346,050
Year 3	$\$350,000 \times .675$	236,250
Year 4	$\$350,000 \times .592$	207,200
Year 5	$\$380,000^* \times .519$	<u>197,220</u>
Net present value		<u>\$ (1,780)</u>

\*Includes \$30,000 from sale of old equipment  
 $\$50,000 - (\$50,000 \times .4) = \$30,000$

283. Correct answer a. An investment decision is acceptable if the net present value is equal to or greater than zero because the return from the decision is equal to or exceeds the cost of capital.

284. Correct answer c. If Verla outsources the work, the net present value of the cash outflows is \$454,920 [(\$200,000 x .6) x 3.791 = \$454,920].

285. Correct answer b. The net present value of Long's project is \$283,380 as shown below.

Expected annual sales:  $(80,000 \times .1) + (85,000 \times .2) + (90,000 \times .3) + (95,000 \times .2) + (100,000 \times .1) + (110,000 \times .1) = 92,000$

Annual after-tax cash flow:  $(92,000 \times \$5) \times .6 = \$276,000$

Annual depreciation tax shield:  $(\$1,000,000 \div 5) \times .4 = \$80,000$

Net present value:  $= [(\$276,000 + \$80,000) \times 3.605] - \$1,000,000$   
 $= \$1,283,380 - \$1,000,000$   
 $= \underline{\$283,380}$

286. Correct answer c. The revised net present value for the tax shield is \$283,000 as shown below.

Year 1: $[(\$1,000,000 \times .3333) \times .4] \times .833$	\$111,056
Year 2: $[(\$1,000,000 \times .4445) \times .4] \times .694$	123,379
Year 3: $[(\$1,000,000 \times .1481) \times .4] \times .579$	34,300
Year 4: $[(\$1,000,000 \times .0741) \times .4] \times .482$	14,286
Net present value (to nearest thousand)	<u>\$283,000</u>

287. Correct answer a. The ranking of the scenarios from least effect on the net present value to the greatest effect is R, S, and T as shown below.

R: $[(\$800,000 \times .9) \times 3.605] - \$2,500,000$	\$95,000
S: $(\$800,000 \times 3.127) - \$2,500,000$	\$1,600
T: $(\$800,000 \times 3.037) - \$2,500,000$	\$(70,400)

288. Correct answer d. Ironside should accept both projects as Project R (less risk – more stable sales) at 12% has a positive net present value while Project S has a positive net present value at both hurdle rates.

Project R @12%  $= [(\$75,000 \times .1) + (\$95,000 \times .8) + (\$115,000 \times .1)] \times 5.650$   
 $= \$536,750 - \$500,000$   
 $= \$36,750$

Project S @16%  $= [(\$70,000 \times .25) + (\$110,000 \times .5) + (\$150,000 \times .25)] \times 4.833$   
 $= \$531,630 - \$500,000$   
 $= \$31,630$

289. Correct answer d. Logan should continue to operate as the company would suffer a greater loss by shutting down.

$$\begin{aligned}
 \text{Net present value of cash flow} &= [\$150,000 \times (\$100 - \$75)] - \$4,000,000 \\
 &= (\$250,000) \times 3.605 \\
 &= (\$901,250) \\
 \text{Cost of shutting down} &= \$750,000 - \$1,500,000 - \$500,000 \\
 &= (\$1,250,000)
 \end{aligned}$$

290. Correct answer b. The net present value of Foster's project is \$924 as shown below.

$$\begin{aligned}
 \text{Discounted cash flow} &= (\$6,000 \times .893) + (\$6,000 \times .797) + (\$8,000 \times .712) + (\$8,000 \times .636) \\
 &= \$20,924 \\
 \text{Less investment} &\quad \underline{20,000} \\
 &\quad \underline{\$ \quad 924}
 \end{aligned}$$

291. Correct answer d. The net present value of Lunar's project is \$16,600 as shown below.

After-tax cash flow (x .6)	\$30,000	\$30,000	\$240,000	\$240,000	\$240,000
Tax shield (\$500,000 ÷ 5) x .4	<u>40,000</u>	<u>40,000</u>	<u>40,000</u>	<u>40,000</u>	<u>40,000</u>
	\$70,000	\$70,000	\$280,000	\$280,000	\$280,000

$$\begin{aligned}
 \text{Net present value} &= (\$70,000 \times 1.528) + [\$280,000 \times (2.991 - 1.528)] - \$500,000 \\
 &= \$106,960 + \$409,640 - \$500,000 \\
 &= \underline{\$16,600} \approx \underline{\$16,530}
 \end{aligned}$$

292. Correct answer c. Using a 14% hurdle rate, Parker's project will not have a positive net present value until the annual cash flows are \$60,000 or higher ( $\$60,000 \times 3.433 = \$205,980 - \$200,000 = \$5,980$ ). As shown, the probability of the cash flows reaching \$60,000 or higher is 40%.

293. Correct answer a. Since the projects are mutually exclusive, Staten should accept Project X (higher net present value) and reject Project Y.

$$\begin{aligned}
 \text{Net present value Project X} &= (\$47,000 \times 3.791) - \$150,000 \\
 &= \$28,177 \\
 \text{Net present value Project Y} &= (\$280,000 \times .621) - \$150,000 \\
 &= \$23,880
 \end{aligned}$$

294. Correct answer d. The net present value of Verla acquiring the new equipment is \$434,424 net cash outflow as shown below.

Labor savings (\$100,000 x .6) x 3.791	\$227,460
Tax shield [(\$1,000,000-\$50,000) ÷ 5] x .4 x 3.791	<u>288,116</u>
Cash inflow	\$515,576
Cash outflow (\$1,000,000 - \$50,000)	<u>950,000</u>
Net cash outflow	<u>\$434,424</u>

295. Correct answer d. Since Stennet's cost of capital is 10% and Project A has a higher net present value at a discount rate of 10%, Mack should recommend Project A. Since the projects are mutually exclusive, only one can be accepted.
296. Correct answer a. Delaying the cash outflow for a major overhaul from Year 4 to Year 5 will decrease its present value and result in an increase in the net present value of the project. All of the other options would result in a decrease the net present value.
297. Correct answer c. The internal rate of return method is easier to understand (interpret) than the net present value method. All of the other options are disadvantages of the internal rate of return method.
298. Correct answer d. Since the company has already evaluated the cash flows (net present value) of the project using a hurdle rate of 14%, the next logical step would be to compare the internal rate of return to the hurdle and the cost of capital.
299. Correct answer c. Hobart would accept the project under both the internal rate of return of 20% which exceeds the hurdle rate of 15% and the payback period of 2.7 years ( $\$200,000 \div \$74,000$ ) which is less than the company's 3-year benchmark.
300. Correct answer c. BGN Industries should select Option Z as it has the highest net present value ( $\$2,825,000 - \$2,000,000$ ) and the internal rate of return is greater than the hurdle rate.
301. Correct answer b. The internal rate of return is the discount rate that equates the present value of future net cash flows from an investment project with project's initial cash outflow.
302. Correct answer c. The approximate internal rates of return are 19.5% and 25.5% as shown.

Project A:  $77 + 26 = 103$ ;  $77 \div 103 = .75\%$ ;  $.75\% \times 2 = 1.5\%$ ;  $18\% + 1.5\% = 19.5\%$

Project B:  $30 + 11 = 41$ ;  $30 \div 41 = .73\%$ ;  $.73\% \times 2 = 1.5\%$ ;  $24\% + 1.5\% = 25.5\%$

303. Correct answer c. The internal rate of return is the discount rate that equates the present value of future net cash flows from an investment project with project's initial cash outflow.
304. Correct answer c. Options a, b, and d are correct as shown below.

NPV Project A:  $\$100,000 - (\$40,000 \times .909) + (\$50,000 \times .826) + (\$60,000 \times .751) = \$22,720$

NPV Project B:  $\$150,000 - (\$80,000 \times .893) + (\$70,000 \times .797) + (\$40,000 \times .712) = \$19,950$

Payback Project A:  $\$100,000 - \$40,000 - \$50,000 = \$10,000 \div \$65,000 = .167$

$.167 \text{ years} + 2 \text{ years} \approx 2.2 \text{ years}$

Payback Project B:  $\$150,000 - \$80,000 - \$70,000 = 0$

Payback = 2 years

305. Correct answer c. The approximate internal rate of return is 9%. A net present value of zero is approximately half way between \$460 and (\$440) and 9% is half way between 8% and 10%.
306. Correct answer c. An internal rate of return equates Foster's cash flows to the initial investment as shown below.
- $$(\$6,000 \times .877) + (\$6,000 \times .769) + (\$8,000 \times .675) + (\$8,000 \times .592) = \$20,012$$
- Initial cash outflow of \$20,000  $\approx$  \$20,012
307. Correct answer d. Both the internal rate of return method and the net present value method utilize discounted flow techniques taking into consideration the time value of money. Payback and average rate of return do not consider the time value of money.
308. Correct answer d. Statements III and IV are correct. Since the company has no capital rationing, all projects with positive net present values will enhance the value of Molar. Projects with negative internal rates of return will cost more than they will return to the company and should be rejected.
309. Correct answer a. Since the net present value of the project is negative using a discount rate of 14%, it can be concluded that the internal rate of return is something less than 14%.
310. Correct answer c. Since the projects are mutually exclusive, Foggy Products can select only one, and the one selected should have the highest net present value. If both projects exceed the company's benchmark for payback period, they should both be rejected.
311. Correct answer a. The payback period does provide some insight into the risk of a project – the longer the payback period, the riskier the project. The other options are either incorrect or disadvantages of the payback method.
312. Correct answer c. Because the payback method calculates the time to return the project's initial investment, it does evaluate the project's liquidity. The other options are all drawbacks of the payback method.
313. Correct answer d. Quant's payback period is 3.7 years as shown below.

	<u>After-tax cash flow</u>	<u>Investment less cash flow</u>
Year 1	\$60,000 x .6 = \$36,000	\$104,000
Year 2	\$60,000 x .6 = \$36,000	68,000
Year 3	\$60,000 x .6 = \$36,000	32,000
Year 4	\$80,000 x .6 = \$48,000	\$32,000 ÷ \$48,000 = .667
	Payback period = 3.7 years	

314. Correct answer c. The payback period for Foster’s project is 3.0 years ( $\$20,000 - \$6,000 - \$6,000 - \$8,000 = 0$ ).
315. Correct answer d. Smithco’s payback period is 4.0 years ( $\$550,000 + \$500,000 - \$450,000 - \$350,000 - \$250,000 = 0$ ).
316. Correct answer c. Earnings per share would increase \$.13 per share as shown below.

Sales	\$20,000,000	\$22,000,000	(increase 10%)
Contribution (30%)	6,000,000	6,600,000	
Less administrative	300,000	300,000	
Less commission (10%)	<u>2,000,000</u>	<u>2,200,000</u>	
Operating profit	3,600,000	4,000,000	
Interest expense	<u>400,000</u>	<u>400,000</u>	
Profit before tax	3,200,000	3,600,000	
Tax @35%	<u>1,120,000</u>	<u>1,260,000</u>	
Net income	<u>\$ 2,080,000</u>	<u>\$ 2,340,000</u>	
Earnings per share	<u>\$1.04</u>	<u>\$1.17</u>	(NI ÷ 2,000,000)

317. Correct answer c. Monte Carlo simulation is a quantitative technique that accounts for risk in decision making by generating a range of outcomes and associated probabilities.
318. Correct answer d. Start with the next available #; 25 multiples for demand of 4 and 10 multiples for demand of 5.
319. Correct answer c. The purpose of the simulation is not to generate an optimal solution. Rather it allows the analyst to model the behavior of a system and generates a range of different outcomes.
320. Correct answer c.  $45-74 =$  interval of 30

12	20
18	30 (18-12= 6 days / interval of 30)
15	25
9	15
<u>6</u>	10
60	

## Section F: Professional Ethics

321. Correct answer d. In accordance with IMA’s “Statement of Ethical Professional Practice”, a member’s failure to comply with the standards of competence, confidentiality, integrity and credibility may result in disciplinary action. Disclosing company’s internal budget to an outside party is a breach of the ethical standard of confidentiality.



*IMA's Certification for  
Accountants and  
Financial Professionals  
in Business*

# **CMA EXAM**

## *Essay Questions*

For Practice

Parts 1 and 2



## **Introduction**

The Institute of Certified Management Accountants (ICMA) is publishing this book of practice questions with answers to help you prepare for the CMA examination. These questions are actual “retired” questions from the CMA exams and are intended to supplement other study materials.

These practice questions will help you test your understanding of the concepts and rules included in your CMA study materials by requiring you to apply those concepts and rules to unique and varying situations. You will encounter different scenarios and applications on your actual examination so it is essential that you understand the underlying concepts. In general, it will not be helpful to you to memorize particular questions.

Essay questions appear in both Part 1 and Part 2 of the CMA exam and combine topics from the part in which they appear. No inference should be made from the lack of practice questions in any topic areas.

The CMA Program is a rigorous test of your skills and capabilities and requires dedication to be successful. We hope that these practice questions will be a valuable resource as you pursue your goal of certification. Good luck!

## CMA Part 1 Essay Practice Questions

(Answers are below)

### Question 1.1 – Coe Company

Coe Company is a manufacturer of semi-custom motorcycles. The company used 500 labor hours to produce a prototype of a new motorcycle for one of its key customers. The customer then ordered three additional motorcycles to be produced over the next six months. Coe estimates that the manufacturing process for these additional motorcycles is subject to a 90% learning curve. Although the production manager was aware of the learning curve projections, he decided to ignore the learning curve when compiling his budget in order to provide a cushion to prevent exceeding the budgeted amount for labor.

#### **REQUIRED:**

1. By using the cumulative average-time learning curve, estimate the total number of labor hours that are required to manufacture the first four units of product. Show your calculations.
2. Assume the 90% learning curve is realized. Calculate Coe's cost savings in producing the three additional units if the cost of direct labor is \$25 per hour. Show your calculations.
3.
  - a. Define budgetary slack.
  - b. Identify and explain two negative effects that budgetary slack can have on the budgeting process.
4. Assume that Coe actually used 1,740 labor hours to produce the four units at a total cost of \$44,805.
  - a. If the company ignored the learning curve when creating the budget, for the four units produced, compute Coe's
    1. direct labor rate (price) variance.
    2. direct labor efficiency variance.
  - b. How would the above two variances differ if the learning curve had been considered when creating the budget? Show your calculations.
5. Assume that the price variance is unfavorable and the efficiency variance is favorable. Identify and discuss one reason that explains both of these variances.
6. Explain the effect on the direct labor efficiency variance if the manufacturing process were subject to an 80% learning curve.
7. Identify and explain one limitation of learning curve analysis.

### **Question 1.2 – Law Services Inc.**

Law Services Inc. provides a variety of legal services to its clients. The firm's attorneys each have the authority to negotiate billing rates with their clients. Law Services wants to manage its operations more effectively, and established a budget at the beginning of last year. The budget included total hours billed, amount billed per hour, and variable expense per hour. Unfortunately, the firm failed to meet its budgeted goals for last year. The results are shown below.

	<u>Actual</u>	<u>Budget</u>
Total hours billed	5,700	6,000
Amount billed/hour	\$275	\$325

The budgeted variable expense per hour is \$50, and the actual total variable expense was \$285,000. There is disagreement among the attorneys over the reasons that the firm failed to meet its budgeted goals.

#### **REQUIRED:**

1. What is the advantage of using a flexible budget to evaluate Law Services' results for last year as opposed to a static budget? Explain your answer.
2. Explain the process of creating a flexible budget for Law Services.
3. Calculate the total static budget revenue variance, the flexible budget revenue variance, and the sales-volume revenue variance. Show your calculations.
4. a. Calculate the variable expense variance. Show your calculations.  
b. Was the variable expense variance a flexible budget variance or a sales volume variance? Explain your answer.

### **Question 1.3 – Inman Inc.**

Inman Inc. is a manufacturer of a single product and is starting to develop a budget for the coming year. Because cost of goods manufactured is the biggest item, Inman's senior management is reviewing how costs are calculated. In addition, senior management wants to develop a budgeting system that motivates managers and other workers to work toward the corporate goals. Inman has incurred the following costs to make 100,000 units during the month of September.

Materials	\$400,000
Direct labor	100,000
Variable manufacturing overhead	20,000
Variable selling and administrative costs	80,000
Fixed manufacturing overhead	200,000
Fixed selling and administrative costs	300,000

Inman Inc.'s September 1 inventory consisted of 10,000 units valued at \$72,000 using absorption costing. Total fixed costs and variable costs per unit have not changed during the past few months. In September, Inman sold 106,000 units at \$12 per unit.

#### **REQUIRED:**

- Using absorption costing, calculate the following.
  - Inman's September manufacturing cost per unit
  - Inman's September 30 inventory value
  - Inman's September net income
- Using variable costing, calculate the following.
  - Inman's September manufacturing cost per unit
  - Inman's September 30 inventory value
  - Inman's September net income
- Identify and explain one reason why the income calculated in the previous two questions might differ.
- Identify and discuss one advantage of using each of the following:
  - absorption costing
  - variable costing
- Identify one strength and one weakness each of authoritative budgeting and participative budgeting.
  - Which of these budgeting methods will work best for Inman Inc.? Explain your answer.
  - Identify and explain one method the top managers can take to restrict the Production Manager from taking advantage of budgetary slack.

### **Question 1.4 – Smart Electronics:**

Smart Electronics manufactures two types of gaming consoles, Models M-11 and R-24. Currently, the company allocates overhead costs based on direct labor hours; the total overhead cost for the past year was €80,000. Additional cost information for the past year is presented below.

Product Name	Total Direct Labor Hours Used	Units Sold	Direct Costs per Unit	Selling Price per Unit
M-11	650	1,300	€10	€90
R-24	150	1,500	€30	€60

Recently, the company lost bids on a contract to sell Model M-11 to a local wholesaler and was informed that a competitor offered a much lower price. Smart's controller believes that the cost reports do not accurately reflect the actual manufacturing costs and product profitability for these gaming consoles. He also believes that there is enough variation in the production process for Models M-11 and R-24 to warrant a better cost allocation system. Given the nature of the electronic gaming market, setting competitive prices is extremely crucial. The controller has decided to try activity-based costing and has gathered the following information.

	Number of Setups	Number of Components	Number of Material Movements
M-11	3	17	15
R-24	7	33	35
Total activity cost	€20,000	€50,000	€10,000

The number of setups, number of components, and number of material movements have been identified as activity-cost drivers for overhead.

#### **REQUIRED:**

1. Using Smart's current costing system, calculate the gross margin per unit for Model M-11 and for Model R-24. Assume no beginning or ending inventory. Show your calculations.
2. Using activity-based costing, calculate the gross margin for Model M-11 and for Model R-24. Assume no beginning or ending inventory. Show your calculations.
3. Describe how Smart Electronics can use the activity-based costing information to formulate a more competitive pricing strategy. Be sure to include specific examples to justify the recommended strategy.
4. Identify and explain two advantages and two limitations of activity-based costing.

### **Question 1.5 – Ace Contractors**

Ace Contractors is a large regional general contractor. As the company grew, Eddie Li was hired as the controller and tasked with analyzing the monthly income statements and reconciling all of the accounts formerly handled by Susan Zhao, the sole accounting associate. Li noticed a large amount of demolition expense for February, even though no new projects had started over the past few months. Since Li did not expect such a large amount of demolition expense, nor was any of this type of expense budgeted, Li dug a little deeper. He found that all of those expenses were bank transfers into another bank account. After additional research, it became evident that Zhao had been transferring funds out of the company bank account and into her own, and recording fake expenses to make the bank account reconciliation work. While the president kept the prenumbered checks locked up until check run time and signed all of the outgoing checks, he was unaware of the ability to initiate transfers via the internet. Li had also reviewed the bank reconciliations, which were completed by the office manager, and this fraud was not evident since the ending balance was reasonable.

#### **REQUIRED:**

1. a. Identify and explain the four types of functional responsibilities that should be segregated properly.  
b. Identify and explain two incompatible duties that Zhao had that allowed her to take company funds.
2. Identify and explain two ways that the company had attempted to safeguard its assets and suggest two ways to strengthen controls in this area.
3. Refer to COSO's Internal Control Framework to answer the following questions.
  - a. Identify and describe the three objectives of internal control.
  - b. Identify and describe five components of internal controls.
4. Identify and explain three ways internal controls provide reasonable assurance.

### **Question 1.6 - SmallParts**

SmallParts is a manufacturer of metal washers, screws, and other parts required in the manufacture of various handmade craft and novelty items. The firm has the ability to custom make virtually any small part, provided the client is able to provide SmallParts with the dimensions and tolerance required of the product. Because of its niche in the market, SmallParts has over 1,000 clients. Unfortunately, many of its small business clients eventually merge or cease operations. One of the company's biggest challenges is the return of shipped product. Usually, this is because the small business client has ceased operations. While most of the product is custom made, SmallParts has found that much of it can be sold to other clients for adapted use. The company's accountant is reviewing the company's internal controls and financial accounting procedures, in particular, with respect to inventory.

Currently, SmallParts has one salesperson responsible for marketing returned product. This salesperson has exclusive and total control over the returned product including arranging of sales terms, billing, and collection. The salesperson receives the returned product and attempts to find a client who may be able to adapt the product for the client's use. The inventory of returned product is not entered in the accounting records, under the logic that the cost is sunk. Revenue generated from its sale is classified as other revenue on the SmallParts income statement.

#### **REQUIRED:**

1. Identify and describe the three objectives of a system of internal control.
2. Identify and explain three ways that the procedure for handling returned product violates the internal control system of segregation of duties.
3. Identify four functional responsibilities within an organization that should be separated. Explain why these responsibilities should be separated.
4. Identify and describe three ways that SmallParts can provide for better internal control over its inventory of returned product.

**Question: 1.7 – Michael Hanson**

Michael Hanson is an internal auditor who has been asked to evaluate the internal controls and risks of his company, Consolidated Enterprises Inc. He has been asked to present recommendations to senior management with respect to Consolidated's general operations with particular attention to the company's database procedures. With regard to database procedures, he was specifically directed to focus attention on (1) transaction processing, (2) virus protection, (3) backup controls, and (4) disaster recovery controls.

**REQUIRED:**

1. Define the objectives of
  - a. a compliance audit.
  - b. an operational audit.
  
2. For each of the areas shown below, identify two controls that Hanson should review and explain why.
  - a. Transaction processing.
  - b. Virus protection.
  - c. Backup controls.
  
3. Identify four components of a sound disaster recovery plan.
  
4. During his evaluation of general operations, Hanson found the following conditions.
  - a. Daily bank deposits do not always correspond with cash receipts.
  - b. Physical inventory counts sometimes differ from perpetual inventory records, and there have been alterations to physical counts and perpetual records.
  - c. An unexplained and unexpected decrease in gross profit percentage has occurred.

For each of these conditions, (1) describe a possible cause of the condition and (2) recommend actions to be taken and/or controls to be implemented that would correct the condition.



### **Question 1.8 – Brawn Technology**

Brawn Technology, Inc. is a manufacturer of large wind energy systems. The company has its corporate headquarters in Buenos Aires and a central manufacturing facility about 200 miles away. Since the manufacturing facility is so remote, it does not receive the attention or the support from the staff that the other units do. The president of Brawn is concerned about whether proper permits have been issued for new construction work being done to handle industrial waste at the facility. In addition, he wants to be sure that all occupational safety laws and environmental issues are being properly addressed. He has asked the company's internal auditor to conduct an audit focusing on these areas of concern.

#### **REQUIRED:**

1. Identify and describe the two fundamental types of internal audits. Using examples, describe two situations where each type of audit would be applicable.
2. Referring to Brawn Technology,
  - a. identify the type of audit that would best address the concerns of the president .
  - b. identify the objective of this audit.
  - c. give two reasons why this type of audit would best address the concerns of the president.
3. Recommend two procedures that could be implemented at Brawn's manufacturing plant that would lessen the president's concerns. Explain each of your recommendations.

### **Question 1.9 - Thompson**

Klein, Thompson's CFO, has determined that the Motor Division has purchased switches for its motors from an outside supplier during the current year rather than buying them from the Switch Division. The Switch Division is operating at full capacity and demanded that the Motor division pay the price charged to outside customers rather than the actual full manufacturing costs as it has done in the past. The Motor Division refused to meet the price demanded by the Switch Division. The Switch Division contracted with an outside customer to sell its remaining switches and the Motor division was forced to purchase the switches from an outside supplier at an even higher price.

Klein is reviewing Thompson's transfer pricing policy because she believes that sub-optimization has occurred. While Klein believes the Switch Division made the correct decision to maximize its divisional profit by not transferring the switches at actual full manufacturing cost, this decision was not necessarily in the best interest of Thompson.

Klein has requested that the corporate Accounting Department study alternative transfer pricing methods that would promote overall goal congruence, motivate divisional management performance, and optimize overall company performance. The three transfer pricing methods being considered are listed below. One of these methods will be selected, and will be applied uniformly across all divisions.

- Standard full manufacturing costs plus markup.
- Market selling price of the products being transferred.
- Outlay (out-of-pocket) costs incurred to the point of transfer plus opportunity cost per unit.

#### **REQUIRED:**

1. Identify and explain two positive and two negative behavioral implications that can arise from employing a negotiated transfer price system for goods that are exchanged between divisions.
2. Identify and explain two behavioral problems that can arise from using actual full (absorption) manufacturing costs as a transfer price.
3. Identify and explain two behavioral problems most likely to arise if Thompson Corporation changes from its current transfer pricing policy to a revised transfer pricing policy that it applies uniformly to all divisions.
4. Discuss the likely behavior of both "buying" and "selling" divisional managers for each of the following transfer pricing methods being considered by Thompson Corporation.
  - a. Standard full manufacturing costs plus markup.
  - b. Market selling price of the products being transferred
  - c. Outlay (out-of-pocket) costs incurred to the point of transfer plus opportunity cost per unit.

### **Question 1.10 – Biscayne Industries**

Biscayne Industries manufactures tents in a variety of sizes by using a variety of materials. Last year's income statement data is shown below.

Sales (100,000 units sold)	\$50,000,000
Cost of goods sold (2/3 fixed)	<u>30,000,000</u>
Gross profit	20,000,000
Selling and administrative costs (all fixed)	<u>12,000,000</u>
Operating income	<u>\$ 8,000,000</u>

Biscayne did not foresee any changes for this year, so it created a master budget that was the same as last year's actual results. At the end of this year, however, Biscayne's sales totaled \$55,000,000. There were no variable cost variances, and the company's operating income was \$7,500,000.

#### **REQUIRED:**

1. Identify and explain three benefits of using a flexible budget.
2. Prepare Biscayne's flexible budget through operating income, at the \$55,000,000 sales level.
3. Identify and explain three possible reasons Biscayne's sales increased, but the company's operating income decreased.
4. Define zero-based budgeting.

### **Question 1.11 – Brown Printing**

Brown Printing, a small family-owned business, began operations on March 1, manufacturing premium quality books. The owners have expertise in printing but no accounting knowledge or experience. The company's independent accountant compiled the following data for the month of March. They have also requested an income statement.

Sales price	\$90 per book
Number of units produced	15,000 books
Number of units sold	10,000 books
Direct materials cost	\$15 per book
Direct labor cost	\$6 per book
Variable manufacturing overhead	\$4 per book
Fixed manufacturing overhead	\$240,000 per month
Selling cost	3 per book
Administrative expenses	\$160,000 per month

The owners want to understand these numbers and how they can use the information to run the business.

#### **REQUIRED:**

1. Define and explain absorption costing and variable costing.
2.
  - a. Calculate the unit cost of goods sold using variable costing.
  - b. Prepare the income statement for March using variable costing.
3.
  - a. Calculate the unit cost of goods sold using absorption costing.
  - b. Prepare the income statement for March using absorption costing.
4.
  - a. Identify and describe two advantages of using variable costing.
  - b. Identify and describe two limitations of using absorption costing.
5. Explain why there is a difference in net income between variable costing and absorption costing. Show your calculations.
6. Define and explain throughput costing.

### **Question 1.12 - TruJeans**

TruJeans, a new startup company, plans to produce blue jean pants, customized with the buyer's first name stitched across the back pocket. The product will be marketed exclusively via an internet website. For the coming year, sales have been projected at three different levels: optimistic, neutral, and pessimistic. TruJeans does keep inventory on hand, but prefers to minimize this investment.

The controller is preparing to assemble the budget for the coming year, and is unsure about a number of issues, including the following.

- The level of sales to enter into the budget.
- How to allocate the significant fixed costs to individual units.
- Whether to use job order costing or process costing.

In addition, the controller has heard of kaizen budgeting and is wondering if such an approach could be used by TruJeans.

#### **REQUIRED:**

1. How can the controller use the expected value approach to set the sales level for the budget? What additional information would be needed?
2. How could the use of variable (direct) costing mitigate the problem of how to allocate the fixed costs to individual units?
3. Which cost system seems to make more sense for TruJeans, job order costing or process costing? Explain your answer.

### **Question 1.13 – Sonimad Sawmill**

Sonimad Sawmill Inc. (SSI) purchases logs from independent timber contractors and processes the logs into the following three types of lumber products.

- Studs for residential building (e.g., walls, ceilings).
- Decorative pieces (e.g., fireplace mantels, beams for cathedral ceilings).
- Posts used as support braces (e.g., mine support braces, braces for exterior fences around ranch properties).

These products are the result of a joint sawmill process that involves removal of bark from the logs, cutting the logs into a workable size (ranging from 8 to 16 feet in length), and then cutting the individual products from the logs, depending upon the type of wood (pine, oak, walnut, or maple) and the size (diameter) of the log. The joint process results in the following costs and output of products for a typical month.

Joint production costs:

Materials (rough timber logs)	\$ 500,000
Debarking (labor and overhead)	50,000
Sizing (labor and overhead)	200,000
Product cutting (labor and overhead)	<u>250,000</u>
Total joint costs	<u>\$1,000,000</u>

Product yield and average sales value on a per unit basis from the joint process are as follows.

<u>Product</u>	<u>Monthly Output</u>	<u>Fully Processed Sales Price</u>
Studs	75,000	\$ 8
Decorative pieces	5,000	100
Posts	20,000	20

The studs are sold as rough-cut lumber after emerging from the sawmill operation without further processing by SSI. Also, the posts require no further processing. The decorative pieces must be planed and further sized after emerging from the SSI sawmill. This additional processing costs SSI \$100,000 per month and normally results in a loss of 10% of the units entering the process. Without this planning and sizing process, there is still an active intermediate market for the unfinished decorative pieces where the sales price averages \$60 per unit.

#### **REQUIRED:**

1. Based on the information given for Sonimad Sawmill Inc., allocate the joint processing costs of \$1,000,000 to each of the three product lines using the
  - a. relative sales value method at split-off.
  - b. physical output (volume) method at split-off.
  - c. estimated net realizable value method.
2. Prepare an analysis for Sonimad Sawmill Inc. to compare processing the decorative pieces further as they presently do, with selling the rough-cut product immediately at split-off and recommend which action the company should take. Be sure to provide all calculations.

### **Question 1.14 – Lawton Industries**

For many years, Lawton Industries has manufactured prefabricated houses where the houses are constructed in sections to be assembled on customers' lots. The company expanded into the pre-cut housing market in 2006 when it acquired Presser Company, one of its suppliers. In this market, various types of lumber are pre-cut into the appropriate lengths, banded into packages, and shipped to customers' lots for assembly. Lawton decided to maintain Presser's separate identity and, thus, established the Presser Division as an investment center of Lawton.

Lawton uses return on average investment (ROI) as a performance measure the investment defined as operating assets employed. Management bonuses are based in part on ROI. All investments in operating assets are expected to earn a minimum return of 15% before income taxes. Presser's ROI has ranged from 19.3% to 22.1% since it was acquired in 2006. The division had an investment opportunity in the year just ended that had an estimated ROI of 18% but Presser's management decided against the investment because it believed the investment would decrease the division's overall ROI.

Presser's operating statement for the year just ended is presented below. The division's operating assets employed were \$12,600,000 at the end of the year, a 5% increase over the balance at the end of the previous year.

Presser Division Operating Statement  
For the Year Ended December 31  
(\$000 omitted)

Sales revenue		\$24,000
Cost of goods sold		<u>15,800</u>
Gross profit		\$ 8,200
Operating expenses		
Administrative	\$2,140	
Selling	<u>3,600</u>	<u>5,740</u>
Income from operations before income taxes		<u>\$ 2,460</u>

#### **REQUIRED:**

1. Calculate the following performance measures for the year just ended for the Presser Division of Lawton Industries.
  - a. Return on average investment in operating assets employed (ROI).
  - b. Residual income calculated on the basis of average operating assets employed.
2. Would the management of Presser Division have been more likely to accept the investment opportunity it had during the year if residual income were used as a performance measure instead of ROI? Explain your answer.
3. The Presser Division is a separate investment center with Lawton Industries. Identify and describe the items Presser must control if it is to be evaluated fairly by either the ROI or residual income performance measures.

### **Question 1.15 – Standard Lock**

Ted Crosby owns Standard Lock Inc., a small business that manufactures metal door handles and door locks. When he first started the company, Crosby managed the business by himself, overseeing purchasing and production, as well as maintaining the financial records. The only employees he hired were production workers.

As the business expanded, Crosby decided to hire John Smith as the company's financial manager. Smith had an MBA and ten years of experience in the finance department of a large company. During the interview, Smith mentioned that he was considering an offer from another company and needed to know of Crosby's decision within the next couple of days. Since Crosby was extremely impressed with Smith's credentials, he offered him the job without conducting background checks. Smith seemed to be a dedicated and hard-working employee. His apparent integrity quickly earned him a reputation as an outstanding and trusted manager.

Later in the year, Crosby hired another manager, Joe Fletcher, to oversee the production department. Crosby continued to take care of purchasing and authorized all payments. Fletcher was highly qualified for the position and seemed to be reliable and conscientious. After observing Fletcher's work for one year, Crosby concluded that he was performing his duties efficiently. Crosby believed that Fletcher and Smith were both good managers whom he could trust and gave them expanded responsibilities. Fletcher's additional responsibilities included purchasing and receiving; Smith paid all the bills, prepared and signed all checks, maintained records, and reconciled the bank statements.

Soon Crosby began taking a hands-off approach to managing his business. He frequently took long vacations with his family and was not often at the office to check on the business. He was pleased that the company was profitable and expected that it would continue to be profitable in the future under the supervision of two qualified and trusted managers. One year after Crosby left the management of the company to Smith and Fletcher, business began to experience a decline in profits. Crosby assumed that it was due to a cyclical downturn in the economy. When Standard continued to decline even as the economy improved, Crosby began to investigate. He noticed that revenues were increasing but profits were declining. He also discovered that purchases from one vendor had increased significantly as compared to the other five vendors. Crosby is concerned that fraud may be occurring in the company.

#### **REQUIRED:**

1. Identify and describe four internal control deficiencies within Standard Lock Inc.
2. **For each of the internal control deficiencies identified, recommend an improvement in procedures that would mitigate these deficiencies.**
3. If the company were to implement an ideal internal control system, can it guarantee that fraud would not occur in future? Explain your answer.



### **Question 1.16 – SieCo**

SieCo is a sheet metal manufacturer whose customers are mainly in the automobile industry. The company's chief engineer, Steve Simpson, has recently presented a proposal for automating the Drilling Department. The proposal recommended that SieCo purchase from Service Corp. two robots that would have the capability of replacing the eight direct labor workers in the department. The cost savings in the proposal included the elimination of the direct labor costs plus the elimination of manufacturing overhead cost in the Drilling Department as SieCo charges manufacturing overhead on the basis of direct labor costs using a plant-wide rate.

SieCo's controller, Keith Hunter, gathered the information shown below in Exhibit 1 to discuss the issue of overhead application at the management meeting at which the proposal was approved.

#### **EXHIBIT 1**

Date	Average Annual Direct Labor Cost	Average Annual Manufacturing Overhead Cost	Average Manufacturing Overhead Rate
Current Year	\$4,000,000	\$20,000,000	500%

Category	Cutting Department	Grinding Department	Drilling Department
Average Annual Direct Labor	\$ 2,000,000	\$1,750,000	\$ 250,000
Average Annual Overhead Cost	11,000,000	7,000,000	2,000,000

#### **REQUIRED:**

1. Using the information from Exhibit 1, describe the shortcomings of the system for applying overhead that is currently used by SieCo.
2. Recommend two ways to improve SieCo's method for applying overhead in the Cutting and Grinding Departments.
3. Recommend two ways to improve SieCo's method for applying overhead to accommodate the automation of the Drilling Department.
4. Explain the misconceptions underlying the statement that the manufacturing overhead cost in the Drilling Department would be reduced to zero if the automation proposal were implemented.

### **Question 1.17 – Giga**

Giga Industries is a large publicly-held manufacturer of telecommunications equipment. The firm developed the following forecast for the upcoming year.

#### **Balance Sheet (thousands of dollars)**

Current assets		\$100,000
Fixed assets	750,000	
Accumulated depreciation	<u>200,000</u>	
Net fixed assets		<u>550,000</u>
TOTAL ASSETS		<u>\$650,000</u>
Current liabilities		\$50,000
Long-term debt		150,000
Shareholders' equity		
Preferred stock	50,000	
Common – par of \$2	100,000	
Common – premium	200,000	
Retained earnings	100,000	
		<u>450,000</u>
TOTAL LIABILITIES & EQUITY		<u>\$650,000</u>

#### **Income Statement (thousands of dollars)**

Revenue		\$2,000,000
Depreciation expense		50,000
Other expenses		<u>1,775,000</u>
Earnings before interest & taxes		175,000
Interest expense		15,000
Taxes (40% effective rate)		<u>64,000</u>
Net income		<u>96,000</u>
Preferred stock dividends		<u>5,000</u>
Earnings for common stock	\$	<u>91,000</u>

The Product Development Team has developed a new line of state-of-the-art switching devices and is proposing a major capital investment of \$200 million for a new division of the firm that will manufacture and sell the new line. An extensive financial analysis was prepared using estimates for each year of the estimated 10-year product life and presented to the Board of Directors indicating that the project would result in a positive net present value (NPV) of \$60 million and an internal rate of return (IRR) of 25%. A board member commented that the project looked very promising but expressed concern about the impact on earnings. The Controller was asked to develop a revised forecast for the coming year assuming the project was approved.

**REQUIRED:**

1. You are preparing the revised forecast for the Controller. For each of the following assumptions show the Balance Sheet and/or Income Statement account that would be affected, the amount of the change and if the change increases or decreases the account. Assume no floatation costs on all financing.
  - a. The \$200 million investment in fixed assets will be made on January 1 and will be depreciated on a 10-year straight-line basis for financial statement and income tax purposes.
  - b. On January 1, \$75 million of 10-year bonds will be issued at par with annual interest of 10% payable December 31 with principle to be repaid at maturity.
  - c. On January 1, \$25 million of Preferred Stock will be issued with an annual dividend rate of 14% payable December 31.
  - d. On January 1, 4 million new shares of common stock will be issued to net the firm \$25 per share. Common stock dividends are expected to be \$0.50 payable December 31, as in the original forecast.
  - e. During the initial year of operation, the new product is expected to produce cash revenue of \$60 million and have cash expenses (other than depreciation) of \$30 million.
2. Assume the tax rate is expected to remain at 40% and taxes are paid on December 31, calculate the change in net income resulting from the transactions in question A.

### **Question 1.18 – Borealis Industries**

Borealis Industries has two operating divisions – Sandstone Books, and Corus Games. Each division maintains its own accounting system and method of revenue recognition.

#### **Sandstone Books**

Sandstone Books sells novels to regional distributors who then sell to independent bookstores and retail chains in their territory. The distributors are allowed to return up to 25% of their purchases to Sandstone, and the distributors have the same return allowance with the bookstores. The returns from distributors have averaged 20% over the past five years. During the fiscal year just ended, Sandstone's sales to distributors totaled \$15,000,000. At year end, \$6,800,000 of sales are still subject to return privileges over the next six months. The balance of the book sales, \$8,200,000, had actual returns of 19%. Sales from the previous fiscal year totaling \$5,500,000 were collected in the current fiscal year, with 21% of sales returned. Sandstone records revenue in accordance with the method referred to as revenue recognition when the right of return exists as the company's operations meet all the applicable criteria for use of this method.

#### **Corus Games**

Corus Games supplies video arcades with new games and updated versions of standard games. The company works through a network of sales agents in various cities. Orders are received from the sales agents along with down payments; Corus then ships the product directly to the customer, f.o.b. shipping point. The customer is billed for the balance due plus the actual shipping costs. During the fiscal year just ended, Corus received orders for \$12,000,000 from the sales agents along with \$1,200,000 in down payments. Customers were billed \$150,000 in freight costs and \$9,180,000 for goods shipped. After an order has been shipped, the sales agent receives a 12% commission on the product price. The goods are warranted for 90 days after sales, and warranty returns have been about 3% of sales. Corus recognizes revenue at the point of sale.

### **REQUIRED:**

1. Define the two conditions that must be present for proper revenue recognition, according to the revenue recognition principle.
2. Define and describe each of the following revenue recognition methods.
  - a. Percentage-of-completion method.
  - b. Installment-sales method.
3. Calculate the revenue to be recognized at the end of the fiscal year for
  - a. Sandstone Books.
  - b. Corus Games.

### **Question 1.19 – Bellaton**

Bellaton Industries is a manufacturing company located in Europe that has just completed the first month of a new fiscal year. The Finance Department is reviewing the variances of actual results to the master budget. The expenditures within the Marketing and Facilities departments make up the majority of the fixed costs. The Sales Operations Department is responsible for revenue. The actual results and master budget are shown below.

	<u>Actual</u>	<u>Master Budget</u>
Units sold	18,000	16,000
Revenues	€1,512,000	€1,360,000
Variable costs		
Direct materials	(792,000)	(672,000)
Direct labor	(252,000)	(240,000)
Variable overhead	<u>(144,000)</u>	<u>(128,000)</u>
Contribution margin	324,000	320,000
Fixed costs	<u>(210,000)</u>	<u>(215,000)</u>
Operating income	<u>€ 114,000</u>	<u>€ 105,000</u>

#### **REQUIRED:**

1. Prepare a flexible budget based on the actual sales volume.
2. a. Calculate the flexible-budget variance by comparing actual results to the flexible budget.  
b. Explain the significance of these variances.
3. a. Identify and describe three benefits of measuring performance by comparing actual results to the master budget.  
b. Identify and describe one limitation of measuring performance by comparing actual results to the master budget.
4. a. Identify and describe the different types of responsibility centers.  
b. Identify the responsibility centers in the scenario.
5. Explain the difference between the sales-volume variance for operating income and the sales-price variance.

### **Question 1.20 – Ecoclock**

Ecoclock manufactures four environmentally friendly consumer products, and the firm is organized as four operating centers, each responsible for a single product. The main mechanism of each product is the same and requires an identical initial processing step, although subsequent processing for each product is very different. Ecoclock's management has decided to centralize the initial processing function and purchase new equipment that has a 40,000 unit annual practical capacity. For budgeting and costing purposes, the initial processing function will be assigned to a new center, Center E. Shown below is the budgeted production for the product centers.

	<u>Annual Production</u>
Center A	5,000
Center B	7,500
Center C	4,000
Center D	6,000

A large part of the managers' compensation is derived from bonuses that they receive for meeting or exceeding cost targets. The managers of centers A through D each agree that they should be charged with the variable costs per unit that are delivered by Center E. However, they disagree about the allocation of the fixed costs of Center E, primarily because they believe that the new equipment has a much larger capacity than is necessary and they do not want to be charged with the cost of the unused capacity. The fixed costs for Center E total \$150,000, while the variable cost per unit is \$6.

#### **REQUIRED:**

1. Assume fixed costs are allocated based on the proportion of units produced by each center. What is Center D's per unit cost?
2. What would be Center A's per unit cost if Center E's fixed costs are allocated based on practical capacity?
3. Although allocating Center E's fixed costs on a per-unit produced basis seems equitable, the manager of Center C is worried about Center B reducing the number of units produced.
  - a. Calculate Center C's per unit cost with no change in production.
  - b. If Center B reduces the number of units produced to 5,000, will Center C's cost increase or decrease and by how much?
4. The center managers are concerned that being charged for unused capacity will impact their bonus.
  - a. Explain how company management could alleviate the concerns.
  - b. Identify three additional measures that could be used to evaluate manager performance.

### **Question 1.21 - Edge**

Edge Products is a global supplier of medical products. They have one primary product which is manufactured in the United States, and two overseas subsidiaries which produce two key supplies for the primary product. Both subsidiaries also sell these supplies to other companies. The U.S. operation purchases the two supplies internally using transfer pricing. The supplies are of the same quality as any available from other suppliers and there would be no benefit to purchasing the supplies outside of the company. The market for the supplies is very competitive and prices are stable. For performance purposes, the U.S. operation is evaluated by department, such as marketing, IT, and sales, while the overseas operations are smaller and evaluated as a whole.

#### **REQUIRED:**

1.
  - a. Define transfer pricing.
  - b. Identify the objectives of transfer pricing.
2.
  - a. Identify the methods for determining transfer prices.
  - b. Explain the advantages and disadvantages of each method.
  - c. Based on the scenario, which method should this company select? Explain your answer.
3. How could tariffs, customs duties, or taxes affect transfer pricing and related performance evaluation in this multinational company?
4. Identify and explain the four different types of responsibility centers.

### **Question 1.22 - Zavod**

Zavod Inc. produces a single product and utilizes a standard cost system. Zavod has budgeted production costs for its first year of operations based on normal capacity of 11,000 units per year. The production budget includes the following costs.

Direct materials	\$4.00 per finished unit
Direct labor	\$3.25 per finished unit
Variable manufacturing overhead	\$1.15 per finished unit
Fixed manufacturing overhead	\$2.85 per finished unit

In addition, Zavod has variable selling and administrative costs of \$5.00 per unit and fixed selling and administrative costs of \$81,000.

During the year, Zavod produced 11,000 units and sold 10,000 units at \$32 each. All variable costs were exactly as expected on a per unit basis, and all fixed costs were exactly as expected in total. Zavod's president has asked the controller to prepare an income statement under absorption costing and an income statement under variable costing.

#### **REQUIRED:**

1. Explain how absorption costing and variable costing methods treat the following costs:
  - a. Direct materials.
  - b. Direct labor.
  - c. Variable overhead.
  - d. Fixed overhead.
  - e. Variable selling and administrative.
  - f. Fixed selling and administrative.
2.
  - a. Calculate the unit cost to be used in valuation of the ending inventory under absorption costing. Show your calculations.
  - b. Calculate the unit cost to be used in valuation of the ending inventory under variable costing. Show your calculations.
3.
  - a. Calculate operating income using absorption costing. Show your calculations.
  - b. Calculate operating income using variable costing. Show your calculations.
4. Explain why operating income calculated under absorption costing differs from operating income calculated under variable costing.
5.
  - a. Explain why absorption costing is required under U.S. GAAP.
  - b. Explain why variable costing is more appropriate for management decision-making.



## CMA Part 2 Essay Practice Questions

(Answers are below)

### Question: 2.1 – Foyle Inc.

Foyle Inc. has prepared the comparative income statements for the three most recent fiscal years that are shown below. While profitable, Foyle has been losing market share and is concerned about future performance. Also presented are data about Foyle's largest competitor and the industry average.

	<u>Year 1</u>	<u>Year 2</u>	<u>Year 3</u>	<u>Competitor</u>	<u>Ind. Avg.</u>
Revenue	\$20,000	\$24,000	\$30,000	\$45,000	\$28,000
Cost of goods sold	<u>12,000</u>	<u>12,000</u>	<u>18,000</u>	<u>21,600</u>	<u>14,000</u>
Gross profit	8,000	12,000	12,000	23,400	14,000
Sales and marketing	2,000	2,000	2,000	5,000	3,000
General and administrative	1,500	2,000	3,000	3,150	2,500
Research and development	<u>1,500</u>	<u>2,000</u>	<u>1,000</u>	<u>4,000</u>	<u>1,500</u>
Operating income	<u>\$ 3,000</u>	<u>\$ 6,000</u>	<u>\$ 6,000</u>	<u>\$11,250</u>	<u>\$ 7,000</u>

### **REQUIRED:**

- Using the three Foyle Inc. statements,
  - Prepare a comparative common-size statement using revenue as the base measure.
  - Prepare a common base-year income statement using Year 1 as the base year.  
Show your calculations.
- Calculate Foyle's growth rate of both revenue and operating income for Year 2 and Year 3.  
Show your calculations.
- By evaluating Foyle's performance against the performance of Foyle's largest competitor and the industry average, identify and discuss three areas that Foyle should target for further investigation and performance improvement. Support your discussion with data.

### **Question: 2.2 – Bockman Industries**

Income statements for Bockman Industries, a retailer, are shown below for the past two years.

	<u>Year 2</u>	<u>Year 1</u>
Revenues	\$6,400,000	\$6,000,000
Cost of goods sold	<u>3,100,000</u>	<u>2,850,000</u>
Gross margin	3,300,000	3,150,000
Selling expenses	950,000	880,000
Administrative expenses	1,120,000	1,050,000
Loss due to strike	20,000	0
Interest expense	<u>30,000</u>	<u>30,000</u>
Income before taxes	1,180,000	1,190,000
Income tax expense	<u>472,000</u>	<u>476,000</u>
Income from continuing operations	708,000	714,000
Discontinued operations, net	<u>72,000</u>	<u>0</u>
Net income	<u>\$ 780,000</u>	<u>\$ 714,000</u>
Earnings per share	\$2.50	\$2.30

#### **REQUIRED:**

1. Prepare common-size income statements (vertical analysis) for Bockman Industries for the two years presented.
2. Prepare a memo to the controller of Bockman identifying and describing a possible explanation for each of the following.
  - a. An increase in sales along with the change in the gross margin percentage.
  - b. An increase in sales along with the increase in selling expenses.
  - c. An increase in sales along with the increase in administrative expenses.
3. Assume that Bockman has no preferred stock outstanding and any change in the number of shares of common stock occurred at the beginning of Year 2. If the shareholders' equity at the end of Year 2 totaled \$7,363,200, calculate Bockman's book value per share.

**Question: 2.3 – Han Electronics Inc.**

Han Electronics Inc. is an electronics retailer with a fitness equipment retailer subsidiary. Han is a mature company with declining sales while the subsidiary is growing and profitable. The management of Han is considering several strategic options for the company as a whole. They considered purchasing additional companies to continue to diversify their product mix, or split out some or all of the subsidiary into a separate company so that each company could go in a different direction. Ultimately, the concern is that Han is failing. Management wants to maximize shareholder value, turn the company around, and continue as a going concern.

**REQUIRED:**

1. a. Define mergers and acquisitions.  
b. Does this scenario describe a merger or an acquisition?  
c. Identify three possible synergies or benefits of mergers and acquisitions.
2. a. Identify and describe the following two types of divestitures: spin-offs and equity carve-outs.  
b. Identify whether either of these divestiture types is described in the scenario above.
3. Define bankruptcy and identify the different types of bankruptcy.

**Question: 2.4 – OneCo, Inc.**

OneCo Inc. produces a single product. Cost per unit, based on the manufacture and sale of 10,000 units per month at full capacity, is shown below.

Direct materials	\$4.00
Direct labor	1.30
Variable overhead	2.50
Fixed overhead	3.40
Sales commission	<u>.90</u>
	<u>\$12.10</u>

The \$0.90 sales commission is paid for every unit sold through regular channels. Market demand is such that OneCo is operating at full capacity, and the firm has found it can sell all it can produce at the market price of \$16.50.

Currently, OneCo is considering two separate proposals:

- Gatsby, Inc. has offered to buy 1,000 units at \$14.35 each. Sales commission would be \$0.35 on this special order.
- Zelda Productions, Inc. has offered to produce 1,000 units at a delivered cost to OneCo of \$14.50 each.

**REQUIRED:**

1. What would be the effect on OneCo's operating income of each of the following actions?
  - a. Acceptance of the proposal from Gatsby, but rejection of the proposal from Zelda.
  - b. Acceptance of the proposal from Zelda, but rejection of the proposal from Gatsby.
  - c. Acceptance of both proposals.
2. Assume Gatsby has offered a second proposal to purchase 2,000 units at the market price of \$16.50, but has requested product modifications that would increase direct materials cost by \$.30 per unit and increase direct labor and variable overhead by 15%. The sales commission would be \$.35 per unit.
  - a. Should OneCo accept this order? Explain your recommendation.
  - b. Would your recommendation be different if the company had excess capacity? Explain your answer.
3. Identify and describe at least two factors other than the effect on income that OneCo should consider before making a decision on the proposals.

### **Question: 2.5 - PARKCO**

Charlene Roberts is the controller for PARKCO, a company that owns and operates several parking garages in a large Midwestern American city. Recently, the management of PARKCO has been investigating the viability of building a parking garage in an area of the city that has experienced rapid growth. Some years ago, PARKCO acquired the necessary land at a cost of \$425,000, and had demolished worthless buildings on the land at a cost of \$72,000. Since then, the land has been rented by various construction companies as a temporary storage site for building materials while the construction companies completed projects in the area. PARKCO has averaged revenue of \$5,000 per year for this use of the property.

Roberts is currently assembling financial information relating to the proposed garage. In addition to the information already presented, she received from the CFO, John Demming, the following projections:

Number of parking spaces in the proposed garage	840
Number of parking spaces rented at the monthly rate	420
Average number of parkers paying the daily rate (for each of the 20 business days per month)	180
Fixed costs to operate the garage per month	\$30,000

Roberts estimates the monthly variable cost of servicing each monthly parker is \$12, and that the price of a monthly parking space would be \$75. The estimated cost per daily parker is \$2, and the daily parking rate is expected to be set at \$8. The parking garage would operate 20 business days per month.

Roberts believes, based on PARKCO's past experience with similar garages, that the projected number of monthly and daily parkers was too high. When she questioned Demming he replied, "This garage is going to be built no matter what your past experiences are. Just use the figures I gave you."

#### **REQUIRED:**

- Define sunk cost and opportunity cost.
  - How are these two types of cost recorded in the accounting records?
  - Identify the sunk costs and opportunity costs, if any, in the PARKCO scenario and show the amount of each.
- Using the data in the scenario, calculate pre-tax operating income. Show your calculations.

3. Roberts is uncomfortable with the implications of Demming's statement and has turned to IMA's Statement of Ethical Professional Practice for guidance. According to this guidance,
  - a. identify the ethical principles that should guide the work of a management accountant.
  - b. identify the standards and describe how they would or would not apply in the circumstances described.
  - c. identify the steps Roberts should take to resolve this situation.

**Question: 2.6 – Bell Company**

Bell Company is a large diversified manufacturer organized into profit centers. Division managers are awarded a bonus each year if the division exceeds profit goals. While division managers are generally given control in operating their division, all capital expenditures over \$500,000 must be approved by the home office. Bob Charleson was recently appointed division manager of the Central Division.

Twelve months ago, Charleson's predecessor, who has been fired, was able to convince the home office to invest \$700,000 in modern manufacturing equipment with an expected life of 5 years. Included within the \$700,000 investment was a special packaging machine at a cost of \$200,000. This packaging machine has a 5-year useful life and a zero salvage value. Charleson has just learned of a new packaging process that would save the Central Division \$60,000 a year in packaging cost over the 5-year life of the equipment. As a result of the introduction of new technology the current packaging machine could be sold for \$75,000. Acquisition and installation of the new packaging process equipment would cost \$210,000. Central Division's cost of capital is 10% and it has an effective income tax rate of 40%. The new equipment has a zero salvage value and is depreciated over five years on a straight-line basis.

**REQUIRED:**

1. Calculate the net present value of acquiring the new packaging process. Show your calculations.
2. From a financial standpoint, should Bell Company invest in the new packaging technology? Explain your answer.
3. Identify and explain three non-financial or behavioral factors that could cause Charleson to change the investment decision made in the previous question.

**Question: 2.7 – Grandeur Industries**

Grandeur Industries is currently in the process of reviewing capital budget submissions from its various divisions. Grandeur uses the Capital Asset Pricing Model (CAPM) for a variety of purposes, including the determination of benchmark investment returns. The company’s overall cost of capital is 16% and its beta value is 1.2. The risk free rate is 4% and the expected return on the market is 14%. The following projects from different divisions are under consideration and there is no capital rationing in effect.

<u>Project</u>	<u>Internal Rate of Return</u>	<u>Project Beta</u>
A	16%	1.4
B	18%	1.6
C	12%	0.7
D	17%	1.1

**REQUIRED:**

- Calculate the required return for all four projects. Show your calculations.
  - Which of the four projects under consideration should Grandeur accept? Support your decision.
- Define and explain beta.
  - Describe four factors that would impact the beta value that is chosen for use in evaluating a project.
- Identify alternative approaches to dealing with risk in capital budgeting.

**Question: 2.8 – Orion Corp.**

Orion Corp. is a logistics and transportation company. The finance director, John Kochar, is in the process of evaluating a number of proposed capital investment projects. The following information relates to the firm’s finances.

- Some years ago the firm issued 10,000 bonds, each with a face value of \$1,000 and paying an annual coupon rate of 9.2%. These bonds are now trading at \$1,040 per bond. A coupon payment on these bonds was made yesterday and the bonds mature next year.
- The firm has no other debt or preferred stock outstanding.
- The firm has 2,000,000 shares of common stock outstanding. The stock is currently selling for \$14.80 per share and the firm is expected to pay a dividend of \$1.48 per share next year. The dividend is expected to grow at a constant rate of 4% per year in the foreseeable future.
- The firm’s corporate tax rate is 30%.

Kochar is reviewing the capital investment projects shown below. All projects are in Orion’s usual line of business and are being considered independently of each other. The following information is available. (Note that the net present values of the projects are estimated using the weighted average cost of capital.)

Project	Initial Outlay	IRR	NPV
A	\$450,000	17.0%	\$18,800
B	\$128,000	19.5%	\$2,300
C	\$262,000	16.2%	\$9,800
D	\$180,000	10.5%	-\$7,000
E	\$240,000	16.5%	\$22,500
F	\$160,000	11.1%	-\$900

The firm is also evaluating another proposed capital investment, project X, that is in a completely different line of business from Orion’s usual operations. The project is expected to be financed from the existing capital structure and does not fall within any capital rationing restrictions. The following forecasted net after-tax cash flows relate to project X.

Year 0	Year 1	Year 2	Year 3	Year 4
-\$200,000	\$60,000	\$80,000	\$80,000	\$80,000

**REQUIRED:**

1. Based on the information provided, calculate Orion’s weighted average cost of capital. Show your calculations.
2. Referring to projects A through F, identify which projects should be accepted by Orion. Provide a brief defense of the decision criteria that you have used in arriving at your recommendations.
3. Referring to project X, state whether the firm should use its weighted average cost of capital to evaluate this project. Explain your answer.



4. Based on an analysis of two firms with operations similar to project X, Kochar has determined that the project's beta is 1.5. The risk-free rate is 5% and the market risk premium is 10%. Calculate the net present value of project X and provide a recommendation on whether the project should be accepted. Show your calculations.
5. In the past the firm has typically used the payback period method for evaluating risky projects and accepted projects with a payback period less than 3 years.
  - a. Calculate the payback period for project X. Based on the firm's payback period threshold, what decision should the firm make regarding project X?
  - b. Provide one reason why using the payback period can result in the firm making a sub-optimal decision.

### **Question: 2.9 – Global Manufacturing**

Global Manufacturing is a Canadian company that processes a wide range of natural resources. Two years ago the company acquired Zeta Manufacturing, a raw material processing firm located in the United States. Over the last year, profits have fallen in the U.S.-based subsidiary. Laura Hammon, the Manager of Manufacturing Accounting for Zeta Manufacturing, has been asked to identify the problems that have impaired the firm's profits.

She has reviewed the monthly production cost reports and discovered that the per unit costs have been consistently increasing over the last year. Since the subsidiary used an actual cost system, Hammon convinced the president and the production manager that a thorough assessment of each product's cost and the implementation of a standard cost system would help to solve the problem.

Within six months, Hammon installed a fully operational standard cost system for the division. After several months of using the new cost system, Hammon is perplexed by unexplainable efficiency and yield variances, which result in material inventory write-downs at the end of each month. The work-in-process account is charged with the actual input costs of direct materials and direct labor, plus a predetermined rate for normal spoilage. At the end of the month, the work-in-process account is relieved by the standard cost per unit multiplied by the number of good units produced. This leaves a balance in the account which should be consistent with the uncompleted units still in process, but when compared to a physical inventory, there is a significant shortage of product in process, resulting in a write-down of inventory.

When Hammon explained her problems to the production manager, he scoffed and said, "It's your crazy standard cost system that is messed up." The production manager says that Hammon's cost system is poorly designed and does not track product costs accurately. Hammon is convinced there is nothing wrong with the design of the standard cost system. She knows that the inventory write-downs have no effect on the production manager's compensation; however, she has heard that his bonus is partially affected by the actual amount of spoilage. She decides to further examine the provision for normal spoilage, as well as the actual spoilage reported.

During the following month, she monitored the records of disposal truck traffic that left the plant at night. It would require only one truck nightly to dispose of the spoilage included in her standard cost. The records reflected an average of three disposal trucks leaving the plant each night. This unexplained traffic of disposal vehicles has caused her to be skeptical about the actual spoilage reported by the production manager.

**REQUIRED:**

1. Does Hammon have an ethical responsibility to determine what may explain the unusual inventory write-downs at Zeta Manufacturing? Support your answer by referring to the specific standards outlined in IMA's Statement of Ethical Professional Practice.
2. According to the IMA's Statement of Ethical Professional Practice, what are the steps that Hammon should take in order to resolve the situation?

**Question 2.10 – Cambridge Automotive**

Cambridge Automotive Products (CAP) Inc., a multinational corporation, is a major supplier of a broad range of components to the worldwide automobile and light truck market. CAP is in the process of developing a bid to supply an ignition system module to Korea Auto Corporation (KAC), a South Korean automobile manufacturer, for a new line of automobiles for the next four-year production cycle. The Request for Proposal issued by KAC specifies a quantity of 200,000 modules in the first year and 250,000 units in years 2 through 4 of the contract. CAP marketing specialists believe that, in order to be competitive, a bid of 100,000 South Korean Won (KRW) per unit is appropriate. Other relevant data are shown below.

- Manufacturing specialists estimate that a \$12 million (U.S. Dollars) investment in equipment (including installation) is required.
- The equipment is expected to last the 4-year life of the contract, at which time it would cost \$1.4 million to remove the equipment which would be sold for a scrap value of \$900,000.
- Direct labor and material expenses are estimated at \$40 per unit.
- The change in indirect cash expenses associated with this contract is expected to be \$3 million per year.
- The new product will require additional investment in inventory and accounts receivable balances at the outset, amounting to \$1.2 million during the four-year time period. This investment will be recovered at the end of the four-year contract.
- CAP is subject to U.S. income tax at an effective rate of 40%.
- For tax purposes, assume that the initial \$12 million cost of the equipment is depreciated evenly over the four-year period.
- The company economist estimates that the exchange rate will average 1,250 KRW per U.S. Dollar for the four-year time period.

**REQUIRED:**

1. Calculate the after-tax incremental cash flows in U.S. Dollars for the following periods:
  - a. Period 0.
  - b. Period 1.
  - c. Period 4 operating cash flow
  - d. Period 4 terminal cash flow.
2. The assumptions used to develop the cash flows are subject to various degrees of estimation error. For each of three different cash flow variables, identify and discuss one potential risk that could affect the estimates made by CAP.

### **Question 2.11 – City of Blakston**

The City of Blakston owns and operates a community swimming pool. The pool is open each year for 90 days during the summer months of June, July, and August. A daily admission is charged to patrons of the pool. By law, 10% of all recreational and sporting fees must be remitted to a state tourism promotion fund. The City Manager has set a goal that pool admission revenue, after subtracting the state fee and variable costs, must be sufficient to cover the fixed costs. Variable costs are assumed to be 15% of gross revenue. Fixed costs for the three-month period total \$33,000. The following budget for the pool has been prepared for the current year.

Adult admissions: 30 per day x 90 days x \$5.00	\$13,500
Student admissions: 120 per day x 90 days x \$2.50	<u>27,000</u>
Total revenue	40,500
State tourism fee	<u>4,050</u>
Net revenue	36,450
Variable costs	6,075
Fixed costs	<u>33,000</u>
Expected deficit	<u>\$ (2,625)</u>

The City Manager is trying to determine what admission mix is necessary to break even and what actions could be taken to eliminate the expected deficit.

#### **REQUIRED:**

1. Given the anticipated mix of adult and student admissions, how many total admissions must the pool have in order to break even for the season?
2. Regardless of the admissions mix, what is the highest number of admissions that would be necessary to break even for the season?
3. Regardless of the admissions mix, what is the lowest number of admissions that would be necessary to break even for the season?

### **Question 2.12 – Carroll Mining**

Alex Raminov is a management accountant at Carroll Mining and Manufacturing Company (CMMC), a large processor of ores and minerals. While working late one night to complete the footnotes for the financial statements, Raminov was looking for a file in his supervisor's office and noticed a report regarding procedures for disposing of plant wastes. According to handwritten notes on the face of the report, CMMC had been using a residential landfill in a nearby township to dump toxic coal cleaning fluid wastes over a considerable period of time. The report stated that locating a new dump site was urgent because the current one was nearing capacity.

Raminov realized that it was possible CMMC had been improperly disposing of highly toxic fluids in a landfill that was restricted to residential refuse. Besides the obvious hazards to residents of the area, there could be legal problems if and when the authorities were notified. The financial consequences of clean-up actions, as well as the loss of CMMC's generally good environmental reputation, could be catastrophic for the company.

Raminov asked his supervisor how this item was to be included in the footnotes and inquired whether an accrual for clean-up costs was anticipated. His supervisor told him to "forget about this matter" and that he had no intention of mentioning one word about waste disposal in this year's financial statements.

#### **REQUIRED:**

1. Using the categories outlined in IMA's Standards of Ethical Professional Practice, identify the standards that are specifically relevant to Alex Raminov's ethical conflict and explain why the standards are applicable to the situation.
2. According to the IMA's Standards of Ethical Professional Practice, what further steps, if any, should Raminov take in resolving his ethical dilemma?
3. If he continues to be rebuffed by his employer, should Raminov notify the appropriate authorities? Should he anonymously release the information to the local newspaper? Explain your answers.

### **Question 2.13 – Langley Industries**

Langley Industries plans to acquire new assets costing \$80 million during the coming year and is in the process of determining how to finance the acquisitions. The business plan for the coming year indicates that retained earnings of \$15 million will be available for new investments. As far as external financing is concerned, discussions with investment bankers indicate that market conditions for Langley securities should be as follows.

- Bonds with a coupon rate of 10% can be sold at par.
- Preferred stock with an annual dividend of 12% can be sold at par.
- Common stock can be sold to yield Langley \$58 per share.

The company's current capital structure, which is considered optimal, is as follows.

Long-term debt	\$175 million
Preferred stock	50 million
Common equity	275 million

Financial studies performed for Langley indicate that the cost of common equity is 16%. The company has a 40% marginal tax rate. (Ignore flotation costs for all calculations.)

#### **REQUIRED:**

1. Determine how Langley should finance its \$80 million capital expenditure program, considering all sources of funds. Be sure to identify how many new shares of common stock will have to be sold. Show your calculations.
2. Calculate Langley's weighted average cost of capital that it could use to assess the viability of investment options.
3. Identify how each of the following events, considered individually, would affect Langley's cost of capital (increase, decrease, no change). No calculations are required.
  - a. The corporate tax rate is increased.
  - b. Banks indicate that lending rates will be increasing.
  - c. Langley's Beta value is reduced due to investor perception of risk.
  - d. The firm decides to significantly increase the percent of debt in its capital structure since debt is the lowest cost source of funds.

### **Question 2.14 – Sentech Scientific**

Sentech Scientific Inc., a manufacturer of test instruments, is in contract negotiations with the labor union that represents its hourly manufacturing employees. Negotiations have reached an impasse, and it appears that a strike is imminent. The controller has called the general accounting manager into his office to discuss liquidity issues if and when a strike does occur.

The controller asks the accounting manager to recommend measures to assess liquidity if a strike were to occur. Although some of the nonunion employees could probably produce test instruments during a strike, the controller would rather be conservative and assume no shipments during this time frame. Since the customers may go to other sources to obtain the products they need during a strike, cash receipts for current outstanding amounts owed by customers may not be paid on a timely basis.

#### **REQUIRED:**

1. Define liquidity and explain its importance to Sentech.
2. Identify three measures that could be used to assess liquidity and explain how to calculate these measures.
3. Determine which liquidity measure identified above would best fit the controller's requirements, and explain why. Include in your discussion the reasons why the other measures would not be as appropriate.

### **Question 2.15 – Ultra Comp**

Ultra Comp is a large information technology firm with several facilities. The firm's Audit Committee has determined that management must implement more effective security measures at its facilities. A Security Improvement Team has been formed to formulate a solution. Janet Lynch is the financial analyst assigned to the team. She has determined that a six-year time horizon is appropriate for the analysis and that a 14% cost of capital is applicable. The team is investigating the following three vendors.

- Vendor A is a new entrant to the security industry and is in the process of introducing its security system which utilizes new technology. The system would require an initial investment of \$4 million and have a life of six years. A net cash outflow of \$500,000 per year for salaries, operation, maintenance, and all costs related to the system would also be required.
- Vendor B is an established firm in the security industry and has a security system that has been on the market for several years. The system requires an initial investment of \$1 million and will have a useful life of three years. At the end of the three-year period, Ultra Comp would have to replace the hardware at an estimated cost of \$1,250,000, based on current technology. A net cash outflow of \$750,000 per year for salaries, operation, maintenance, and all other related costs would also be required.
- Vendor C is a nationally recognized firm in the security industry and has proposed to Ultra Comp that it provide a total security solution. Vendor C would provide all hardware and personnel to operate and maintain a security system as called for by the specifications of Ultra Comp for all its locations. Ultra Comp would be required to sign a six-year contract at a cost of \$1,400,000 per year.

#### **REQUIRED:**

1. Ultra Comp utilizes the Net Present Value (NPV) method to quantify the financial aspects of corporate decisions. Calculate the NPV of each of the three alternatives.
2. Based on financial considerations, which of the three alternatives should the team recommend? Explain why.
3. Define sensitivity analysis and discuss how Ultra Comp could use this technique in analyzing the three vendor alternatives.
4. Identify and briefly discuss three non-financial considerations that the Ultra Comp team should consider prior to making a recommendation to senior management.

### **Question 2.16 – Right-Way**

Right-Way Stores is a chain of home improvement stores with 150 locations. Right-Way has identified an attractive site for a new store and Jim Smith, Director of Financial Planning, has been asked to prepare an analysis and make a recommendation for or against opening this proposed new store.

In preparing his analysis, Smith has determined that the land at the proposed site will cost \$500,000 and the new store will cost \$3.5 million to build. The building contractor requires full payment at the start of construction, and it will take one year to build the store. Right-Way will finance the purchase of the land and construction of the new building with a 40-year mortgage. The mortgage payment will be \$118,000 payable annually at year end. Fixtures for the store are estimated to cost \$100,000 and will be expensed. Inventory to stock the store is estimated to cost \$100,000. Concerned about the possibility of rising prices, the company expects to purchase the fixtures and inventory at the start of construction. Advertising for the grand opening will be \$50,000, paid to the advertising agency on retainer at the start of construction. The new store will begin operations one year after the start of construction.

Right-Way will depreciate the building over 20 years on a straight-line basis, and is subject to a 35% tax rate. Right-Way uses a 12% hurdle rate to evaluate projects. The company expects to earn after-tax operating income from the new store of \$1,200,000 per year.

#### **REQUIRED:**

1. What is Right-Way's total initial cash outflow? Show your calculations.
2. Calculate the annual expected cash flow from the proposed new store. Show your calculations.
3. Right-Way management evaluates new stores over a five-year horizon as management believes there is too much uncertainty after 5 years of operation. Calculate the Net Present Value (NPV) for the store for the first 5 years of operation. Show your calculations.
4. Based solely on your answer to C, would you recommend that Right-Way build this store? Explain your answer.
5. How would you use sensitivity analysis to test your confidence in the recommendation? No calculations are required.



### **Question 2.17 – Hi-Quality Productions**

Amy Kimbell was recently hired as an accounting manager for Hi-Quality Productions Inc., a publicly-held company producing components for the automotive industry. One division, Alpha, uses a highly automated process that had been outsourced for a number of years because the capital investment required was high and the technology was constantly changing. Two years ago, the company decided to make the necessary capital investment and bring the operation in house. Since all major capital investments must be approved by the Board of Directors, the budget committee for the Alpha Division recommended the \$4 million investment to the Board, projecting a significant cost savings.

In her new job as accounting manager, Kimbell is on the budget committee for the Alpha Division. The Board has requested from the committee a post-audit review of the actual cost savings. While working on the review, Kimbell noted that several of the projections in the original proposal were very aggressive, including an unusually high salvage value and an excessively long useful life. If more realistic projections had been used, Kimbell doubts that the Board would have approved the investment.

When Kimbell expressed her concerns at the next meeting of Alpha's budget committee, she was told that it had been the unanimous decision of the committee to recommend the investment because it was thought to be in the best long-term interest of the company. According to the committee members, the post-audit report would not discuss these issues; the committee members believe that certain adjustments to the review are justified to ensure the success of the Alpha division and the company as a whole.

#### **REQUIRED:**

1. Using the categories outlined in IMA's Statement of Ethical Professional Practice, identify the standards that are specifically relevant to Kimbell's ethical conflict and explain why the identified standards are applicable to the situation.
2. According to IMA's Statement of Ethical Professional Practice, what specific actions should Kimbell take to resolve her ethical conflict?

### **Question 2.18 – Madison**

David Burns is the Manager of the Electrical Division of Madison Inc. The budget for the upcoming year has just been finalized and is summarized below.

<b><u>Budget Component</u></b>	<b><u>Amount</u></b>
Revenue	\$17,050,000
Direct labor (300,000 hours @ \$20/hr)	6,000,000
Employee benefits	2,400,000
Tools and equipment	1,800,000
Materials	2,000,000
Material procurement and handling	200,000
Overhead	<u>3,100,000</u>
Pretax profit	<u>\$1,550,000</u>

The budget meets the firm's general guideline of a pretax profit equal to 10% of cost. Various components of the budget can be described as follows:

- Direct labor represents the wage costs of employees (craft personnel, job site supervisors, engineers, etc.) who work on specific projects and are directly billable to customer projects. Madison charges this to customers based on the number of hours employees work on the project times the average wage per hour.
- Employee benefits include the cost to Madison of paid time off (vacations, holidays, and sickness), pensions, health and life insurance, and payroll taxes. This is charged to customers as a percent of direct labor.
- Tools and equipment includes the cost of small tools, larger equipment such as cranes, backhoes and generators, and the cost of vehicles including maintenance, fuel, insurance, etc. This is charged to customers as a percent of direct labor charged to the job.
- Materials include materials acquired by Madison for use on customer projects, the cost of which is passed directly on to the specific customers.
- Material procurement and handling represents the cost incurred by Madison to purchase, warehouse, and deliver materials (referenced in the above bullet point) to job sites. This is charged to customers as a percent of the material cost.
- Overhead includes the salary and benefit costs of employees not directly chargeable to projects (administrative and corporate staff as well as senior management) and other corporate expenses for facilities and supplies, most of which are relatively fixed. This is charged to customers as a percent of all other costs incurred on the project.

### **REQUIRED:**

1. David Burns received a call from Colby Architects asking for a price quote for a component of electrical work to be done on an office building project. Based on the detailed specifications, Burns estimated that the job would require 10,000 direct labor hours and materials costing \$200,000. He decided to develop a cost proposal for other cost elements based on the percentages inherent in the budget, including a pretax profit equal to 10% of cost. Determine the amount of the quote. Show your calculations.

2. Madison measures the performance of its managers, including Burns, based on their ability to achieve budget targets, focusing on pretax profit as a percent of billable cost for each project completed. Identify three advantages and three disadvantages of a performance measurement and incentive compensation system linked to the budget for a firm such as Madison.
3. Two weeks after submitting his bid, Burns received a call from Colby stating that if Madison could meet the lowest fixed cost bid of \$695,000, then it would be awarded the contract. Identify the factors that Burns should consider in deciding whether to accept the fixed price of \$695,000.
4. If Burns decides to accept the contract for the fixed price of \$695,000, identify two reasons that Burns can use to justify his decision. Explain your answer.

### **Question 2.19 – GRQ Company**

GRQ Company is a privately-held entity that refines a variety of natural raw materials used as primary inputs for the steel industry. The firm has done well over the last several years and most members of senior management have received bonuses well in excess of 60% of their base salaries. Also, both the CFO and the CEO have earned bonuses in excess of 100% of their base salaries. GRQ has projected this trend of successful earnings and bonuses to continue.

All-American Steel Company (AAS) has tendered a very generous offer to acquire GRQ. At the same time, several top GRQ executives who own over 40% of GRQ's stock, have learned that the primary supplier of their major raw material will not renew their contract at the end of the current fiscal year. GRQ has no other vendors available within the United States to competitively provide this raw material in the magnitude needed to support their continued record of profitable operations.

As part of the due diligence process, an analyst with AAS has asked John Spencer, controller of GRQ, if he knows of any material event that would impact earnings over the next several years. Spencer, who also participates in the bonus program, is aware that GRQ's primary supplier will no longer provide raw materials to the firm beyond the end of the current fiscal year. He spoke with Bob Green, the CFO of GRQ, telling him that while the profit projections for the remainder of the current year will match the earnings of prior years, it is obvious that projected earnings for the next year will be greatly reduced. Green informed Spencer that the executive committee had met and decided that only members of top management were to be made aware of the situation with their key supplier. Accordingly, Spencer should not inform AAS of the situation with the supplier.

### **REQUIRED:**

1. Referring to the specific standards outlined in IMA's Statement of Ethical Professional Practice, identify and discuss Spencer's ethical obligations.
2. According to IMA's Statement of Ethical Professional Practice, identify the steps that Spencer should take to resolve the dilemma.

## **Question 2.20 – CenturySound**

CenturySound, Inc. produces cutting edge high-end audio systems that are sold primarily through major retailers. Any production overruns are sold to discount retailers, under CenturySound's private label SoundDynamX. The discount retail segment appears very profitable because the basic operating budget assigns all fixed expenses to production for the major retailers, the only predictable market.

Several years ago, CenturySound implemented a 100% testing program. On average approximately 3% of production is found to be substandard and unacceptable. Of this 3% approximately 2/3 are reworked and the remaining 1/3 are scrapped. However, in a recent analysis of customer complaints, George Wilson, the Cost Accountant and Barry Ross, the Quality Control Engineer, have ascertained that normal rework does not bring the audio systems up to standard. Sampling shows that about 25% of the reworked audio systems will fail after extended operation within one year. Unfortunately, there is no way to determine which reworked audio systems will fail because testing will not detect this problem. CenturySound's marketing analyst has indicated that this problem will have a significant impact on the company's reputation and customer satisfaction if the problem is not corrected. Consequently, the Board of Directors would interpret this problem as having serious negative implications on the company's profitability. Wilson has included the audio system failure and rework problem in his written report that has been prepared for the upcoming quarterly meeting of the Board of Directors. Due to the potential adverse economic impact, Wilson has followed a long standing practice of highlighting this information. After reviewing the reports to be presented, the Plant Manager was upset and said to the Controller, "We can't trouble the Board with this kind of material. Tell Wilson to tone that down. People cannot expect their systems to last forever." The Controller called Wilson into his office and said, "George, you'll have to bury this one. The probable failure of reworks can be referred to briefly in the oral presentation, but it should not be mentioned or highlighted in the advance material mailed to the Board." Wilson feels strongly that the Board will be misinformed on a potentially serious loss of income if he follows the Controller's orders. Wilson discussed the problem with Ross, the Quality Control Engineer, who simply remarked, "That's your problem, George."

### **REQUIRED:**

1. Identify and discuss the ethical considerations that George Wilson should recognize in deciding how to precede in this matter. Support your answer by referring to the specific standards outlined in the IMA's Statement of Ethical Professional Practice.
2. According to the IMA's Statement of Ethical Professional Practice, what are the steps Wilson should take in order to resolve the situation?

### **Question 2.21 – Romco**

Alex Conrad, financial analyst for RomCo, is presenting two mutually exclusive capital budgeting project proposals to the management team. The preliminary results for the net present value (NPV) and internal rate of return (IRR) analyses of the two projects being discussed are as follows.

	<u>Initial Investment</u>	<u>NPV</u>	<u>IRR</u>
Project 1	\$822,800	\$0	12.00%
Project 2	\$300,000	\$49,469	17.65%

Project 1 is expected to have a positive after-tax cash flow of \$200,000 per year for six years after the initial investment, and Project 2 is expected to have a positive after-tax cash flow of \$85,000 for six years after the initial investment. During the meeting, Conrad was asked to explain several issues related to his analysis of the projects.

#### **REQUIRED:**

1. Because of volatility in the financial markets, the company's cost of equity may be higher than assumed in this analysis. This is important as RomCo is entirely equity financed.
  - a. What cost of equity was used in this analysis? Explain your answer.
  - b. Would an increase in the cost of equity affect the NPV and IRR of the projects, and thus the desirability of undertaking the projects? Explain your answer.
2. There is a possibility that the corporate income tax rate may be lowered in the near future. If this were to occur, how would this affect the NPV and IRR of the projects, and the desirability of investing in the projects?
3.
  - a. What is the payback period for each project? Show your calculations.
  - b. Identify and explain three weaknesses of using the payback period to decide on doing these projects.

**Question 2.22 – Kolobok**

Kolobok, Inc. produces premium ice cream in a variety of flavors. Over the past several years, the company has experienced rapid and continuous growth and is planning to increase manufacturing capacity by opening production facilities in new geographic areas. These initiatives have put pressure on management to better understand both their potential markets and associated costs. Kolobok’s management identified three aspects of their current operation that could affect the new market expansion decision: (1) a highly competitive ice cream market, (2) the company’s current marketing strategy, and (3) the company’s current cost structure.

Since the company began operations in 1990, Kolobok has used the mark-up approach for establishing prices for six-gallon containers of ice cream. The product prices include the cost of materials and labor, a markup for profit and overhead cost (a standard \$20), and a market adjustment. The market adjustment is used to appropriately position a variety of products in the market. The goal is to price the products in the middle of comparable ice creams offered by competitors while maintaining high quality and high differentiation. Sales for 2007 based on Kolobok’s mark-up pricing are presented below by product.

Product	Material & Labor	Markup	Market adjustment	Unit Price	Boxes sold	Total Materials & Labor	Total Sales
Vanilla	\$29.00	\$20.00	\$1.00	\$50.00	10,200	\$295,800	\$510,000
Chocolate	28.00	20.00	7.00	55.00	12,500	350,000	687,500
Caramel	26.00	20.00	2.00	48.00	12,900	335,400	619,200
Raspberry	27.00	20.00	2.00	49.00	13,600	367,200	666,400
Total					49,200	\$1,348,400	\$2,483,100

For the year 2007, Kolobok’s before-tax return on sales was 7%. The company’s overhead expenses were \$500,000, selling expenses \$250,000, administrative expenses \$180,000, and interest expenses were \$30,000. Kolobok’s marginal tax rate is 30%.

Kolobok is considering replacing mark-up pricing with target costing and has prepared the table below to better compare the methods. Kolobok tries to appeal to the top 30% of the retail sales customers, including restaurants and cafes. In positioning Kolobok’s products, three dimensions are considered: price, quality, and product differentiation. Accordingly, there are three main competitors in the market as follows.

- Competitor A – Low cost, low quality, high standardization
- Competitor B – Average cost, moderate quality, average differentiation
- Competitor C – High cost, high quality, high differentiation

<i>Product</i>	<i>Competitor A Pricing</i>	<i>Competitor B Pricing</i>	<i>Competitor C Pricing</i>	<i>Kolobok Target Prices</i>
Vanilla	\$49	\$55	\$55	\$53
Chocolate	50	53	56	53
Caramel			51	50
Raspberry		51	52	50

Kolobok has also been reviewing its purchasing, manufacturing, and distribution processes. Assuming that sales volumes will not be affected by the new target prices, the company believes that improvements will yield a \$125,000 decrease in labor expense and a 25% reduction in overhead expense.

**REQUIRED:**

1. Describe target costing.
2. Analyze and compare the two alternative pricing methods: mark-up pricing and target costing.
3. Assuming that the sales volumes will not be affected by the new product pricing based on target costing and that the process improvements will be implemented, calculate Kolobok’s before-tax return on sales using the proposed target prices.
4. Recommend which pricing method (mark-up or target) Kolobok should use in the future and explain why.

**Question 2.23 - Pursuit of Profit**

Firms employ different strategies in the pursuit of profit, with successful strategies often dictated by the type of industries and markets in which the firms operate. Listed below are selected entries from the financial reports of two firms (labeled “A” and “B”).

	<u>Firm A (in €millions)</u>		
<u>Income Statement Items</u>			<u>Balance Sheet Items</u>
Net sales	120		Assets 273
Cost of goods sold	48		Liabilities 200
Selling, general and administrative expenses	18		Shareholders’ equity 73
Depreciation	6		
Interest expense	23		
Taxes	8		

	<u>Firm B (in €millions)</u>		
<u>Income Statement Items</u>			<u>Balance Sheet Items</u>
Net sales	74		Assets 168
Cost of goods sold	25		Liabilities 84
Selling, general and administrative expenses	11		Shareholders’ equity 84
Depreciation	2		
Interest Expense	10		
Taxes	7		

The DuPont approach provides a useful way to compare the financial performance of firms.

**REQUIRED:**

1. What are two advantages of using the DuPont approach?

2. Calculate return on equity for both firms using the DuPont formula.
3.
  - a. Calculate each firm's debt to equity ratio.
  - b. Discuss how the use of leverage affects the financial risk of the firms.
4. Discuss why the use of higher levels of financial leverage may be appropriate for some firms, but too risky for others.
5. One firm uses a higher degree of financial leverage, and yet their return on equity is similar to that of the other firm. Discuss the other factors that impact return on equity with respect to Firms A and B.
6. Identify two limitations of financial ratio analysis.

### **Question 2.24 - Edmonds**

Edmonds Manufacturing is located in the northwest region of the U.S. The company is experiencing tremendous growth in demand for its products. Management has discussed the distribution channel as an impediment to the company's ability to keep up with growing demand. Manufacturing facilities have excess capacity to meet increasing orders, but the company will have difficulty getting the products to the customers. The supply chain distribution manager has suggested the company purchase a new building to expand the storage area near the distribution center. After some collaborative research by the accounting and finance departments, the company found that a new building will cost \$25,000,000. The new building will have an estimated useful life of ten years with no salvage value. Operating the new building will cost approximately \$1,000,000 per year but the new building will allow the company to increase sales significantly. Distribution managers believe the new building will increase productivity to allow for additional sales of 500,000 units each year. Marketing managers estimate the demand for the company's product will increase 750,000 units each year. The average contribution margin for the company's products is \$55. The company's effective income tax rate is 40%.

### **REQUIRED:**

1.
  - a. Define capital budgeting.
  - b. What two steps should Edmonds take in evaluating and implementing this project?
2. What are two qualitative factors Edmonds should consider before implementing this project?
3. Identify the relevant cash flows for the project on both a pretax and an after-tax basis. Show your calculations.
4.
  - a. Define Net Present Value (NPV).
  - b. Define Internal Rate of Return (IRR).
  - c. Identify one assumption of NPV and one assumption of IRR.
  - d. Discuss the decision criteria used in NPV and IRR to determine acceptable projects.
5. Explain one advantage and one disadvantage of IRR.



6. a. Define the payback method
- b. Identify and explain two disadvantages of the payback method.

**Question 2.25 - Vista**

Vista Ltd., a closely-held firm, is trying to determine a benchmark for its cost of equity. Comparable firms in the industry have a price/earnings ratio of 11, an average beta value of 1.05, a dividend payout ratio of 40% of earnings, and a projected growth rate of 10%. For the fiscal year just ended, Vista had earnings per share of \$3.00 and is expected to achieve the industry average growth rate in the coming year. Economic indicators show the risk-free rate is 5% and the return on the market is 15%.

**REQUIRED:**

1. Calculate Vista's cost of equity using the dividend growth model. Show your calculations.
2. Calculate Vista's cost of equity using the Capital Asset Pricing Model. Show your calculations.
3. Compare the dividend growth model to the Capital Asset Pricing Model, by identifying at least three characteristics of each.
4. Identify and discuss three factors that impact a firm's cost of equity.

### Question 2.26 – Atlas Express

Atlas Express, established thirty years ago, provides mailing and shipping services worldwide. The company has 50 office locations in the U.S. A recent economic recession and its lingering effects, accompanied by the acceptance and growth of major new technological platforms, has had a significant negative impact on the company's revenue as mail and shipping volume has fallen precipitously. Atlas anticipates that volume will decrease for the foreseeable future. During the past year, the company purchased new equipment worth \$41,800. Proceeds from sales of the old equipment were \$11,500 with a net gain of \$1,700. Below are the balance sheets as of December 31, 20X2 and as of December 31, 20X1, and the income statement for the year ended December 31, 20X2.

#### Balance Sheets

	<u>December 31, 20X2</u>	<u>December 31, 20X1</u>
Cash and cash equivalents	\$ 81,800	\$ 148,800
Receivables, net	87,900	104,100
Advances and prepayments	<u>15,400</u>	<u>12,000</u>
Total current assets	<u>185,100</u>	<u>264,900</u>
Buildings, equipment and land, net	<u>2,001,400</u>	<u>2,076,400</u>
Total assets	<u>\$ 2,186,500</u>	<u>\$ 2,341,300</u>
Compensation and benefits	915,300	360,000
Trade payables and accrued expenses	420,100	438,800
Deferred revenue-prepaid postage	386,800	349,700
Short-term portion of debt	<u>744,600</u>	<u>750,000</u>
Total current liabilities	<u>2,466,800</u>	<u>1,898,500</u>
Long-term debt	<u>2,260,100</u>	<u>2,336,800</u>
Total equity	<u>(2,540,400)</u>	<u>(1,894,000)</u>
Total liabilities and equity	<u>\$ 2,186,500</u>	<u>\$ 2,341,300</u>

#### Income Statement

	<u>Year ended December 31, 20X2</u>
Operating revenue	\$ 3,390,400
Compensation and benefits	3,234,500
Transportation	502,500
Depreciation and amortization	107,000
Other	184,700
Total operating expenses	<u>4,028,700</u>
Loss from operations	<u>(638,300)</u>
Interest expense	<u>(8,100)</u>
Net loss	<u>\$ (646,400)</u>

**REQUIRED:**

1. Use two financial ratios to analyze the liquidity of the company. Show your calculations and explain your analysis.
2. Recommend two ways to improve liquidity.
3. a. Define bankruptcy.  
b. Identify one advantage and one disadvantage of declaring bankruptcy.  
c. Do you recommend bankruptcy for Atlas? Explain your answer.

**Question 2.27 – Leather Manufacturer**

A company manufactures leather purses using a labor force for the process of hand cutting and sewing the leather. The company is considering changing the current manufacturing process by using a new machine capable of cutting the leather. Workers would then assemble the precut pieces into the finished product. The company anticipates selling 31,250 units at a selling price of \$80 each. The machine is available to lease at a cost of \$550,000 per year with a ten-year lease commitment. The lease is an operating lease. If the machine is not leased, the company will continue to utilize its current hand cutting process. The projected income statements for next year are shown below.

	<u>Lease Equipment</u>	<u>Continue Current Process</u>
Sales	\$2,500,000	\$2,500,000
Variable costs of goods sold	<u>950,000</u>	<u>1,500,000</u>
Contribution margin	1,550,000	1,000,000
Fixed costs	<u>1,200,000</u>	<u>650,000</u>
Operating income	<u>\$ 350,000</u>	<u>\$ 350,000</u>

With identical operating incomes for next year, the company is not sure if it should lease the equipment or continue with the current hand cutting process.

**REQUIRED:**

1.
  - a. Explain two ways the concept of operating leverage influences this decision.
  - b. Calculate the degree of operating leverage for each option.
2.
  - a. Calculate the expected increase in operating income for next year under each option assuming sales increase by 5% in each option.
  - b. If the company expects sales to increase 5% each year for the next ten years, which option should the company choose? Explain your answers.
3. Assume the company had the option to purchase the new equipment instead of lease. The purchase would be financed with debt. What differences would the financial statements show between purchasing the equipment and leasing the equipment?
4. Purchasing the equipment for \$6,000,000 would lead to an annual cash savings of approximately \$500,000.
  - a. Calculate the payback period.
  - b. Describe two disadvantages of using the payback period.

## Answer to Part 1 Practice Questions

### Answer: Question 1.1 – Coe Company

<u>1. Cumulative Number of Units</u>	<u>Cumulative Average Time/Unit</u>	<u>Cumulative Total Time</u>
1	500	500
2	$500 \times .9 = 450$	$450 \times 2 = 900$
4	$450 \times .9 = 405$	$405 \times 4 = 1620$

2.  $\$25 \times 500 \text{ hours} \times 4 \text{ units} = \$50,000$  with no learning curve  
 $\$25 \times 405 \times 4 \text{ units} = \$40,500$  with 90% learning curve  
 $\$50,000 - \$40,500 = \$9,500$  savings
3. a. Budgetary slack is the practice of underestimating budgeted revenues, or overestimating budgeted costs, to make budgeted targets more easily achievable.  
b. Budgetary slack misleads top management about the true profit potential of the company, which leads to inefficient resource planning and allocation as well as poor coordination of activities across different parts of the company.
4. a. 1.  $1,740 \times (25.00 - [44,805/1,740]) = 1,305\text{U}$   
2.  $25.00 \times (1,740 - [4 \times 500]) = 6,500\text{F}$   
b. Direct labor rate variance remains the same, but direct labor efficiency variance will become \$3000 negative, because actual hours 1740 is more than expected from 90% learning curve 1620.
5. A factor that could cause an unfavorable price variance and a favorable efficiency variance is using a higher-skilled labor force that would be paid more per hour but would work more quickly.
6. Direct labor efficiency variance would be even more unfavorable if an 80% learning curve was used. The lower number implies more benefit from learning.
7. For a new product, the company may have no way of forecasting the amount of improvement (if any) from savings. The company may set up a production method that is more efficient than prototype, but will not gain further efficiencies.

**Answer 1.2 – Law Services Inc.**

1. A flexible budget allows the attorneys to tell how much of their unfavorable variance is due to lower than planned billing hours and how much is due to performance issues such as the negotiated billed amount or variable expenses. A master budget is static and any variance must be analyzed further to determine its cause.
2. The flexible budget revenues are calculated by multiplying the actual billed hours by the budgeted amount per billed hour. Then the budgeted variable expense per billed hour is multiplied by the actual billed hours. The flexible budget variable expense is subtracted from the flexible budget revenue. The results are compared to the actual results from last year.
3.  $6,000 * 325 = 1,950,000$  static budget revenue  
 $5,700 * 275 = 1,567,500$  actual revenue  
 $1,950,000 - 1,567,500 = \$382,500$  unfavorable static budget revenue variance  
 $5,700 * 325 = 1,852,500$  flexible budget revenue  
 $1,852,500 - 1,567,500 = \$285,000$  flexible budget variance  
 $6,000 - 5,700 = 300$  hours unfavorable sales volume  
 $300 * 325 = \$97,500$  unfavorable sales volume variance
4.  $6,000 * 50 = 300,000$  static budget variable expense  
 $300,000 - 285,000 = \$15,000$  favorable variable expense variance  
 $5,700 * 50 = 285,000$  flexible budget variable expense  
 $285,000 - 285,000 = \$0$ , so the variance is a sales volume variance

**Answer: Question 1.3 – Inman Inc.**

1. a. 

Materials	\$400,000
Direct labor	100,000
Variable manufacturing overhead	20,000
Fixed manufacturing overhead	<u>200,000</u>
	$\$720,000/100,000 = \$7.20$
- b.  $10,000$  beginning inventory +  $100,000$  manufactured –  $106,000$  sold =  $4,000$  units in ending inventory;  $4,000 * \$7.20 = \$28,800$ .
- c. 

Sales ( $106,000 * \$12$ )		\$1,272,000
Cost of Goods Sold:		
Beginning inventory	\$ 72,000	
Cost of goods manufactured ( $100,000 * \$7.20$ )	720,000	
- Ending inventory	<u>(28,800)</u>	<u>763,200</u>
Gross profit		508,800
Less selling & administrative		
Variable costs	80,000	
Fixed costs	<u>300,000</u>	<u>380,000</u>
Income		\$ 128,800

2. a.	Materials	\$400,000	
	Direct labor	100,000	
	Variable manufacturing overhead	<u>20,000</u>	
			\$520,000/100,000 = \$5.20
b.	4,000 units x \$5.20 = \$20,800		
c.	Sales		\$1,272,000
	Less variable costs:		
	Manufacturing = \$5.20 x 106,000	\$551,200	
	Selling and administrative	<u>80,000</u>	<u>631,200</u>
	Contribution margin		640,800
	Less fixed costs:		
	Manufacturing	200,000	
	Selling and administrative	<u>300,000</u>	<u>500,000</u>
	Income		\$ 140,800

3. The difference in incomes is caused by the treatment of fixed manufacturing overhead. Absorption costing treats this cost as a product cost that is held in inventory until the goods are sold; variable costing treats fixed manufacturing overhead as a period cost, showing it as an expense immediately. Because inventory decreased, absorption costing would expense all of the current month's fixed manufacturing overhead as well as some of the costs that were previously deferred in the prior period's inventory; variable costing would only expense the current month's amount, resulting in a higher income.
4. a. The advantages of using absorption costing are:  
 It is required for external reporting.  
 It matches all manufacturing costs with revenues.
- b. The advantages of using variable costing are:  
 Data required for cost-volume-profit analysis can be taken directly from the statement.  
 The profit for a period is not affected by changes in inventories.  
 Unit product costs do not contain fixed costs that are often unitized, a practice that could result in poor decision-making.  
 The impact of fixed costs on profits is emphasized.  
 It is easier to estimate a product's profitability.  
 It ties in with cost control measures such as flexible budgets.
5. a. Top-down advantage: speed, control top-down disadvantage: little buy-in, top has less info  
 Bottom-up advantage: more likely to commit, disadvantage: may set easier targets
- b. Best: top-down, cost of products most important, want to focus on control
- c. Benchmark with outside examples, mutual learning about problems, balance scorecard methods of evaluation.

Answer: Question 1.4 – Smart Electronics

**1. Model M-11:**

**Overhead cost allocated (per unit):** [~~€80,000~~ / (650 + 150)] x 650 = ~~€65,000~~ 65000/1300=50  
**Gross margin per unit:** ~~€90-€10-€50=€30~~

**Model R-24:**

**Overhead cost allocated (per unit):** [~~€80,000~~ / (650 + 150)] x 150 = ~~€15,000~~  
 15,000/1500=10  
**Gross margin per unit:** ~~€60-€30-€10=€20~~

**2. Setups:** €20,000 / (3 + 7) = €2,000

**Components:** €50,000 / (17 + 33) = €1,000

**Material Movements:** €10,000/(15+35)= €200

**Model M-11:**

(€2,000 x 3) + (€1,000 x 170) + (€200\*15)= €26,000

**Overhead cost allocated by ABC (per unit):** €26,600/1300= €20.00

**Gross margin per unit:** ~~€90-€10-€20.00=€60.00~~

**Model R-24:**

(€2,000 x 7) + (€1000 x 33) + (€200x35)= €54,000

**Overhead cost allocated by ABC (per unit):** €54,000/1,500=€36.00

**Gross margin per unit:** ~~€60-€30-€36= -€6.00~~

3. Because the products do not all require the same proportionate shares of the overhead resources of setup hours and components, the ABC system provides different results than the traditional system. The traditional method use volume base allocation base which allocates overhead costs on the basis of direct labor hours. The ABC system considers important differences in overhead resource requirements by using multiple cost drivers and thus provides a better picture of the costs of each product model, provided that the activity measures are fairly estimated.

In the case of Smart Electronics, model R-24 uses more setups, components and material movements which might not be reflected in the labor hours. The following table shows the overhead allocated per unit and profit margin per unit under the current conventional costing system and ABC. As indicated, model R-24 was previously under-costed and model M-11 was over-costed.

Overhead Allocated per unit under the current costing system and ABC:

	Current costing system	ABC
Model M-11	€50	€20.00
Model R-24	€10	€36.00



Gross Margin per unit under the current costing system and ABC

	Current costing system	ABC
Model M-11	€30	€60.00
Model R-24	€20	-€6.00

Smart Electronics' management can use the information from the ABC system to make better pricing decisions. After allocating overhead by ABC, it gives a clear cost picture that model R-24 costs more to manufacture because it uses more setups, components and material movements. The current price of \$60 is inadequate in covering the total cost and results in negative gross margin. Therefore, the company might decide to increase the price of the model R-24. For model M-11, the previous overhead was overestimated given that it was allocated by labor hours. Under ABC, only €60.00 of the overhead was allocated to every unit of Model M-11. The management might reduce the price of model M-11 to make it more competitive.

4. Advantages: The ABC system better captures the resources needed for model M-11 and model R-24. It identifies all of the various activities undertaken when producing the products and recognizes that different products consume different amounts of activities. Hence, the ABC system generates more accurate product costs.

Limitations:

ABC requires continuously estimating cost drivers, updating and maintaining the system, which make the system relatively costly.

A complicated system is sometimes confusing to the top management

Estimation of cost of activities and selection of cost drivers sometime may cause estimation errors which could results in misleading cost information.

**Answer: Question 1.5 – Ace Contractors**

1. a. Four types of functional responsibilities that should be performed by different people
- Authority to execute transactions
  - Recording transactions
  - Custody of assets and
  - Periodic reconciliations
- b. Zhao could execute transactions by initiating a transfer and could record transactions by entering the Joint Venture that was erroneous.

2. Attempted controls

- The company had physical controls over their checks
- The president authorized and signed all checks
- The company maintained pre-numbered check stock.
- The company had a prepared budget to compare to actuals to identify variances

Ways to strengthen

- Restrict fund on-line transfer ability.
- Randomly select audit expense transactions on a periodic basis
- Separate the incompatible duties

3. a. Three internal control objectives

- Effectiveness and efficiency of operations - operations should be as efficient as possible
- Compliance with applicable laws and regulations - care should be taken to follow and be in compliance with all applicable laws and regulations
- Reliability of Financial reporting – financial data should be reliable and timely so that it can be useful for management decisions or outside users.

b. Identify and describe five components of internal control.

Control Environment – sets the tone of an organization, influencing the control consciousness of its people.

Risk Assessment – identify and analyze relevant risks as a basis for management

Control Activities – the policies and procedures that help ensure that management directives are carried out.

Information and Communication

Information – systems support the identification, capture, and exchange of information in a form and time frame that enable people to carry out their responsibilities.

Communication - providing an understanding to employees about their roles and responsibilities.

Monitoring – assesses the quality of internal control performance over time.

4. Describe three ways internal controls are designed to provide reasonable assurance.

- Segregation of duties – assigning different employees to perform functions
- Reconciliation of recorded accountability with assets
- Safeguarding controls – limit access to an organization’s assets to authorized personnel.

**Answers: Question 1.6 – Small Parts**

1. A good system of internal control is designed to provide reasonable assurance regarding achievement of an entity’s objectives involving effectiveness and efficiency of operations, reliability of financial reporting, and compliance with applicable laws and regulations.

2. Segregation of duties requires that no one person have control over the physical custody of an asset and the accounting for it. There is no evidence to suggest Smallparts makes any effort to account for the value of returned product, which may indeed be significant. The one salesperson seems to be in charge of all aspects related to returned product, including authorizing the returns, crediting the customers, receiving the returns, handling the physical custody, finding new customers, concluding sales, shipping, billing, and collecting. Most of these rules should be separated.
3. A good system of internal control suggests that four functional responsibilities be separated, and handled by different individuals: (i) authority to execute transactions, (ii) recording transactions, (iii) custody of assets involved in the transactions, and (iv) periodic reconciliations of the existing assets to recorded amounts. Smallparts might improve its control over the inventory of returned product by separating these responsibilities among four different individuals.
4. Separate responsibilities and duties. While the salesman may be assigned to work with customers who return products, and find other customers for these products, other staff should post credits to customer accounts following written policy. The products should be received, inventoried, booked and shipped just like regular products.

**Answer: Question 1.7 – Michael Hanson**

1.
  - a. The objective of a compliance audit is to see how financial controls, operating controls conform with established laws, standards, and procedures.
  - b. The objective of an operational audit is to appraise the efficiency and economy of operations, and the effectiveness with which those functions achieve their objectives.
2.
  - a. Transaction processing controls include: passwords to limit access to input or change data, segregation of duties to safeguard assets, control totals to ensure data accuracy.
  - b. Virus protection controls include: ensuring that latest edition of anti-virus software is installed and updated, firewalls set up to deter incoming risks, limit internet access to business-related purposes to reduce chances of viruses.
  - c. Backup controls include identification of vital systems to be backup regularly, development of disaster recover plan, testing of backup communications and resources
3. A sound disaster recovery plan contains the following components:
  - Establish priorities for recovery process
  - Identification of software and hardware needed for critical processes
  - Identify all data files and program files required for recovery
  - Store files in off-site storage
  - Identify who has responsibility for various activities, which activities are needed first
  - Set up and check arrangements for backup facilities
  - Test and review recovery plan

4. a. Bank deposits not always correspond with cash receipts. Cause: cash received after bank deposits. Action: have a separate individual reconcile incoming cash receipts to bank deposits.
- b. Physical inventory counts sometimes differ from perpetual inventory record, and sometimes there have been alterations to physical counts and perpetual records. Cause: timing differences. Actions: limit access to physical inventory, require and document specific approvals for adjustments to records,
- c. Unexpected and unexplained decrease in gross profit percentage. Causes: unauthorized discounts or credits provided to customers. Actions: establish policies for discounts credits, document approvals.

**Answer: Question 1.8 - Brawn Technology, Inc.**

1. The two fundamental types of internal audits are operational audits and compliance audits.

An operational audit is a comprehensive review of the varied functions within an enterprise to appraise the efficiency and economy of operations and the effectiveness with which those functions achieve their objective. An example would be an audit to assess productivity. Other examples could include an evaluation of processes to reduce rework, or reduce the time required to process paperwork or goods.

A compliance audit is the review of both financial and operating controls to see how they conform to established laws, standards, regulations, and procedures. An environmental audit would be an example of a compliance audit. Other examples of compliance audits could include the review of controls over industrial wastes or the review of procedures ensuring that proper disclosure is made regarding hazardous materials on site.

2. a. A compliance audit would best fit the requirements of the president of Brawn.
  - b. The objective of this compliance audit is to assure the president that the manufacturing facility has appropriate policies and procedures in place for obtaining the needed permits, has obtained all the required permits in accordance with the law, and that environmental and safety issues are being properly addressed.
  - c. The assignment specifically is to address the proper use of permits, compliance with safety regulations, and compliance with environmental standards. These issues can only be properly addressed by conducting a compliance audit. Although financial and operational areas might be involved, they would be secondary to the compliance issues. For example, a financial impact could result from the evaluation of compliance with safety regulations. The findings might result in additional expenditures for safety precautions or a reduction in the company's risk of being fined for lack of compliance.
3. To mitigate the president's concern, the following activities and procedures could be implemented.
    - Set the tone at the top. The president should communicate to all employees that the company expects appropriate business practices on the part of all employees in all divisions.

- Ensure that all employees have the necessary information to perform their duties. Keep the lines of communication open. For example, involve senior managers from the manufacturing facility in monthly operational meetings for the whole company.
- Conduct regularly scheduled audits of compliance with applicable laws, regulations, and standards.
- Periodically review and update policies, rules, and procedures to ensure that internal controls prevent or help to detect material risks. Make sure all employees have access to the relevant policies and procedures. For example, post the policies and procedures on the company's intranet.

**Answer: Question 1.9 – Thompson**

1. The positive and negative behavioral implications arising from employing a negotiated transfer price system for goods exchanged between divisions include the following:

Positive

- Both the buying and selling divisions have participated in the negotiations and are likely to believe they have agreed on the best deal possible
- Negotiating and determining transfer prices will enhance the autonomy/ independence of both divisions.

Negative

- The result of a negotiated transfer price between divisions may not be optimal for the firm as a whole and therefore will not be goal congruent.
- The negotiating process may cause harsh feelings and conflicts between divisions.

2. The behavioral problems which can arise from using actual full (absorption) manufacturing costs as a transfer price include the following:

- a. Full-cost transfer pricing is not suitable for a decentralized structure when the autonomous divisions are measured on profitability as the selling unit is unable to realize a profit.
- b. This method can lead to decisions that are not goal congruent if the buying unit decides to buy outside at a price less than the full cost of the selling unit. If the selling unit is not operating at full capacity, it should reduce the transfer price to the market price if this would allow the recovery of variable costs plus a portion of the fixed costs. This price reduction would optimize overall company performance.

3. The behavioral problems that could arise, if Thompson Corporation decides to change its transfer pricing policy to one that would apply uniformly to all divisions, including the following:

- A change in policy may be interpreted by the divisional managers as an attempt to decrease their freedom to make decisions and reduce their autonomy. This perception could lead to reduced motivation.
- If managers lose control of transfer prices and, thus, some control over profitability they will be unwilling to accept the change to uniform prices.

- Selling divisions will be motivated to sell outside if the transfer price is lower than market as this behavior is likely to increase profitability and bonuses.

4. The likely behavior of both “buying” and “selling” divisional managers, for each of the following transfer pricing methods being considered by Thompson Corporation include the following:

a. Standard full manufacturing costs plus a markup

The selling division will be motivated to control costs because any costs over standard cannot be passed on to the buying division and will reduce the profit of the selling division.

The buying division may be pleased with this transfer price if the market price is higher.

However, if the market price is lower and the buying divisions are forced to take the transfer price, the managers of the buying division will be unhappy.

b. Market selling price of the product being transferred

This creates a fair and equal chance for the buying and selling divisions to make the most profit they can. It should promote cost control, motivate divisional management, and optimize overall company performance. Since both parties are aware of the market price, there will be no distrust between the parties, and both should be willing to enter into the transaction.

c. Outlay (out-of-pocket) costs incurred to the point of transfer, plus opportunity costs per unit.

This method is the same as market price when there is an established market price and the seller is at full capacity. At any level below full capacity, the transfer price is the outlay cost only (as there is no opportunity cost), which would approximate the variable costs of the goods being transferred.

Both buyers and sellers should be willing to transfer under this method because the price is the best either party should be able to realize for the product under the circumstances. This method should promote overall goal congruence, motivate managers, and optimize overall company profits.

**Answer: Question 1.10 - Biscayne Industries**

1. Benefits of using a flexible budget are:
  - a. As a planning tool, the flexible budget allows management to estimate income at more than one level of output. This aids in allocating resources and allowing management to plan for sufficient resources to meet its needs.
  - b. As an evaluation tool, actual results are compared with standard costs for actual output. This provides for a fairer comparison and allows for variance computations to better assess performance.
  - c. Make better use of historical budget information to improve future planning.
  - d. As an evaluation tool, comparing actual results to the flexible budget will not hide poor performance. If output is less than budgeted, comparing actual costs for a lower number of units with master-budgeted costs for a greater number of units will most likely yield favorable variances even though cost inefficiencies may have existed.

2. Sales	\$55,000,000
Cost of goods sold:	
Variable costs ( $55,000,000/50,000,000 = 10\%$ increase;	
$30,000,000 - 20,000,000 = 10,000,000$ original VC;	
$10,000,000 * (1+10\%)$	11,000,000
Fixed costs	<u>20,000,000</u>
Gross profit	\$24,000,000
Selling and administrative costs	<u>12,000,000</u>
Operating income	<u><u>\$12,000,000</u></u>

3. Three reasons sales increased but income decreased are:
  - a. Fixed costs increased. Increased output could have moved the company outside of its relevant range, causing fixed costs to be higher than budgeted. Increased sales could have been the result of more advertising dollars spent than originally planned.
  - b. The sales price was lowered, resulting in higher total sales but a lower contribution margin per unit. Income decreased because the total increase in sales was not of sufficient volume to be greater than the total increase in variable costs.
  - c. The income statement was prepared using absorption costing. Inventory could have decreased throughout the year, causing fixed manufacturing overhead held in beginning inventory to be expensed during the current year.
  - d. The product mix changed. More units of the low contribution margin products and fewer units of the high contribution margin products were sold than planned.
4. Zero based budgeting: Preparing a budget from the ground up, as though the budget were being prepared for the first time. Alternative means of conducting activities and alternative budget amounts are evaluated. Also, all expenses are justified and fully explained. Every line of item must be approved.

**Answer: Question 1.11 – Brown Printing**

1. Absorption costing (also called full costing) includes fixed manufacturing overhead cost in the cost of inventory. This method is required by GAAP and has been prepared using the traditional external reporting format (gross margin format). Under this method, the fixed manufacturing overhead was treated as a product cost. Only the portion of fixed manufacturing overhead assigned to the sold units was expensed in the current period.

Variable costing includes only variable costs (direct labor, direct material, variable manufacturing cost) in the cost of inventory. Fixed manufacturing overhead is included in the income statement as a period cost.

2. a. Direct materials \$15 + Direct labor \$6 + Variable manufacturing overhead \$4 = Unit Cost of Goods sold \$25.

b.

Sales	\$900,000
Variable cost of goods sold (\$25 x 10,000 units)	250,000
Variable selling	30,000
Contribution margin	620,000
Fixed manufacturing overhead	240,000
Administrative expenses	<u>160,000</u>
Net income	<u>\$220,000</u>

3. a. The unit cost of goods sold is calculated as follows:  
Direct materials + Direct labor + Variable manufacturing overhead + Fixed manufacturing overhead = \$15 + 6 + 4 + (\$240,000/15,000 books) = \$15 + 6 + 4 + \$16 = \$41.

b.

Sales revenue	\$900,000
Cost of goods sold	<u>410,000</u>
Gross margin	490,000
Selling expenses	30,000
Administrative expenses	<u>160,000</u>
Net income	<u>\$300,000</u>

4. a. Advantages of variable costing
- It makes better sense to expense fixed manufacturing overhead since it will be incurred each period regardless of the number of units sold or produced.
  - No incentive to overproduce inventory because profit is strictly a function of sales volume (not production volume).
  - Better for internal decision making since this method breaks costs out into variable and fixed components.
  - Contribution format supports cost-volume-profit analysis and other short-run decision making.



- b. Limitations of absorption costing
- The fixed manufacturing overhead assigned to the unsold units has been absorbed on the balance sheet as part of the inventory cost.
  - Any difference between the number of units produced and the number of units sold will change the results.
  - This method can lead to managers overproducing inventory to obtain better financial results.
  - This method is not useful for internal decision making since it does not break out variable and fixed costs to support cost-volume-profit analysis.
5. The \$80,000 difference in net income under the two methods represents the value of the fixed manufacturing overhead included ending inventory. 5,000 more books were produced than sold. The fixed manufacturing overhead at \$16 per unit means  $\$16 * 5,000 = \$80,000$  more is included in ending inventory under absorption. Under variable, this \$80,000 is expensed, reducing net income.
6. Throughput costing is known as an extreme version of variable costing. It is also known as super-variable costing. Under throughput costing, direct material is the only inventoriable cost. Direct labor and variable manufacturing overhead are treated as period costs. Fixed manufacturing overhead is treated as a period cost, the same as under variable costing.

**Answer: Question 1.12 - TruJeans**

1. The sales staff has not presented the controller with a unique expected level of sales, but rather sales numbers under various scenarios. The controller could use the expected sales in the budget, which is the summation of the anticipated sales under each scenario times the probability of that scenario. The controller would need to estimate the probability of each scenario in order to complete the task.
2. Under direct costing, fixed manufacturing costs are expensed rather than being added to the inventoriable cost of each unit. Thus, it is not necessary to determine the allocation of fixed costs to individual units.
3. At first glance, job order costing appears to make more sense, as each pair of jeans is literally unique, given that the buyer's name is stitched on the back pocket. However, in reality, process costing should be used, because jeans will be produced continually, and for cost purposes, will be same for each pair.

**Answer: Question 1.13 – Sonimad Sawmill**

1. a. Relative sales value method at split-off

<u>Product</u>	<u>Monthly Output</u>	<u>Sales Price</u>	<u>Split-off Value</u>	<u>% of Sales</u>	<u>Allocated Costs</u>
Studs	75,000	\$ 8	\$ 600,000	46.15%	\$ 461,539
Decorative pieces	5,000	60	300,000	23.08%	230,769
Posts	20,000	20	<u>400,000</u>	<u>30.77%</u>	<u>307,692</u>
Totals			<u>\$1,300,000</u>	<u>100.00%</u>	<u>\$1,000,000</u>

b. Physical output (volume) method at split-off

<u>Product</u>	<u>Monthly Output</u>	<u>% of Output</u>	<u>Allocated Costs</u>
Studs	75,000	75.00%	\$ 750,000
Decorative pieces	5,000	5.00%	50,000
Posts	<u>20,000</u>	<u>20.00%</u>	<u>200,000</u>
Totals	<u>100,000</u>	<u>100.00%</u>	<u>\$1,000,000</u>

c. Estimated net realizable value method

<u>Product</u>	<u>Monthly Output</u>	<u>Sales Price</u>	<u>Net Value</u>	<u>% of Net Value</u>	<u>Allocated Costs</u>
Studs	75,000	\$ 8	\$ 600,000	44.44%	\$ 444,445
Decorative pieces	4,500 <sup>1</sup>	100	350,000 <sup>2</sup>	25.93%	259,259
Posts	20,000	20	<u>400,000</u>	<u>29.63%</u>	<u>296,296</u>
Totals			<u>\$1,350,000</u>	<u>100.00%</u>	<u>\$1,000,000</u>

Notes:

(1) 5,000 monthly units of output – 10% normal spoilage = 4,500 good units

(2) 4,500 good units x \$100 = \$450,000 – further processing costs of \$100,000 = \$350,000

2. Presented below is an analysis for Sonimad Sawmill comparing the processing of decorative pieces further versus selling the rough-cut product immediately at split-off.. Based on this analysis, it is recommended that Sonimad further process the decorative pieces as this action results in an additional contribution of \$50,000.

	<u>Units</u>	<u>Dollars</u>
Monthly unit output	5,000	
Less normal further processing shrinkage	<u>500</u>	
Units available for sale	<u>4,500</u>	
Final sales value (4,500 units @\$100 each)		\$450,000
Less sales value at split-off		<u>300,000</u>
Differential revenue		150,000
Less further processing costs		<u>100,000</u>
Additional contribution from further processing		<u>\$ 50,000</u>

**Answer: Question 1.14 - Lawton Industries**

1. a. Average investment in operating assets employed:

Balance end of current year	\$12,600,000
Balance end of previous year*	<u>12,000,000</u>
Total	<u>\$24,600,000</u>

Average operating assets employed\*\* \$12,300,000

\*\$12,600,000 ÷ 1.05

\*\*\$24,600,000 ÷ 2

ROI = Income from operations ÷ Average operating assets employed  
 = \$2,460,000 ÷ \$12,300,000  
 = .20 or 20%

- b. Residual Income:

Income from operations	\$2,460,000
Minimum return on assets employed*	1,845,000
Residual income	\$ 615,000

\*\$12,300,000 x .15

2. Yes, Presser's management probably would have accepted the investment if residual income were used. The investment opportunity would have lowered Presser's ROI because the expected return (18%) was lower than the division's historical returns as well as its actual ROI (20%) for the year just ended. Management rejected the investment because bonuses are based in part on the performance measure of ROI. If residual income were used as a performance measure (and as a basis for bonuses), management would accept any and all investments that would increase residual including the investment opportunity rejected in the year just ended.

3. Presser must control all items related to profit (revenues and expenses) and investment if it is to be evaluated fairly as an investment center by either the ROI or residual income performance measures. Presser must control all elements of the business except the cost of invested capital, that being controlled by Lawton Industries.

**Answer: Question 1.15 Standard Lock**

1. 1) Crosby, the owner is taking a hands-off approach. He is hardly around to check on the business; 2) the two managers Smith and Fletcher have too much control without any independent checks on them; 3) hiring policies to hire the right kind of employees are lacking; Crosby does not screen the job applicants; he did not check any background references for Smith and Fletcher; 4) proper internal controls such as segregation of duties, authorizations, independent checks are not in place. Fletcher places purchase orders, and also receives materials. Crosby is in charge of collecting the payments, maintaining records, reconciling the bank accounts, preparing and signing checks, and approving payments. Lack of basic internal controls seems to have opened the door for employees to commit fraud.
2. Proper internal controls must be in place so that opportunities to commit, and/or conceal fraud are eliminated. In this case, the internal controls needed are: 1) segregation of duties; 2) system of authorizations; 3) independent checks; and 4) proper documentation. No one department or individual should handle all aspects of a transaction from beginning to end. No one person should perform more than one functions recording transactions, and reconciling bank accounts (as done by Crosby in this case). In a similar manner, Fletcher should not authorize purchases, receive inventory and issue materials for production. The company should also separate the duties of preparing and signing checks, especially because the same person has the authority to approve payment.

There is a failure to enforce authorization controls. Crosby should authorize purchases and approve payments. He might consider hiring another person so that the two tasks, record keeping and bank reconciliation can be separated.

In addition to that, the company must have better hiring policies in place, they may require vacations, conduct internal audits and have good oversight of employees.

Require vacations, conduct internal audits, owner/board oversight.

3. Even the best internal controls do not guarantee that fraud will be eliminated. These controls provide reasonable, not absolute, assurance against fraud. Internal controls are not fraud-proof, internal controls never provide absolute insurance that fraud will be prevented. Effectiveness depends on competency and dependability of people enforcing the controls.

**Answer: Question 1.16 – SieCo**

1. SieCo is currently using a plant-wide overhead rate that is applied on the basis of direct labor costs. In general, a plant-wide manufacturing overhead rate is acceptable only if a similar relationship between overhead and direct labor exists in all department, or the company manufactures products which receive proportional services from each department.

In most cases, departmental overhead rates are preferable to plant-wide overhead rates because plant-wide overhead rates do not provide

- a framework for reviewing overhead costs on a departmental basis, identifying departmental cost overruns, or taking corrective action to improve departmental cost control.
  - sufficient information about product profitability, thus, increasing the difficulties associated with management decision-making.
2. In order to improve the allocation of overhead costs in the Cutting and Grinding Departments, SieCo should
    - establish separate overhead accounts and rates for each of these departments.
    - select an application basis for each of these departments that best reflects the relationship of the departmental activity to the overhead costs incurred, i.e., machine hours, direct labor hours, etc.
    - identify, if possible, fixed and variable overhead costs and establish fixed and variable overhead rates for each department.
  3. In order to accommodate the automation of the Drilling Department in its overhead accounting system, SieCo should
    - establish separate overhead accounts and rates for the Drilling Department.
    - identify, if possible, fixed and variable overhead costs and establish fixed and variable overhead rates.
    - apply overhead costs to the Drilling Department on the basis of robot or machine hours.
  4. Because SieCo uses a plant-wide overhead rate applied on the basis of direct labor costs, the elimination of direct labor in the Drilling Department through the introduction of robots may appear to reduce the overhead cost of the Drilling Department to zero. However, this change will not reduce fixed manufacturing expenses such as depreciation, plant supervision, etc. In reality, the use of robots is likely to increase fixed expenses because of increased depreciation expense. Under SieCo's current method of allocating overhead costs, these costs will merely be absorbed by the remaining departments.

**Answer: Question 1.17 – Giga**

1. a. \$200 million depreciated over 10 years, straight line = \$20 million annual depreciation. Increases depreciation expense by \$20 million. The purchase will decrease Cash and increase Gross Fixed Assets by \$200 million. The depreciation expense will increase Accumulated Depreciation, and decrease Net Fixed Assets by \$20 million.
  - b. Long term debt increases by \$75 million. Cash, which is part of Current Assets, will also increase by \$75 million. The annual interest expense is \$75 million x 10% = \$7.5 million.
  - c. Increases Preferred Stock, part of Equity, by \$25 million. Cash, part of Current Assets, will increase by \$25 million. The preferred dividend will increase by \$25 million x 14% = \$3.5 million.
  - d. Common stock, part of Equity, will increase by \$2 par x 4 million = \$8 million. Common stock premium, part of Equity, will increase by \$23 x 4 million = \$92 million. Cash, part of Current Assets, will increase by \$25 x 4 million = \$100 million.
  - e. Revenues increase by \$60 million, operating expenses increase by \$30 million, Cash increases by \$30 million.
2. The revised forecast is as follows.

**Balance Sheet (Thousands of dollars)**

	<u>Original</u>	<u>Changes</u>	<u>Revised</u>
Current Assets	100,000	16,000	116,000
Fixed Assets	750,000	200,000	950,000
Accumulated Depreciation	200,000	20,000	220,000
Net Fixed Assets	550,000	180,000	730,000
 TOTAL ASSETS	 650,000	 196,000	 846,000
Current Liabilities	50,000	0	50,000
Long-Term Debt	150,000	75,000	225,000
Stockholders' Equity			
Preferred Stock	50,000	25,000	75,000
Common - Par	100,000	8,000	108,000
Common Premium	200,000	92,000	292,000
Retained Earnings	100,000	(4,000)	96,000
	450,000	121,000	571,000
 TOTAL LIABILITIES & EQUITY	 650,000	 196,000	 846,000

**Income Statement (thousands of dollars)**

	<u>Original</u>	<u>Changes</u>	<u>Revised</u>
Revenue	2,000,000	60,000	2,060,000
Depreciation Expense	50,000	20,000	70,000
Other Expenses	1,775,000	30,000	1,805,000
Earnings Before Interest & Taxes	175,000	10,000	185,000
Interest	15,000	7,500	22,500
Taxes (40% effective rate)	64,000	1,000	65,000
Net Income	96,000	1,500	97,500
Preferred Stock Dividends	5,000	3,500	8,500
Earnings for Common Stock	91,000	(2,000)	89,000

**Answer: Question 1.18 - Borealis Industries**

1. According to the revenue recognition principle in SFAC No. 5, revenue should be recognized (1) when it is realized or realizable and (2) when it is earned.

Realized: when goods or services are exchanged for cash or claims to cash.

Realizable: when assets received for goods or services are readily convertible to known amounts of cash or claims to cash.

Earned: when the seller has substantially completed what it must do to be entitled to the benefits represented by the revenues.

2.
  - a. Percentage-of-completion method: Recognizes revenues, costs, and gross profit as a company makes progress toward completion of a long-term contract. Deferring recognition until the completion of the contract would misrepresent the efforts and accomplishments of the accounting periods during the contract. Generally, progress is measured on a cost-to-cost basis where a company measures the percentage of completion by comparing costs incurred to date with the most recent estimate of the total costs required to complete the contract. To use this method, the following conditions should exist: (1) a firm contract price with a high probability of collection, (2) a reasonably accurate estimate of costs, and (3) a way to reasonably estimate the extent of progress to completion of the project.
  - b. Installment-sales method: Recognizes income in the period of collection rather than in the period of sale. The underlying rationale of this method is that when there is no reasonable approach for estimating the degree of collectability of the sales price, companies should not recognize income until cash is received. Using the installment-sales method, both revenue and costs are recognized in the period of sale but the gross profit related to those periods is deferred until cash is collected.

3. a.

<i>Sandstone Books:</i>	Sales	\$15,000,000
	Less returns @20%*	<u>3,000,000</u>
	Recognized revenue	<u>\$12,000,000</u>

\*Although up to 25% of sales can be returned, prior experience indicates that 20% of sales is the expected average amount of returns. The 19% returns on the initial portion of current sales confirms that 20% of sales will provide a reasonable estimate.

b.

<i>Corus Games:</i>	Sales invoiced	\$ 9,180,000
	Total sales to be invoiced	\$10,800,000*
	= Completion rate	<u>85%</u>
	Total down payments	\$1,200,000
	x Completion rate	<u>.85</u>
	Down payments recognized	<u>\$1,020,000</u>
	Sales invoiced	\$ 9,180,000
	Down payments	<u>1,020,000</u>
	Recognized revenue	<u>\$10,200,000</u>

\*Orders less down payments (\$12,000,000 - \$1,200,000)

Warranty expense does not generally reduce the revenue recognized, particularly when there is experience on which to estimate the expense. The warranty expense should be accrued at the time of sale. Similarly, commissions are part of the cost of sales and should be expensed at the time of sale.



c. **Answer: Question 1.19 - Bellaton**

1.		Flexible Budget	
Units Sold	€ 18,000		
Revenues	1,530,000	=18,000×(1,360,000/16,000)=18,000×85	
Variable Costs			
Direct Material	(756,000)	=18,000×(672,000/16,000)=18,000×42	
Direct Labor	(270,000)	=18,000×(240,000/16,000)=18,000×15	
Var. Overhead	<u>(144,000)</u>	=18,000×(128,000/16,000)=18,000×8	
Cont. margin	360,000		
Fixed costs	<u>(215,000)</u>		
Operating Income	<u>€ 145,000</u>		

2. a.		Actual	Flexible	
	Results	Budget		Variances
Units Sold	€ 18,000	€ 18,000		0
Revenues	1,512,000	1,530,000		(18,000)
Variable Costs				
Direct Material	(792,000)	(756,000)		(36,000)
Direct Labor	(252,000)	(270,000)		18,000
Var. Overhead	<u>(144,000)</u>	<u>(144,000)</u>		<u>0</u>
Cont. margin	324,000	360,000		(36,000)
Fixed costs	<u>(210,000)</u>	<u>(215,000)</u>		<u>5,000</u>
Operating Income	<u>€ 114,000</u>	<u>€ 145,000</u>		<u>(31,000)</u>

- b. Revenues: unit price < €85  
 Direct Material: unit purchase price > €42  
 Direct Labor: labor rate < €15  
 Fixed costs: actual fixed costs lower than expected

3. a. Budgets promote coordination and communication among subunits within the company. They provide a framework for judging performance and they motivate managers and other employees.
- b. Budgets can be time consuming, require everyone's participation, and require adaptability to changing circumstances.

4. a. A responsibility center is a part, segment, or subunit of an organization whose manager is accountable for a specified set of activities. The types of responsibilities centers include:
  - Cost center – manager responsible for costs only
  - Revenue center – manager is accountable for revenues only
  - Profit center – manager is accountable for revenues and costs
  - Investment center – manager is accountable for investments, revenues, and costs
- b. The types of responsibility centers in the example include marketing and facilities departments which are cost centers and the sales operations team which is a revenue center.
5. Sales-volume variance is the difference between flexible budget units and the static budget units multiplied by the budgeted unit contribution margin.  
Sales-price variance is the difference between actual price and budgeted price multiplied by the actual quantity of input.

**Answer: Question 1.20- Ecoclock**

1. Center D would be charged for the variable cost of the units, plus a portion of the fixed costs equal to the total costs divided by the number of units produced:  

$$\$6 + \$150,000 / 22,500 = \$12.67$$
2. Using a “practical capacity” method, Center A’s fixed costs would be allocated based not on the number of units produced, but rather on the number of units that it is capable of producing (40,000).  

$$\$6 + \$150,000 / 40,000 = \$9.75$$
3. A 2,500 unit reduction in the number of units produced by Center B, would increase the per-unit allocation of fixed costs.  
 Per unit cost based on production of 22,500 units:  

$$\$6 + \$150,000 / 22,500 = \$12.67$$
  
  
 Per unit cost based on production of 20,000 units:  

$$\$6 + \$150,000 / 20,000 = \$13.50$$
  
  
 Thus C’s units costs would increase by \$0.83
4. a. Unused central capacity could be not allocated to operating centers, but to some centralized expense. Management could be evaluated by other measures, diluting the over capacity.
- b. Other evaluation measures could include quality, measured by customer satisfaction, or reductions in returns, warranty claims; financial, measured by reductions in variable costs, increases in sales; innovations; measured by new product features, or manufacturing improvements.

## Answer: Question 1.21 - Edge

1. a. Transfer pricing is the price one subunit department or division charges for a product or service supplied to another subunit of the same organization.
  - b. The objectives of transfer pricing are to focus managers' attention on their own subunits and to plan and coordinate actions across different subunits to maximize operating income for the company as a whole. Transfer prices should help achieve a company's strategies and goals and fit its organizational structure. They should promote goal congruence and a sustained high level of management effort. The transfer price should also help top management evaluate the performance of individual subunits and their managers.
2. a. The three main ways to determine transfer prices are as follows:
    - Market based transfer prices – top management may choose to use the price of a similar product or service publicly listed, for example in a trade association web site. Also, top management may select, for the internal price, the external price that a subunit charges to outside customers.
    - Cost based transfer prices – top management may choose a transfer price based on the cost of producing the product in question. Examples include variable production cost, variable and fixed production costs, and full cost of the product. Full cost of the product includes all production costs plus costs from other business functions (R&D, design, marketing, distribution, and customer service). The cost used in cost based transfer prices can be actual cost or budgeted cost. Sometimes, the cost-based transfer price includes a markup or profit margin that represents a return on subunit investment.
    - Negotiated transfer prices. In some cases, the subunits of a company are free to negotiate the transfer price between themselves and then to decide whether to buy and sell internally or deal with external parties. Subunits may use information about costs and market prices in these negotiations, but there is no requirement that the chosen transfer price bear any specific relationship to either cost or market price data. Negotiated transfer prices are often employed when market prices are volatile and change constantly. The negotiated transfer price is the outcome of a bargaining process between selling and buying subunits.
  - b. The advantages and disadvantages to each method are as follows.

Market based transfer prices generally lead to optimal decisions when three conditions are satisfied. The market for intermediate product is perfectly competitive, interdependencies of subunits are minimal and there are no additional costs or benefits to the company as a whole from buying or selling in the external market instead of transaction internally.

    - Achieves goal congruence when markets are competitive
    - Is useful for evaluation subunit performance when markets are competitive.
    - Motivates management effort
    - preserves subunit autonomy when markets are competitive.
    - However, market may or may not exist, or markets may be imperfect or in distress.

Cost based transfer prices are helpful when market prices are unavailable, inappropriate, or too costly to obtain – for example, when the product is specialized or when the internal product is different from the products available externally in terms of quality and customer service.

    - It often but not always achieves goal congruence.

- It is difficult unless transfer prices exceeds full cost and even then is somewhat arbitrary for evaluating subunit performance.
- It motivates management effort when based on budgeted costs, less incentive to control costs if transfers are based on actual costs.
- Does not preserve subunit autonomy because it is rule based
- It is useful for determining full cost of products and services and it is easy to implement

Negotiated transfer prices result from a bargaining process and preserves division autonomy because the transfer price is the outcome of negotiations. Each division manager is motivated to put forth effort to increase division operating income but has a disadvantage of the time and energy spent on the negotiation.

- Achieves goal congruence
- It is useful for evaluating subunit performance but transfer prices are affected by bargaining strengths of the buying and selling divisions.
- It motivates management effort
- It preserves subunit autonomy because it is based on negotiations between subunits
- Bargains and negotiations take time and may need to be reviewed repeatedly as conditions change.

c. This company should use market based market based transfer prices as market for the products is competitive, interdependencies of subunits are minimal and there are no benefits to the company as a whole from buying or selling in the external market instead of transaction internally.

3. Since management is often evaluated on the basis of subunit profits, they often care deeply about how transfer prices are set. Transfer prices can reduce income tax payments by reporting more income in low tax rate countries and less income in high tax rate countries. However, the tax regulations of different countries restrict the transfer prices that companies can use. Tariffs and customs duties levied on imports can create similar issues. Companies have incentives to lower transfer prices for products imported in to a country to reduce tariffs and customs duties.
4. The four types of responsibilities centers are
  - Cost center – the manager is accountable for costs only
  - Revenue center – the manager is accountable for revenues only
  - Profit center – the manager is accountable for revenues and costs
  - Investment center – the manager is accountable for investments, revenues and costs

**Answer: Question 1.22 - Zavod**

1. The only cost treated differently between the two methods is fixed overhead. Under both methods, direct materials, direct labor, and variable overhead are considered product costs, and are assigned to the units produced. Those costs remain as an asset as the cost of ending inventory on the balance sheet for unsold units. Those costs attached to units that have been sold appear as expenses in the income statement. Under both methods, both variable and fixed selling and administrative costs are expensed as incurred. The only cost treated differently between the two methods is fixed overhead. Under absorption costing, fixed overhead is considered a product cost. Each finished unit absorbs a portion of the fixed overhead cost. Under variable costing, fixed overhead is treated as period cost, and is expensed as incurred.

2. a. Under absorption costing, each unit will be carried in finished goods inventory at \$11.25:

Direct materials	\$4.00 per finished unit
Direct labor	\$3.25 per finished unit
Variable Overhead	\$1.15 per finished unit
Fixed Overhead	<u>\$2.85 per finished unit</u>
Total	\$11.25

b. Under variable costing, each unit will be carried in finished goods inventory at the variable production cost of \$8.40:

Direct materials	\$4.00 per finished unit
Direct labor	\$3.25 per finished unit
Variable Overhead	<u>\$1.15 per finished unit</u>
Total	\$8.40

3. a. Absorption costing income statement:

Sales (10,000 x \$32)		\$320,000
Cost of goods sold (10,000 x \$11.25)		<u>112,500</u>
Gross Profit		\$207,500
Selling and administrative		
Variable (10,000 x \$5.00)	\$50,000	
Fixed	<u>81,000</u>	<u>131,000</u>
Operating income		<u>\$ 76,500</u>

b. Variable costing income statement:

Sales (10,000 x \$32)		\$320,000
Variable cost of goods sold (10,000 x \$8.40)		<u>84,000</u>
Manufacturing contribution margin		\$236,000
Variable selling and administrative (10,000 x 5.00)		<u>50,000</u>
Contribution margin		\$186,000
Fixed costs:		
Overhead (11,000 x \$2.85)	\$31,350	
Selling and administrative	<u>81,000</u>	<u>112,350</u>
Operating income		<u>\$ 73,650</u>

4. In years when the number of units produced is greater than the number of units sold, such as in this first year, absorption costing net income will be higher than variable costing net income because under absorption costing, some of the fixed overhead will be associated with finished goods, an asset on the balance sheet. Under variable costing, all of the fixed overhead is expensed.
5. a. Absorption costing is required under GAAP because in theory, all costs of production should be treated as product costs, associated with finished goods inventory and carried as an asset until the units are sold. Fixed overhead is a necessary cost of production, and is thus treated as an inventoriable cost.
- b. Variable costing is more appropriate for internal decision making, because it is not affected by the level of production, as is absorption costing. Under absorption, net income will increase as more units are produced due to the inventorying of fixed overhead. Such is not the case under variable costing, where fixed overhead is expensed as incurred.

**Answer to Part 2 Practice Questions**

**Answer: Question 2.1 – Foyle Inc.**

1. a.

	<u>Year 1</u>	<u>Year 2</u>	<u>Year 3</u>
Revenue	100%	100%	100%
Cost of goods sold	60%	50%	60%
Gross profit	40%	50%	40%
Sales & marketing	10%	8.3%	6.7%
General & admin	7.5%	8.3%	10%
Research & development	7.5%	8.3%	3.3%
Operating income	15%	25%	20%

b.

	<u>Year 1</u>	<u>Year 2</u>	<u>Year 3</u>
Revenue	100%	120%	150%
Cost of goods sold	100%	100%	150%
Gross profit	100%	150%	150%
Sales & marketing	100%	100%	100%
General & admin	100%	133%	200%
Research & development	100%	133%	66.7%
Operating income	100%	200%	200%

2. Revenue

Year 2:  $(\$24,000 - \$20,000)/\$20,000 = 20\%$

Year 3:  $(\$30,000 - \$24,000)/\$24,000 = 25\%$

Operating income

Year 2:  $(\$6,000 - \$3,000)/\$3,000 = 100\%$

Year 3:  $(\$6,000 - \$6,000)/\$6,000 = 0\%$

3. Foyle's gross profit margin 50% was comparable in Year 2 to competitor 52% and industry average 50%, but Foyle has fallen to 40% in Year 3. Foyle's operating income percentage 25% was the same in Year 2 to competitor and industry average at 25%, but Foyle has fallen to 20% in Year 3.

Foyle in Year 3 has lower Sales and marketing than Competitor and Industry Average (6.7% vs. 11.1% and 10.7%), but higher in General and admin (10% vs. 7% and 8.9%). Foyle's Research and development is substantially below both Competitor and Industry Average (3.3% vs. 8.9% and 5.4%)

**Answer: Question 2.2 – Bockman Industries**

1.	Year 2	Year 1
Revenues	100.0%	100.0%
Cost of Goods Sold	<u>48.4</u>	<u>47.5</u>
Gross Margin	51.6	52.5
Selling Expenses	14.8	14.7
Administrative Expenses	17.5	17.5
Loss Due to Strike	.3	
Interest Expense	<u>.5</u>	<u>.5</u>
Income before Taxes	18.4	19.8
Income Tax Expense	<u>7.4</u>	<u>7.9</u>
Income from Continuing Operations	11.1	11.9
Discontinued Operations	<u>1.1</u>	<u>      </u>
Net Income	12.2	11.9

2. a. Sales increased but the gross margin percentage decreased. This could be caused by:
- a change in the product mix
  - a decrease in the selling price which resulted in selling more units but if the cost per unit did not change or increased, the gross margin percentage would increase
  - an increase in the cost of goods that was not passed along to customers; sales could have increased because competition did raise their prices
- b. Selling expenses remained fairly constant as a percentage of sales. This could be caused by:
- nearly all of the selling expenses being variable costs
  - increased advertising to boost sales

- c. Administrative expenses remained at a constant percentage of sales. Since most of these costs are fixed, when sales rise, the costs as a percentage of sales should decrease. The constant percentage could be caused by:
- moving outside of the relevant range of Year 1's activity, causing step-fixed costs to increase
  - poor budgeting procedures or poor cost controls that allow administrative spending in proportion to sales
3. Number of shares outstanding =  $\$780,000/\$2.50 = 312,000$   
 Book value =  $\$7,363,200/312,000 = \$23.60$

**Answer: Question 2.3 – Han Electronic Inc.**

1. a. A merger is the combination of two or more companies in which only one firm survives as the legal entity. An acquisition is when one company acquires another as part of its overall business strategy.
- b. The scenario describes a potential strategic acquisition as management was hoping to work on product mix.
- c. Some of the synergies of a business combination are the economies realized where the performance of the combined firm exceeds that of its previously separate parts. There are economies of scale where the benefits of size cause the average unit cost to fall as volume increases. Acquisitions can increase sales, market share, or help the company gain market dominance. There may be other marketing and strategic benefits, or the acquisition might bring technological advance to the product table, or it may fill a gap in the product line which would enhance sales made throughout the firm. It may be possible for duplicate facilities to be eliminated after a merger or departments like marketing, accounting, purchasing, and other operations can be consolidated. The sales force may be reduced to avoid duplication of effort in a particular territory. The companies may be able to concentrate a greater volume of activity into a given facility and into a given number of people to have a more efficient utilization of resources.
2. a. A spinoff is a form of divestiture resulting in a subsidiary or division becoming an independent company. Ordinarily, shares in the new company are distributed to the parent company's shareholders on a pro-rata basis. An equity carve-out is a public sale of stock in a subsidiary in which the parent usually retains majority control. Only the spin off is described in the scenario above.
- b. The spinoff would be if Electronics Inc were to decide to split the subsidiary off into its own separate company.
3. The main types of bankruptcy are chapter 7 – which is liquidation, or the sale of assets of a firm, and chapter 11 which is rehabilitation of an enterprise through its reorganization.



**Answer: Question 2.4 – OnceCo Inc.**

1. The cost to produce the units is irrelevant, because OneCo can sell all that it produces at a market price of \$16.50. The net realizable value per unit is \$15.60 (\$16.50 - .90).

- a) The first option would decrease net income by \$1,600. The net realizable value per unit sold to Gatsby is \$14.00 (\$14.35 - .35). In order to supply Gatsby, OneCo would be displacing sales in the regular market having a NRV of \$15.60. That reduction of \$1.60 per unit X 1,000 units would decrease net income by \$1,600.

Alternate solution: Normal profit per unit is \$4.40 (\$16.50 – \$12.10). The profit per unit sold to Gatsby is \$2.80 (\$14.35 - \$11.55). Gatsby cost is \$11.55 (\$4.00 + \$1.30 + \$2.50 + \$3.40 + .35).

The difference of \$1.60 per unit (\$4.40 – \$2.80) X 1,000 units would decrease net income by \$1,600.

- b) The second option would increase net income by \$1,100. The extra units could be sold in the regular market at a NRV of \$15.60. The cost is \$14.50. Thus, profits would increase by \$1.10 per unit, or \$1,100 in total.

Alternate solution: Selling Price \$16.50 – Cost to purchase from Zelda \$14.50 – Sales commission \$.90 = profit per unit \$1.10. Increase in net income \$1.10 @ 1,000 units = \$1,100.

- c) The third option would decrease income by \$500. Regular business is unaffected. As explained above, the 1,000 units bought cost \$14.50 each, and the NRV of the new units sold is \$14.00. The net difference is .50 per unit.

Alternate solution: Action 1 Decrease in Net Income of \$1,600 + Action 2 Increase in Net income of \$1,100 = Net Decrease in Net Income of \$500.

2. a) Direct Material \$4.00 + \$.30 = \$4.30. Direct Labor \$1.30 @ 1.15 = \$1.495. Variable Overhead \$2.50 @ 1.15 = \$2.875. Cost \$12.42 (\$4.30 + \$1.495 + \$2.875 + \$3.40 + .35). Profit per unit \$4.08 (\$16.5+\$12.42). Market profit \$4.40 (\$16.50 - \$12.10). Decrease in net income (\$4.08 - \$4.40) = -.32 @ 2,000 = decrease \$640. Do not accept proposal.

- b) If there is excess capacity, accept the proposal, revenue would contribute to fixed costs.

3. Other factors to consider are: the effect on market price/competition, effect on sales force/commissions, quality of Zelda products, and follow-on Gatsby business. There may be other considerations. Some other considerations are: impact on employees; reaction of customers.

**Answer: Question 2.5 PARKCO**

1. a. Sunk cost is cost already incurred, and thus is irrelevant to the decision at hand.
- b. Opportunity cost is the profit foregone (given up) by choosing one course of action over another. Only sunk costs are recorded as incurred, because they result from transactions. There is no accounting recording of events that could have happened (opportunity costs), so they are not recorded in the accounting system.
- c. The costs to buy and clear the land (\$425,000 and \$72,000) would be considered sunk costs, as they have already been incurred. The annual rent that from the construction companies (averaging \$5000) would be considered opportunity costs going forward, because PARKCO would have to give them up.

2. # of leases x (monthly rate – monthly cost) = monthly CM  
420 x (\$75 - \$12) = \$26,460 monthly CM  
# of days x parkers/day x (daily rate – daily cost) = daily CM  
20 x 180 x (\$8 - \$2) = \$21,600 daily CM

$$\begin{aligned} \$26,460 + 21,600 &= \$48,060 \text{ total CM} \\ &\quad \underline{(30,000) \text{ fixed cost}} \\ &\quad \$18,060 \text{ pre tax Operating Income} \end{aligned}$$

3. a. Honesty, Fairness, Objectivity & Responsibility
- b. Under Competence: Prepare complete and clear reports and recommendations after appropriate analysis of relevant and reliable information.

Under Integrity: Communicate favorable as well as unfavorable information and professional judgment or opinions.

Under Credibility: Disclose fully all information that could reasonably be expected to influence an intended user's understanding of the reports, comments, and recommendations presented.

Confidentiality – does not apply to this scenario

- c. The controller has an ethical dilemma. In order to resolve her conflict, she needs to follow her company's policy if one exists. Next she needs to speak to her supervisor or next level above, in this case the CFO. She may need to elevate to the Board of Directors. She may need to discuss with an objective advisor, call ethics helpline, (IMA), or consult with an attorney.

**Answer: Question 2.6 – Bell Company**

1. The net present value is calculated as follows:

New packaging process equipment	\$210,000 x 1.00	\$(210,000)
Sale of existing packaging equipment	\$ 75,000 x 1.00	75,000
Tax benefit from sale	\$ 34,000 x .9090	30,906
Depreciation tax shield - new	\$ 42,000 x .4 x 3.791	63,689
Loss of annual tax shield – old	\$ 40,000 x .4 x 3.170	(50,720)
Annual after-tax savings 10% @ 5 year	\$ 36,000 x 3.791	<u>136,476</u>
Net present value		\$ 45,351

Annual depreciation on old equipment  $\$200,000/5 = \$40,000$

Book value at end of first year  $\$200,000 - \$40,000 = \$160,000$

Loss on sale of old equipment:

Sale price	\$75,000	
Book value	160,000	(\$85,000)

Tax benefit =  $\$85,000 \times 40\%$  tax rate  $\$34,000$

Annual depreciation on new equipment  $\$210,000/5 = \$42,000$

- The net present value at 10%, the firm's cost of capital, is positive. A positive NPV indicates that the project earns more than the firm's cost of capital, and thus should be accepted.
- Non-financial and behavioral factors that could cause the company to change the investment decision made solely on the basis of financial terms include:
  - Charleson's bonus may be negatively affected by the decision to replace the packaging equipment with the new technology, since the sale yields a short-term accounting loss of \$85,000. Such a loss may cause the Central Division to miss its profit targets, and Charleson to miss his bonus.
  - What kind of a warranty will the new equipment have? Since the technology is new, there may be some risk of it not working reliably.
  - There will be a learning curve and therefore increased training costs.

## Answer: Question 2.7 – Grandeur Industries

1. a. & b. The Capital Asset Pricing Model (CAPM) when used in an investment analysis context postulates that the return on an investment should be at least equal to the Risk Free Rate plus a Risk Premium. The Risk Premium is based on the risk (volatility) of the investment relative to the overall market (as measured by Beta) times the incremental return on the market above the risk free rate. The model can be expressed as follows;

$$\text{Required Return} = r_f + (r_m - r_f) \times \beta$$

Where:  $r_f$  = the Risk Free rate  
 $r_m$  = return on the market  
 $\beta$  = the Beta value for the investment, a measure of risk

For the various projects:

Project A: Required Return = 4% + (14% - 4%) x 1.4 = 18%

Since the Internal Rate of Return (IRR) of 16% is less than the required 18%, the project should be REJECTED.

Project B: Required Return = 4% + (14% - 4%) x 1.6 = 20%

Since the Internal IRR of 18% is less than the required 20%, it should be REJECTED.

Project C: Required Return = 4% + (14% - 4%) x 0.7 = 11%

Since the IRR of 12%, is greater than the required 11%, it should be ACCEPTED.

Project D: Required Return = 4% + (14% - 4%) x 1.1 = 15%

Since the IRR of 17%, is greater than the required 15%, it should be ACCEPTED.

The capital asset pricing model allows firms (users) to assess the size of risk premium necessary to compensate for bearing risk. It is a way to estimate the required rate of return on a security or investment. Once the required return has been determined it lets the user know of the expected return from the investment is sufficient to warrant acceptance of the investment.

2. a. Beta = Measure of a stock's volatility in relation to market.  
Market beta = 1 A stock that moves > market, beta > 1; if < market, < 1.  
High beta stocks are riskier but potential for higher returns & vice versa.
- b. Factors that have an influence on the Beta value for a project include:
- The industry that the Division undertaking the project is in and its risk characteristics.
  - Experience the division has with similar projects, if any.
  - Ability of the Division to realize estimated returns on projects in the past.
  - Strength of the management team of the division.
  - Level of competition expected.

- The geographical location of the project. Certain countries are more risky to operate in than others.
  - The degree to which the project involves new technology or unproven operating conditions.
3. a. Informal method. NPVs are calculated at the firms' desired rate of return, and the possible projects are individually reviewed.
  - b. Risk-adjusted discount rates. Adjusting the rate of return upward as the investment becomes riskier
  - c. Certainty equivalent adjustments. Decision maker needs to specify the indifferent point to choice between a certain sum of money and the expected value of a risky sum.
  - d. Simulation analysis. Based on different assumptions, computer is employed to generate many examples of results.
  - e. Sensitivity analysis. Forecasts of NPVs under different scenarios are compared to each other to evaluate how assumption changes about a certain variable may alter the NPV.

**Answer: Question 2.8 – Orion Corp.**

1. The weighted average cost of capital for the firm can be computed as follows.

	Market Value	Proportion	Cost
<b>Bonds</b>	\$10,400,000 <sup>1</sup>	0.26	5.0 <sup>3</sup>
<b>Common Stock</b>	\$29,600,000 <sup>2</sup>	0.74	14.0 <sup>4</sup>
<b>Totals</b>	\$40,000,000	1.00	

(1).  $10,000 \times 1040.00 = \$10,400,000$ .

(2).  $2,000,000 \times \$14.80 = 29,600,000$ .

(3).  $\text{Price} = \$1040.00 = \frac{92.00 + 1000.00}{(1 + k_d)}$ .

$$\text{So, } k_d = \frac{1092}{1040} - 1 = 5\%.$$

(4).  $k_e = \frac{D_1}{P_0} + g = \frac{1.48}{14.80} + 0.04 = 14.0\%$ .

$$\text{WACC} = 0.26 \times 0.05(1 - 0.3) + 0.74 \times 0.14 = 11.27\%.$$

2. The ranking of projects based on the net present value, which is the preferred criterion, is as follows.

Project	Initial Outlay	IRR	NPV
E	\$240,000	16.50%	\$22,500
A	\$450,000	17.00%	\$18,800
C	\$262,000	16.20%	\$9,800
B	\$128,000	19.50%	\$2,300
F	\$160,000	11.10%	-\$900
D	\$180,000	10.50%	-\$7,000

So, the firm should accept projects E, A, C and B. The reason for using the *NPV* is that this criterion maximizes the value of the firm while using the *IRR* can give misleading results.

3. The weighted average cost of capital cannot be used to evaluate the project because it is not in the same line of business as the firm's current operations. It is likely that the project would alter the firm's business risk in which case using the weighted average cost of capital would be inappropriate. The firm should use a project-specific hurdle rate that reflects the project's systematic risk.
4. Based on the CAPM, the project's hurdle rate =  $0.05 + 0.10 \times 1.5 = 20\%$ .  
The project's net present value is:

$$NPV = ((\$60,000 * .833) + (\$80,000 * .694 + (\$80,000 * .579) + (\$80,000 * .482)) - \$200,000 = -\$9620.00$$

Since the *NPV* is negative the project should be rejected.

5. a. The project's payback period =  $2 + 60/80 = 2.75$  years.  
Based on the threshold payback period that the firm uses it would accept the project because the firm recovers its initial investment in less than 3 years.
- b. The project should be rejected because it has a negative *NPV*. The payback period leads to a sub-optimal decision because it ignores the time value of money. The payback period also ignores the cash flows in later years but in this case even with year 4's net cash flows the project's *NPV* remains negative.

## **Answer: Question 2.9 – Global Manufacturing**

1. Yes, under the standards of “competency” and “objectivity,” Hammon must “maintain an appropriate level of professional competence” to analyze the nature of the technical problem. She must also prepare “complete and clear reports” to management, and after appropriate analysis, report to them “relevant and reliable information” about what she believes may explain the inventory unusual inventory write-downs.

The standard of professional competence requires Hammond to determine what may explain the write-down based on available information. It also requires members to “perform their professional duties in accordance with relevant laws, regulations and technical standards” and to “prepare complete and clear reports and recommendations after appropriate analysis of relevant and reliable information has been performed.”

Under the standard of integrity, she needs to refrain from either actively or passively subverting the attainment of the organization’s legitimate and ethical objectives. Under objectivity, she would have a responsibility to communicate the information she found fairly and objectively

2. According to the Standards of Ethical Conduct, Hammon should follow the guidelines established by the organization to resolve such ethical dilemmas. If such do not exist, or fail to resolve the dilemma, she should follow the chain of command by going to her immediate superior, which in this case would appear to be the division controller. If this is not successful, she should proceed up the chain of command until the dilemma is resolved. This would include the CEO of the division as well as the controller of Canadian parent company.

She should not disclose the nature of such problems unless it is legally prescribed to anyone who is not an employee or one who is engaged by the organization. Hammon should clarify the relevant ethical issues by confidential discussion with an objective advisor (e.g. IMA Ethics Counseling Service) to obtain a better understanding of possible courses of action. She should consult her own attorney as to her legal obligations and rights concerning the ethical conflict. However, in this case, since a distortion of the financial statements or a similar situation does not appear to exist, this step may not be necessary.

Finally, if the ethical conflict exists after exhausting all level of internal review, she may have no other recourse on significant matters than the resign from the organization and submit an informative memorandum to an appropriate representative of the organization. While it is unlikely in this situation, since it does not appear that external fraudulent financial reporting exists, and depending the nature of the overall nature and extent of the ethical conflict, it may also be appropriate to notify other parties.

**Answer: Question 2.10 - Cambridge Automotive Products**

1. The analysis shown below yields the following after-tax incremental cash flows:

- a. Period 0 (\$13,200,000)
- b. Period 1 4,200,000

<u>Cash Flow Element</u>	<u>Year</u>				<u>\$ Millions</u>
	<u>0</u>	<u>1</u>	<u>2</u>	<u>3</u>	<u>4</u>
Revenue		\$16.0	\$20.0	\$20.0	\$20.0
Equipment	(\$12.0)				
Equipment Salvage					\$0.9
Equipment Removal					(\$1.4)
Direct Labor & Materials		(\$8.0)	(\$10.0)	(\$10.0)	(\$10.0)
Indirect Costs		(\$3.0)	(\$3.0)	(\$3.0)	(\$3.0)
Net Working Capital	(\$1.2)				\$1.2
<b>Total Cash Flow Before Tax</b>	<b>(\$13.2)</b>	<b>\$5.0</b>	<b>\$7.0</b>	<b>\$7.0</b>	<b>\$7.7</b>
Cash Taxes		(\$0.8)	(\$1.6)	(\$1.6)	(\$1.4)
<b>Net Cash Flow, After Tax</b>	<b>(\$13.2)</b>	<b>\$4.2</b>	<b>\$5.4</b>	<b>\$5.4</b>	<b>\$6.3</b>

**Memo: Calculation of Cash**

**Taxes**

Tax Profit Before Tax & Depreciation	\$5.0	\$7.0	\$7.0	\$6.5
Tax Depreciation	(\$3.0)	(\$3.0)	(\$3.0)	(\$3.0)
Tax Profit Before Tax	\$2.0	\$4.0	\$4.0	\$3.5

c. The Period 4 operating cash flow is \$5,400,000 calculated as follows.

Revenue	\$20,000,000
Direct labor & material	(10,000,000)
Indirect costs	<u>(3,000,000)</u>
Before tax cash flow	7,000,000
Tax effect <sup>1</sup>	<u>(1,600,000)</u>
After tax cash flow	<u>\$ 5,400,000</u>

<sup>1</sup> \$7,000,000 - \$3,000,000 = \$4,000,000 x 40% = (\$1,600,000)



d. The Period 4 terminal cash flow is \$900,000 calculated as follows.

Equipment removal	(\$1,400,000)
Salvage	900,000
Working capital recovery	<u>1,200,000</u>
Before tax cash flow	700,000
Tax effect <sup>2</sup>	<u>200,000</u>
After tax cash flow	<u>\$ 900,000</u>

$$^2 \$700,000 - \$1,200,000 = (\$500,000) \times 40\% = \$200,000$$

2. Cash flow variables with potential risks that could affect the estimates made by CAP include the following.

- Volume estimates are generally subject to a high degree of estimation error due to the variety of external factors that impact the volume realized in the future. Competitive forces, consumer acceptance of the new product, general economic conditions are just a few of the factors that could influence the ultimate demand realized for the new car by KAC, which would impact the demand for ignition system modules from CAP. Since there are a number of fixed costs, including equipment and indirect costs, deviations in volume could have a significant impact on the cash flows and the financial success of the project.
- Exchange rates are another important variable. Since CAP is a U.S. company with a cost structure consisting of U.S. dollar denominated expenses, there is exchange risk resulting from a revenue stream in the Korean Won. The net cash flows from the project in U.S. dollars will be dependent on the exchange rate in effect when each of the KRW denominated payments is received.
- Direct costs are another potential variance given that the actual productivity of its workforce, the reliability of its manufacturing systems, and unit materials costs could vary substantially from what CAP projects. In a competitive bidding situation, there may be pressure to bid as low as possible to increase the chances for success. If the firm has used “best case” assumptions for its cost structure, negative variances in the assumptions for direct costs could decrease the amount of cash flow generated from the project relative to expectations.
- The estimates for the cost of the equipment removal and the salvage value of the equipment could vary significantly as these costs will occur several years in the future and could negatively impact the expected cash flow.

**Answer: Question 2.11 - City of Blakston**

1. The contribution margin is 75%<sup>1</sup> or \$3.75 per adult admission, and \$1.875 per student admission. The mix is 20% adult (30 ÷ 150) and 80% student (120 ÷ 150). The weighted average contribution margin is:

$$\text{WACM} = .20(\$3.75) + .80 (\$1.875) = \$2.25$$

The breakeven point is Fixed cost ÷ WACM

$$\$33,000 \div \$2.25 = \underline{14,667 \text{ per season.}}$$

<sup>1</sup> 100% - state fee of 10% - variable cost of 15%

2. The highest number to break even assumes that all admissions are students:

$$\$33,000 \div \$1.875 = 17,600 \text{ per season}$$

3. The lowest number to break even assumes that all admissions are at the adult rate:

$$\$33,000 \div \$3.75 = 8,800 \text{ per season}$$

**Answer: Question 2.12 - Carroll Mining and Manufacturing**

1. The standards from IMA's Statement of Ethical Professional Practice that specifically relate to Alex Raminov and the situation at Carroll Mining and Manufacturing are the following.

Competence

Perform professional duties in accordance with relevant laws, regulations, and technical standards. It appears that CMMC is not in compliance with the relevant laws and regulations regarding the dumping of toxic materials; at a minimum, Raminov has an obligation to report this situation to higher authorities in the company.

Confidentially

Keep information confidential except when disclosure is authorized or legally required. This standard may or may not relate to the CMMC situation depending on the requirements of the environmental regulations in effect in the jurisdiction where CMMC is operating. Raminov may be required by law to disclose the information.

## Integrity

Refrain from engaging in any conduct that would prejudice carrying out duties ethically.

Abstain from engaging in or supporting any activity that might discredit the profession.

If Raminov does not report the apparent illegal dumping to those in authority at CMMC, his behavior would not be considered ethical under these standards and his lack of action would discredit the profession.

## Credibility

Communicate information fairly and objectively.

Disclose all relevant information that could reasonably be expected to influence an intended user's understanding of the reports, analyses, or recommendations.

Disclose delays or deficiencies in information, timeliness, processing, or internal controls in conformance with organization policy and/or applicable law.

All of these standards make it clear that Raminov has an obligation to act objectively in this matter and report the situation to those in authority at CMMC. The risks and exposures of illegal dumping should be disclosed in the financial reports that Raminov is preparing.

2. Initially, Raminov should follow CMMC's policy regarding the resolution of an ethical conflict. If there is no policy or the policy does not resolve the issue, he should consider the courses of action recommended in IMA's Statement of Ethical Professional Practice.

Since Raminov's immediate supervisor appears to be involved in the dumping situation, he should submit the issue to the next higher level. If the situation is not satisfactorily resolved, Raminov should approach successive levels of authority, e.g., CFO, audit committee, Board of Directors. He can also contact an IMA ethics counselor or other impartial advisor to discuss possible courses of action. Raminov should consult an attorney regarding his legal obligations and rights in this ethical conflict.

3. It is not considered appropriate for Raminov to inform authorities or individuals not employed or engaged by CMMC unless he believes there is a clear violation of the law. In discussions with his attorney, Raminov should clarify his obligations under the law. If CMMC does not take action after Raminov has informed the appropriate in-house authorities, he may be obligated to inform the regulatory agency involved. He should not under any circumstances anonymously release this information to the local newspaper.

**Answer: Question 2.13 - Langley Industries**

1. Financing plan (dollars in millions):

	Current structure	Percent of total	Funds Needed	Retained earnings	External sources
Debt	\$175	35%	\$28		\$28
Preferred	50	10%	8		8
Common	275	55%	44	\$15	29
Totals	\$500	100%	\$80	\$15	\$65

Financing sources will be as follows:

New Debt	\$28 million
New Preferred stock	8 million
Retained earnings	15 million
New Common stock <sup>1</sup>	<u>29 million</u>
Total	<u>\$80 million</u>

<sup>1</sup> \$29 million ÷ \$58 per share = 500,000 new common shares

2. Weighted average cost of capital

	% of Capital Structure	Cost	Weighted Cost
Debt	35%	6.00% <sup>1</sup>	2.10%
Preferred	10%	12.00%	1.20%
Common	55%	16.00%	8.80%
Cost of Capital			12.10%

<sup>1</sup> Pre-tax 10% x (1- tax rate) = 6.00%

3. a. If the corporate tax rate was increased, the after-tax cost of debt would be reduced, thereby reducing the cost of capital. In other words, the tax shield of debt becomes more valuable to the firm.
- b. When the banks indicate they are raising rates, the rest of the debt market generally raises rates. The higher cost of debt will increase the overall cost of capital.
- c. Beta is a measure of risk. According to the Capital Asset Pricing Model, the cost of equity is directly related to risk. As risk is reduced the cost of equity is reduced and correspondingly the overall cost of capital is reduced.
- d. In general, a significant increase in the percent of debt in the capital structure (especially in this case where the current structure is deemed optimal), results in more risk for the firm. This increases its cost of debt and its cost of equity. The increase in the cost of equity will most likely offset the fact that debt has a lower relative. The result here is that the cost of capital should increase.

**Answer: Question 2.14 - Sentech Scientific Inc.**

1. Liquidity is the ability of an asset to be converted into cash without significant price concessions. Liquidity is important to Sentech because current obligations will continue if there is a strike. Understanding the company's ability to meet its obligations even if normal cash receipts are not forthcoming would give management an indication of whether or not – and for how long – it could weather a strike. Lack of liquidity can limit a company's financial flexibility, making it unable to take advantage of discounts and other profitable opportunities. Liquidity problems can also lead to financial distress or bankruptcy.
  
2. Measures of liquidity include the following.
  - Current ratio: current assets/current liabilities
  - Quick ratio (or acid-test ratio): (cash + marketable securities + accounts receivable)/current liabilities. The quick ratio excludes inventory and prepaid expenses from cash resources.
  - Cash ratio: (cash + marketable securities)/current liabilities
  - Only cash and securities that are easily convertible into cash are used.
  - Net working capital: current asset – current liabilities
  - Net working capital ratio: net working capital/total assets
  - Sales to working capital: sales/average net working capital
  - Accounts receivable turnover: net sales/average gross receivables
  - This ratio can also be calculated in days.
  - Inventory turnover: cost of goods sold/average inventory
  - This ratio can also be calculated in days.
  
3. Based on the parameters set down by the controller, either the quick ratio or the cash ratio would be best. The reason that these ratios are best is because they focus on the most liquid assets, excluding prepaid expenses and inventories. During a strike inventories would not be a source of cash. The cash ratio excludes receivables as well, and would be the most conservative measure. The cash ratio would reflect the fact that the collection of receivables would be slowed during a strike.

**Answer: Question 2.15 - Ultra Comp**

1. Net present value of each of the alternatives

	Time	Amount	14% PV Factor	Present Value
<b>Vendor A</b>				
Initial investment	0	\$4,000,000	1.000	\$4,000,000
Annual cash outflow	1-6	500,000	3.889	1,944,500
NPV				\$5,944,500
<b>Vendor B</b>				
Initial investment	0	\$1,000,000	1.000	\$1,000,000
Replacement	3	1,250,000	0.675	843,750
Annual cash outflow	1-6	750,000	3.889	2,916,750
NPV				\$4,760,500
<b>Vendor C</b>				
Annual cash outflow	1-6	\$1,400,000	3.889	5,444,600
NPV				\$5,444,600

2. Ultra Comp should select Vendor B. It is the optimal choice from a financial point of view as it meets the requirements at the lowest cost. Since the decision has already been made to implement a new security system, the issue is to decide on a system that meets the requirements at the lowest cost.
3. Sensitivity analysis is a tool to test the impact of changing investment assumptions on the resulting net present values. The method helps determine the “sensitivity” of outcomes to changes in the parameters. It shows how the output of the model depends on the input of the model.
4. Non-financial factors that Ultra Comp should consider prior to making a recommendation include the following.
  - Vendor A technology may be more effective in the long term even though it is the highest cost solution. However, there is a risk involved in the fact that this is new technology and may not prove effective.
  - Vendor B technology is known to be effective and should be satisfactory for the near term. However, there is uncertainty in the long term.
  - Since Vendor C is a nationally recognized leader, it may be in a better position to manage the security of Ultra Comp, especially as new developments arise.
  - Ultra Comp should review the management capability and the financial stability of each of the vendors.
  - Ultra Comp should contact previous clients of each of the vendors to determine their level of satisfaction with the quality and customer service of each vendor.

**Answer: Question 2.16 – Right-Way**

1.  $500,000 + 3,500,000 + 100,000 + 100,000 + (50,000 * (1-.35)) = \$4,232,500$  million.
2. The scenario tells us that the after tax operating income is \$1,200,000. We find the depreciation expense by dividing the building cost into the depreciation period,  $\$3,500,000 / 20 = \$175,000$  annual depreciation expense.

Assuming the interest on the mortgage is not considered when we discount a cash flow, or it is included in (taken out to arrive at) the \$1.2 million, and no change in working capital, we can calculate the Cash Flow three ways:

- a. Simply add the \$1,200,000 and the \$175,000 to get \$1,375,000.
  - b. Find total net income:  $\$1,200,000$  after tax operating income /  $1-.35 = \$1,846,150$  taxable income. The tax on this is 646,154, getting us back to 1,200,000 net income. Add back the 175,000 depreciation to get \$1,375,000.
  - c. Use depreciation tax shield: Start with the \$1,846,154 taxable income. Adding the 175,000 depreciation, we get before tax cash flow of \$2,021,154. The tax on this is 707,404, but the depreciation tax shield is 61,250, resulting in 1,375,000 cash flow.
3. The factor for a five year annuity, at 12% from our table is 3.605. So the value of 5 years' of cash flow is \$4,956,875. But the store will open, and cash flows will start 1 year after spending the zero period costs, so this value needs to be discounted one more year, to \$4,425,781.

The NPV is  $\$4,425,781 - 4,232,500 = \$193,281$ .

4. Yes, Right-Way should build the store. The positive NPV (even ignoring values past 5 years) will add to the value of the company. The benefit of the future cash flows is greater than the costs to open to the store.
5. Sensitivity analysis shows how much small changes in the inputs affect the decision. Especially if we had a computer, we could try other assumptions about the store's forecast after tax operating income, the input with the most uncertainty. The costs of construction may also be underestimated, even the tax rate and the hurdle rate may possibly change of the next five years. How much will these have to change to turn a successful, positive NPV store, into an unsuccessful negative NPV store?

## **Answer: Question 2.17 - Hi-Quality Productions**

1. The standards from IMA's Statement of Ethical Professional Practice that specifically relate to Amy Kimbell and the situation at Hi-quality Productions are the following.

### Competence

Provide decision support information and recommendations that are accurate, clear, concise, and timely.

Recognize and communicate professional limitations or other constraints that would preclude responsible judgment or successful performance of an activity.

Amy Kimbell has an ethical conflict because she has been told to "keep quiet" about errors she has discovered in the original budgeting process. The incorrect data used makes the decision support data provided suspect and the decisions made based on that data risky.

### Integrity

Refrain from engaging in any conduct that would prejudice carrying out duties ethically.

Abstain from engaging in or supporting any activity that might discredit the profession.

Amy Kimball has an ethical conflict as she has an obligation to disclose the errors in the budgets presented but has been told not to. If she does not correct the situation, she will not be carrying out her duties ethically and therefore will discredit her profession.

### Credibility

Communicate information fairly and objectively.

Disclose all relevant information could reasonably be expected to influence an intended user's understanding of the reports, analyses, or recommendations.

It is clear that the budget committee has not been objective in its presentation of information and therefore has distorted the decisions based on that information. Kimbell should correct the information so that future expectations are realistic.



- Initially, Kimbell should follow Hi-Quality Productions' policy regarding the resolution of an ethical conflict. If there is no policy or the policy does not resolve the issue, she should consider the courses of action recommended in IMA's Statement of Ethical Professional Practice.

Kimbell should present her findings to her immediate supervisor. If her immediate supervisor is involved in the incorrect budgeting situation or if the supervisor takes not action, she should submit the issue to the next higher level. If the situation is not satisfactorily resolved, Kimbell should approach successive levels of authority, e.g., CFO, audit committee, Board of Directors. She can also contact an IMA ethics counselor or other impartial advisor to discuss possible courses of action. Kimbell should consult an attorney regarding her legal obligations and rights in this ethical conflict.

**Answer: Question 2.18 – Madison**

- Colby Quote based on Budget Proportions

Revenue	Budget	Colby Quote
	\$17,050,000	
Direct Labor		
Hours	300,000	10,000
Rate per hour	20	20
Total Amount	6,000,000	200,000
Employee Benefits	2,400,000	
Percent of Direct Labor	40%	40%
Total Amount		80,000
Tools and Equipment	1,800,000	
Percent of Direct Labor	30%	30%
Total Amount		60,000
Materials	2,000,000	200,000
Procurement & Handling	200,000	
Percent of Material Cost	10%	10%
Total Amount		20,000
Subtotal	12,400,000	560,000
Overhead	3,100,000	
Percent of Above Costs	25%	25%
Total Amount		140,000
Total Cost	\$15,500,000	700,000

Pretax Profit		
Percent of Total Cost	10%	10%
Total Amount		70,000
Amount of Colby Quote		<u>\$770,000</u>

2. Madison's performance measurement system can be expected to produce the following benefits:

- Aligning the performance measurement system with the budget results in everyone working toward the same goals and targets.
- Focusing on earning a profit on each job provides incentives to managers to continually be cost conscious.
- If the firm is profitable, then employees will be able to share in the rewards. When the firm is not profitable, it does not have the expense of bonuses.

Drawbacks to such a system include the following:

- If the budget is revised during the year, the firm faces the dilemma of changing the performance measures, often upsetting employees.
- Although the overall target of 10% may be reasonable, a firm such as Madison cannot expect every project to earn 10%. Focusing on all projects completed during the year may be more realistic.
- Utilizing company average percentages for various cost elements may not be appropriate for all projects. For example, some projects may utilize a significant amount of equipment (as a percent of labor) compared to other projects. A more appropriate way to charge for major equipment may be to have a rate per day (or per hour, as appropriate) for such equipment and charge the customer based on the number of days (or hours) utilized.

3. Factors that David Burns should consider include:

- The overall workload for the firm. If there are other more profitable projects that could be undertaken, then possibly this project should be turned down. On the other hand, if there are no other alternative projects, this one could be advantageous even though it does not show a 10% profit.
- Mr. Burns should identify the primary out of pocket (incremental, or marginal) costs for the project, and compare that to the contract amount. If the out of pocket costs exceed the contract amount, the job should be rejected. If the out of pocket costs are less than the contract amount, then Madison would receive some contribution toward fixed costs. Direct Labor (\$200,000), Benefits (80,000), and Materials (\$200,000) are the primary incremental costs in this case and amount to \$480,000. This leaves \$215,000 (695,000 less 480,000) to cover other costs, most of which are primarily fixed.
- Mr. Burns should assess the importance of a relationship with Colby. If Colby is a critical customer, that would influence the decision. Also, if Colby has not been a customer before, then it may be important to take the job for strategic reasons and establish a relationship, even if this first job does not meet the target profit.

- Of course, Mr. Burns will be considering the impact on his performance of accepting a project with a less than 10% profit. However, he should place the interests of his employer above his own in making a decision on whether to accept the contract.
4. Reasons that Burns can use to justify his decision include:
- Strategic value of having Colby as a customer
  - Other more profitable opportunities were not available.
  - This project involved a significant amount of material costs that are a pass through to the customer. Therefore, the practice of adding 25% for company overhead is not totally appropriate in this case.

**Answer: Question 2.19 – GRQ Company**

1. Under *Competence*, Spencer has a responsibility to “maintain an appropriate level of professional competence.” He must perform his duties in accordance with relevant laws, regulations and technical standards, e.g. FASB No. 5 – Accountancy for Contingencies.

Under *Confidentiality*, he must keep information confidential except when disclosure is authorized or legally required and inform his subordinates of the same requirement. He must refrain from using or appearing to use confidential information for unethical or illegal advantage personally.

Under *Integrity*, Spencer must “avoid actual or apparent conflicts of interest and advise all appropriate parties of any potential conflict.” He must also “refrain from engaging in any activity that would prejudice his ability to carry out his duties ethically.” He should also “refrain from engaging in any activity that would discredit the profession.”

Finally, under *Credibility*, Spencer must “communicate information both fairly and objectively.” He should “disclose fully all relevant information that could reasonably be expected to influence an intended user’s understanding of the reports and recommendations presented.”

2. According to IMA’s Statement of Ethical Professional Practice, Spencer should first follow the established policies of the organization he is employed by in an effort to resolve the ethical dilemma. If such policies do not exist, or are not effective, he should follow the steps as outlined in “Resolution of Ethical Conflict”.

First, he should discuss the problems with his immediate superior except when it appears the superior is involved. Since his superior is the CFO, who gave him the instructions to ignore the situation and not consider the financial ramifications of non-disclosure, he should proceed to the next higher level, which is the CEO of GRQ company. If this step is not successful in solving the dilemma, he should proceed up the chain of command, which in this case would appear to be the Board of Directors of GRQ.

However, he should note that except where legally prescribed, communication of such internal problems should not be discussed with authorities or individuals not employed or engaged by the organization.

Spencer should clarify relevant ethical issues by confidential discussion with an objective advisor (e.g. IMA Ethics Counseling Service) to obtain a better understanding of possible courses of action. He should consult his own attorney as to his legal obligations and rights concerning the ethical conflict.

(\*) – According to the provisions of the Sarbanes-Oxley Act of 2002 (SOX) , employees are to be provided with a means to report such matters to top management of the organization, and when deemed appropriate, may report these matters to the appropriate external parties (e.g. SEC, Justice Department, EPA, etc.) as the matter dictates. Candidates should be given some credit for being aware of this provision made by SOX.

**Answer: Question 2.20 – CenturySound**

1. According to the Statement of Ethical Professional Practice , Wilson in this situation has a responsibility to demonstrate
  - Competence by preparing complete and clear reports and recommendations after appropriate analyses of relevant and reliable information.
  - Confidentiality by refraining from disclosing confidential information acquired in the course of their work except when authorized, unless legally obligated to do so.
  - Integrity by communicating unfavorable as well as favorable information and professional judgments or opinions as well as refraining from engaging in or supporting any activity that would discredit the profession.
  - Objectivity by communicating information fairly and objectively and disclose fully all relevant information that could reasonably be expected to influence an intended user’s understanding of the reports, comments and recommendations presented.
2. Wilson should first discuss this matter with his superior, the Controller, unless his superior is involved in which case he should go to the next managerial level. If a satisfactory solution cannot be reached with his superior, Wilson should move up the chain of command. Unless his superior is involved, Wilson should inform his superior when he goes to higher levels of management. If his superior is the CEO, Wilson should go to an acceptable reviewing authority such as the audit committee, executive committee, board of directors. Wilson can clarify ethical issues by having a confidential discussion with an objective advised (e.g. IMA Ethics Counseling Service) to determine a possible course of action. He may also consult with his own attorney. If Wilson is unable to resolve the ethical dilemma there may be no other course than to resign and submit an informative memorandum to an appropriate representative of the organization.

**Answer: Question 2.21-RomCo**

1. a. The cost of equity and the weighted average cost of capital will be one and the same with an all-equity financed corporation. Because the NPV happens to be \$0 for Project 1 we know that the IRR is equal to the cost of capital (cost of equity in this case) so 12%. We can also calculate the cost of capital (equity) as 12% by using the second project.  
  
b. Increasing the cost of equity would lower the present value of the future cash flows for both projects. This would lower the NPV of both of them. The \$0 NPV project would become negative (so rejected). The positive NPV project would become lower. If still positive it would be accepted, if it becomes negative, rejected. Changing the cost of equity would have no impact on the IRR (since the cash flows are not affected). The increasing cost of equity, however, would similarly make project 1 undesirable because the  $IRR < \text{cost of equity}$ , and for project 2 the result is ambiguous because we would need to know how much higher the cost of equity is to know what it is relative to the IRR of 17.65%.
2. A lowering of the corporate tax rate increases the future after-tax cash flows. This would increase the NPV and IRR of both projects. Project 1 would now have a positive NPV and an  $IRR > \text{cost of capital}$ . Project 2 would still have a positive (though larger) NPV and still have an  $IRR > \text{cost of capital}$ . This assumes that the lowering in income tax rate does not change the cost of equity.
3. a. The payback periods (undiscounted) can be found by dividing the annual cash flow into the initial investment for each project. Thus:  
Project 1:  $822,800/200,000 = 4.1$  years  
Project 2:  $300,000/85,000 = 3.5$  years  
  
b. The three weaknesses of payback period are  
(1) PP ignores cash flow after the calculated payback period.  
(2) PP does not discount future flows  
(3) Choice of cut-off (e.g. do project only if  $PP < 3$  years) is arbitrary

**Answer: Question 2.22 - Kolobok**

1. Target costing is focused on market pricing or the prices of a firm's most direct competitors. The process for determining product pricing involves the following five steps: (1) determine the market price, (2) determine the desired profit, (3) calculate the target cost at market price less the desired profit, (4) use value engineering to identify ways to reduce product cost, and (5) use continuous improvement and operational controls to further reduce costs and increase profits.
2. The main difference between the two methods of pricing is a different starting point for determining product price. Mark-up pricing is based on existing costs and a desired return. The price is then determined by adding the product cost and the desired mark-up. This method provides little incentive to reduce costs as long as sales are profitable.

Using target costing, product prices are determined by reviewing competitive pricing and setting prices according to market strategies and positioning. Target costing moves from the existing market prices to the process of managing the product costs in order to earn a desired return. Target costing motivates process improvements. The process is intended to increase or maintain sales while increasing product profitability by reducing product costs through the elimination of non-value added activities.

3. Calculate earnings before taxes:

Sales*	\$2,528,100	
Less material & labor	1,223,400	(1,348,400 – 125,000)
Less overhead	<u>375,000</u>	(500,000 x .75)
Contribution	929,700	
Selling expense	250,000	
Admin expense	180,000	
Interest expense	<u>30,000</u>	
Earnings before taxes	<u>\$ 469,700</u>	

* Vanilla	\$53 x 10,200	540,600
Chocolate	\$53 x 12,500	662,500
Caramel	\$50 x 12,900	645,000
Raspberry	\$50 x 13,600	680,000

4. The preferable pricing method for Kolobok is target costing as it is projected to significantly increase the return on sales from 7% to 18.5% ( $\$469,700 \div \$2,528,100$ ) while maintaining the existing sales level. Target costing will also motivate management to improve internal processes to reduce costs to further improve profitability, particularly for any product where the proposed target price is lower than the previous price. This method will also force Kolobok to be continually aware of the actions of its competitors and trends in the marketplace in order to make adjustments when needed.

**Answer: Question 2.23 - Pursuit of Profit**

1. The advantages of using the DuPont approach includes the following:  
It breaks down the overall rate of return into smaller pieces for analysis,  
It identifies constraints faced by the firm,  
It shows how separate policy decisions interact.
2.  $ROE = NI / Sales \times Sales / Avg. Assets \times Avg. Assets / Avg. Equity$   
 $ROE \text{ Firm A} = 17/120 \times 120/273 \times 273/73 = 23\%$   
 $ROE \text{ Firm B} = 19/74 \times 74/168 \times 168/84 = 23\%$
3. a. Debt to Equity Ratio Firm A =  $200/73 = 2.73$   
Debt to Equity Ratio Firm B =  $84/84 = 1$   
b. Firm “A” uses a significant higher level of debt – more than twice as much as Firm “B”. This higher level of financial leverage increases the financial risk to equity holders of Firm B.
4. It may be appropriate for firms in mature industries and markets with little variance in period to period income, to employ higher levels of financial leverage. It would be more risky for firms that experience significant variance in income to employ leverage as the probability that income may be insufficient to service the debt burden becomes greater. Higher financial leverage is more appropriate for high-growth firms.
5. Since the “asset turnover” ratios are similar for both firms, and Firm “A” uses much more financial leverage than Firm “B”, it follows that Firm “B” must have a much higher “profit margin” than Firm “A”.  
Profit Margin Firm A =  $17/120 = 14\%$   
Profit Margin Firm B =  $19/74 = 26\%$
6. Limitations to ratio analysis include the following:  
Differences in accounting standards, such as IFRS/GAAP, LIFO/FIFO;  
Different currencies, or business environment;  
Different business sectors, firm organization.

**Answer: Question 2.24 - Edmonds**

1. a. Capital budgeting is the process of making long-run planning decisions for investments in projects. Edmonds has already identified the project, obtained information and prepared predictions. Edmonds should consider alternative projects for improving the distribution of products. With more than one project, Edmonds could compare the alternatives.

To evaluate the current project, Edmonds should identify all the relevant cash inflows and outflows. Cash flows should be after-tax cash flows. Since the timing of cash flows varies over the ten year life of this project, discounted cash flow analysis should be used. Discounted cash flow methods measure all expected future cash inflows and outflows of a project discounted back to the present point in time.

1. b. Edmonds should continually monitor the performance of the project by performing post-audits. This long-term project includes many estimates (such as customer demand, estimated operating costs, etc). Actual cash flows should be compared to estimates to check the accuracy of the forecasts. A post audit will identify problems that need fixing and serve as a control for improving the capital budgeting process for future projects.

2. Qualitative factors in capital budgeting can include:

- Identifying the project's impact on customers. In this project, Edmonds should consider if the new facility will maintain customer satisfaction in regards to the shipping and delivery time.
- Identifying the project's impact on employees. Does Edmonds have adequate access to human capital in this geographical area to staff the new distribution area? What training will be necessary for employees?
- Managing employees under project evaluation. This project proposal is based on significant estimates from several different areas of the company (supply chain, marketing, accounting and finance). How will Edmonds handle the post-audits and manage employees who contributed to the project's initial research?

Other factors could be acceptable solutions.

3. Initial cash outflow is \$25,000,000 (same for pretax and after-tax)

Annual cash flows (years 1-10)

Increase in contribution margin \$55 x 500,000 =	\$27,500,000
Increase in annual costs	<u>1,000,000</u>
Net increase in annual operating cash flows (pretax)	\$26,500,000
Net increase in annual cash flows after tax (x 60%)	\$15,900,000

Depreciation tax shield: The depreciation on the new building will generate a tax savings (cash inflow) in years 1-10.

$\$25,000,000/10 \text{ years} = \$2,500,000 \text{ tax deduction each year} \times 40\% \text{ tax rate} = \$1,000,000 \text{ annual tax savings}$



4.
  - a. Define Net Present Value (NPV) - The difference between the present value of all cash inflows from a project or investment and the present value of all cash outflows required to obtain the investment, or to undertake the project at a given discount rate.
  - b. Define Internal Rate of Return (IRR) - The discount rate that equates the net present value of a stream of cash outflows and inflows to zero.
  - c. Identify one assumption of NPV and one assumption of IRR – IRR method assumes that cash flows can be reinvested at the IRR rate. NPV depends solely on the forecasted cash flows from the project and the opportunity cost of capital; the use of the weighted average cost of capital assumes that the risk of the new project is the same as the riskiness of the rest of the company; another assumption of the NPV is that a dollar today is better than a dollar tomorrow.
  - d. Discuss the decision criteria used in NPV and IRR to determine acceptable projects. If NPV is greater than zero; then the decision is to accept the project; and if IRR is greater than the hurdle rate (cost of capital) then the decision is to accept the project. Both of these will add value to the company.

5.

The biggest advantage of IRR is its simplicity. IRR uses one single discount rate to evaluate every investment, making calculation and comparisons easy. The use of cash flows instead of earnings is a major advantage of IRR. This makes the calculation simple, does away with the complexities involved in determining the earnings, ensures that all the transactions remain recorded and no earnings are omitted inadvertently or otherwise, and removes scope for distortions.

With the IRR method, the disadvantage is that it can give conflicting answers when compared to NPV for mutually exclusive projects. The multiple IRR problem can also be an issue - it occurs when cash flows during the project lifetime is negative (i.e. the project operates at a loss or the company needs to contribute more capital).

6.
  - a. Define the Payback method - The period of time necessary to recover the cash cost of an investment from the cash inflows attributable to the investment.
  - b. Identify and explain two disadvantages of the payback method -The payback method ignores the time value of money. The cash inflows from a project may be irregular, with most of the return not occurring until well into the future. A project could have an acceptable rate of return but still not meet the company's required minimum payback period. The payback model does not consider cash inflows from a project that may occur after the initial investment has been recovered. Most major capital expenditures have a long life span and continue to provide income long after the payback period. Since the payback method focuses on short-term profitability, an attractive project could be overlooked if the payback period is the only consideration

**Answer: Question 2.25 - Vista**

1. The Dividend Growth Model postulates that a firm's cost of equity ( $k_e$ ) is based on its dividend yield plus growth and can be expressed in the following manner;

$$k_e = D_1/P_0 + g$$

where:  $D_1$  = Dividend for the coming year  
 $P_0$  = Current price of the stock  
 $g$  = expected growth rate in dividends

Since Vista is a closely held firm, its price must be estimated based on the following:

$$P_0 = \text{P/E Ratio} * \text{EPS} = 11 * \$3 = \$33$$

Next year's dividend can be estimated by multiplying the current EPS times the payout ratio and adjusting for growth (at 10%) as follows:

$$D_1 = \$3 * 0.4 * 1.1 = \$1.32$$

$$\text{This results in a cost of equity of } k_e = D_1/P_0 + g = \$1.32/33 + 0.1 = 14\%$$

2. The Capital Asset Pricing Model (CAPM) postulates that the return on a security is equal to the risk free rate plus a risk premium. The risk premium is based on the risk (volatility) of the security relative to the overall market (as measured by Beta) times the incremental return on the market above the risk free rate. The model can be expressed as follows;

$$k_e = r_f + (r_m - r_f) * \beta$$

where:  $k_e$  = cost of equity  
 $r_f$  = the risk free rate  
 $r_m$  = return on the market  
 $\beta$  = Beta value for the firm  
For Vista,  $k_e = 5\% + (15\% - 5\%) * 1.05 = 15.5\%$

3. The dividend growth model computes the cost of equity by summing the dividend yield and the estimated growth rate. This model assumes a constant rate of dividend growth. The model can therefore overestimate the cost for firms with high growth rates because such rates cannot be sustained. Also, it is difficult to forecast growth  
CAPM computes return as the risk-free rate plus a risk premium. The risk premium is based on the risk of the security in relation to the overall market. CAPM assumes a perfectly efficient capital market and that investors concur on stock performance.

4. A firm's cost of equity is impacted by a variety of factors including the following:
  - a. Overall state of the economy
  - b. Current interest rates
  - c. Risk and return levels of the overall equity market
  - d. Risk of the industry, including factors such as
    1. Cyclicalities
    2. Level of foreign competition
    3. Stage in the industry life cycle
    4. Level of technological change
    5. Growth prospects
  - e. Specific firm risk including factors such as:
    1. Customer composition
    2. Competitive advantage compared to other firms
    3. Geographical base
    4. Operating leverage
  - f. Financial leverage of the firm measured by "Debt/Equity" or "Debt/Total Capitalization"

**Answer: Question 2.26 – Atlas Express**

1. Net working capital =  $185,100 - 2,466,800 = (2,281,700)$   
 Current ratio =  $185,100 / 2,466,800 = 0.0750$   
 Quick ratio =  $(81,800 + 87,900) / 2,466,800 = 0.0688$   
 Cash ratio =  $81,800 / 2,466,800 = 0.0332$   
 Cash flow ratio =  $45,400 / 2,466,800 = 0.0184$   
 Net working capital ratio =  $(2,281,700) / 2,186,500 = (1.0435)$

Liquidity is a firm's ability to pay its current obligations as they come due and thus remain in business in the short run. Liquidity measures the ease with which assets can be converted to cash. The liquidity of Atlas Express is poor, because all the ratios are very low with the negative net working capital.

2. Assess and control operating expenses to improve profitability.  
 Review credit terms with the customers and encourage them to pay in cash.  
 Negotiate longer payment terms with the vendors and creditors whenever possible to keep the money longer.

3. a. A legal procedure for dealing with debt problems of individuals and businesses; specifically, a case filed under one of the chapters of title 11 of the United States Code (the Bankruptcy Code).
- b. Advantages: Some unsecured debts will be discharged.  
Orderly dissolution.  
Others.
- Disadvantages:  
Negative effect on credit and reputation.  
Property loss during bankruptcy claims.  
Cost of filing bankruptcy.  
Others.
- c. Yes. Company is illiquid; has negative equity; others.  
OR  
No. Creditors apparently cooperating; Perhaps business can turn around w/out bankruptcy; others.

**Answer: Question 2.27 – Leather Manufacturer**

1. a. The degree of operating leverage measures how much influence the cost structure has on influencing the operating results. Companies with a high degree of operating leverage have more opportunity to increase profits with increases in sales but also more risk that profits will decrease with decreases in sales. As a company becomes more reliant on fixed expenses, their operating leverage will increase. Operating leverage measures how sensitive the company is to a change in sales.
- b. Calculate degrees of operating leverage using formula contribution margin/operating income:  
Lease equipment =  $1,550,000/350,000 = 4.4$   
Continue current =  $1,000,000/350,000 = 2.86$

2. a. Lease:  $4.4 \times 5\% = 22\%$   
 Current:  $2.86 \times 5\% = 14.3\%$

Alternatively, some candidates will prepare new projected income statements for the next year. While this method will consume much more of the candidate's time, it will also provide the solution to choose the leasing option and approximate increases in operating income.

New projected income statements with 5% increase sales:

<u>Lease Equipment</u>	<u>Continue Current</u>	
Sales	2,625,000	2,625,000
Variable cost of goods sold	997,500	1,575,000
Contribution margin	1,627,500	1,050,000
Fixed costs	1,200,000	650,000
New operating income	427,500	400,000
Old operating income	350,000	350,000
Increase	77,500	50,000
% Increase	22%	14.29%

b. Since leasing the equipment has a higher operating leverage, the company should choose this option. With sales expected to increase every year for the next 10 years (the leasing term), choosing the leasing method will help the company earn higher operating income.

3. Leasing the equipment is a form of off-balance sheet financing. Under an operating lease (ie rental type agreement), the company will not report any debt related to the lease on the balance sheet. The asset is not recorded as an asset on the balance sheet either. The rent expense is recorded as an expense on the income statement. If the company purchases the equipment, the transaction is recorded on the balance sheet – the asset is capitalized and the related debt, including any interest payable, is shown on the balance sheet. The asset is depreciated with depreciation expense recorded on the income statement. The interest expense for the debt is also reported on the income statement.
4. a.  $\$6,000,000/500,000 = 12$  years.  
 b. not consider time value  
 not consider cash flows after payback date



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CMA Part 1- Financial Reporting, Planning,  
Performance and Control  
Additional Examination Practice Questions  
Released March 2016

**Part 1 – Financial Reporting, Planning, Performance and Control**  
**Examination Practice Questions**

1. An advantage of an enterprise resource planning system is that
  - a. it can usually be installed by organizations of all sizes.
  - b. the system can be easily customized to suit the unique needs of the organization.
  - c. the comprehensiveness of the system reduces resistance to change.
  - d. its implementation improves business processes.
  
2. Hayden Ross has four booth rental options at the county fair where he plans to sell his new product for \$37.50 per unit with a cost of \$12.50. The booth rental options are shown below.

Option 1: \$1,000 fixed fee

Option 2: \$750 fixed fee + 5% of all revenues generated at the fair

Option 3: \$20% of all revenues generated at the fair

Option 4: \$200 fixed fee + 16% of all revenues generated at the fair

Assuming there is a 40% probability that 70 units will be sold and a 60% probability that 40 units will be sold, which option maximizes income?

- a. Option 1.
  - b. Option 2.
  - c. Option 3.
  - d. Option 4.
  
3. A company produces two products that incur \$50,000 of joint costs. At the split-off point, 5,000 units of Product 1 and 15,000 units of Product 2 can be sold for \$5 and \$3 per unit, respectively. These products are processed further. Product 1 incurs \$25,000 of separable costs and is then sold for \$12 per unit, and Product 2's separable costs total \$30,000 with a final selling price of \$6 per unit. If the company uses the constant gross profit method to allocate joint costs, the dollar amount of joint costs allocated to Product 1 would be
  - a. \$17,000.
  - b. \$17,857.
  - c. \$18,421.
  - d. \$20,000.
  
4. A publicly-traded company has 100,000 outstanding shares of common stock, with a par value of \$5. The company uses U.S. GAAP to prepare its financial statements. The company recently

declared a 5% stock dividend. On the date the stock dividend was declared, the company's stock was trading at \$25 per share. On the date of declaration, the company's

- a. additional paid-in capital will increase.
- b. retained earnings will increase.
- c. total shareholders' equity will decrease.
- d. outstanding shares will decrease.

5. A manufacturing company has two departments, Machining and Assembly, at its Shanghai plant. This year's budget for the plant contained the following information.

	<u>Machining</u>	<u>Assembly</u>
Manufacturing overhead	\$4,000,000	\$2,000,000
Direct labor hours	100,000	200,000
Machine hours	40,000	40,000

If the Shanghai plant uses departmental allocation based on machine hours for the Machining Department and direct labor hours for the Assembly Department, what would the rates be when allocating overhead to the individual products?

- |    | <u>Machining</u> | <u>Assembly</u> |
|----|------------------|-----------------|
| a. | \$40/hr.         | \$10/hr.        |
| b. | \$75/hr.         | \$30/hr.        |
| c. | \$100/hr.        | \$10/hr.        |
| d. | \$100/hr.        | \$50/hr.        |

6. A company's net income totaled \$12,000,000. The company had an extraordinary after-tax loss of \$250,000, an unrealized after-tax gain of \$25,000 on available-for-sale securities, and a \$900,000 distribution of cash dividends. The company's comprehensive income was
- a. \$12,025,000.
  - b. \$11,775,000.
  - c. \$11,750,000.
  - d. \$10,875,000.



7. A company uses a normal costing system and a predetermined overhead rate to allocate its overhead costs. The manufacturing process requires the use of machining equipment, which is a primary driver of overhead. The actual factory overhead amount is \$450 for Department A, Job 120 as of the end of the year. Production costs are shown below.

Estimated annual overhead for all departments	\$220,000
Expected annual machine hours for all departments	20,000
Actual machine hours for Department A, Job 120	32
Actual labor hours for Department A, Job 120	21

The overhead cost for Department A, Job 120 is

- a. \$98 overapplied.
  - b. \$98 underapplied.
  - c. \$219 overapplied.
  - d. \$219 underapplied.
8. A continuous budget is one that
- a. is adjusted throughout the period for changing environmental factors.
  - b. is available for a specified future period by adding a period to the period that just ended.
  - c. is created after the organization has been operating for at least one period.
  - d. uses the prior period's actual results as the current period's budget.
9. Which one of following budgets is regarded as the foundation of the master budget?
- a. Production.
  - b. Sales.
  - c. Operating.
  - d. Cash.

10. A multinational company maintains its financial records under both IFRS and U.S. GAAP. Last year, the company determined its inventory was impaired because demand for its product collapsed when a competitor launched a new product with innovative features. As a result, the company wrote down its inventory to \$0 with a carrying amount of \$500,000. This year, however, government authorities unexpectedly announced that the competitor's product was defective and the product was removed from the market. As a result, the company's products were again in demand and the company estimated their net realizable value to be \$750,000 at the end of the current quarter. How should the company record this new development in the current quarter?
- Under IFRS, \$0 write-up of the inventory; under U.S. GAAP, \$0 write-up of the inventory.
  - Under IFRS, \$500,000 write-up of the inventory; under U.S. GAAP, \$0 write-up of the inventory.
  - Under IFRS, 750,000 write-up of the inventory; under U.S. GAAP, \$0 write-up of the inventory.
  - Under IFRS, \$750,000 write-up of the inventory; under U.S. GAAP, \$750,000 write-up of the inventory.
11. A company began the month with 10,000 units in work-in-process inventory that were 60% complete. During the month, the company transferred 120,000 units to finished goods. At the end of the month, 20,000 units were in work-in-process inventory that were 20% complete. Using the first-in, first out (FIFO method, the equivalent units of production during the month equal
- 130,000.
  - 128,000.
  - 122,000.
  - 118,000.
12. A company has developed and implemented a wireless charging feature into one of their flashlights. No other competitor in the marketplace currently offers this feature. In a marketing research study, the vast majority of consumers indicated that they would pay a premium for this feature. Which one of the following is the **best** strategy to bring this product to the market?
- Porter's cost strategy.
  - Porter's focus strategy.
  - Porter's differentiation strategy.
  - Porter's segmentation strategy.

13. A company is setting up a new division to sell its products in Africa. An accountant has determined that the new African division will have to sell 250,000 units in order to cover the division's fixed costs of \$365,000. The company is estimating total sales of \$475,000 for the new African division. What is the contribution margin per unit for the new African division?
- \$0.44.
  - \$0.68.
  - \$1.46.
  - \$1.90.
14. Within the relevant range, fixed cost per unit will
- increase as the activity level increases.
  - decrease as the activity level decreases.
  - remain the same as the activity level decreases.
  - decrease as the activity level increases.
15. Which one of the following would cause a company's production budget to decrease?
- An increase in direct labor costs per unit.
  - A decrease in units produced per direct labor hour.
  - A decrease in required ending inventory.
  - An increase in beginning direct labor inventory.
16. A company is the leading company in the premium bottled water industry. Its growth is mainly driven by the negative health publicity on carbonated soft drinks and other sweetened beverages. Extensive inventory and distribution infrastructure is needed to compete in this industry. Its main packaging materials can be sourced either locally or easily imported from overseas. With its 60% market share, the company is able to influence prices and competitive activity. The second biggest competitor holds 20% market share, while the remaining 20% is shared by many small companies. Supermarkets and other grocery retailers are the largest customer segment, accounting for approximately 45% of sales. The supermarkets and grocery retailers are driving volume growth and are undergoing consolidation into larger supermarket conglomerates. Using Porter's 5 Forces, which one of the following statements **best** reflects the industry environment?
- Low profitability but can increase due to increasing power of buyers.
  - Low profitability due to low threat of substitutes and new entrants.
  - High profitability but can decrease due to increasing power of buyers.
  - High profitability due to high power of buyers and sellers.
17. Which one of the following actions would **most** effectively address the issue of internal control risk related to the custody of cash receipts?

- a. Establishing a lockbox deposit system at a regional bank.
  - b. Assigning a single employee to be responsible for the receipt and posting of cash receipts to customer accounts.
  - c. Preparing a control total of cash receipts immediately upon opening incoming payments.
  - d. Installing a surveillance system to monitor the processing of cash receipts and custody of cash.
18. Devin's Custom Construction designs and builds custom houses for consumers. Customers have several base plans to choose from and modifications can be made from those plans. The modifications can range from being very minor to significant. The houses generally take from 3 months to one year to design and build depending upon the amount of customization. What is the **best** type of budgeting for this business situation?
- a. Project budgeting.
  - b. Activity-based budgeting.
  - c. Flexible budgeting.
  - d. Rolling/continuous budgeting.
19. Business unit A has a return on investment of 10%, with a net profit for the year of \$40,000. The opportunity cost for the business unit investments has been calculated at 8%. The company plans to purchase a new machine worth \$100,000 and expects the net profit to rise by an additional \$15,000. The new purchase decision will increase the return on investment
- a. by 1% and increase the residual income by \$8,000.
  - b. by 1% and increase the residual income by \$15,000.
  - c. to 11% and increase the residual income by \$7,000.
  - d. to 11% and increase the residual income by \$15,000.

20. A company operates on a calendar year but maintains four continuous quarterly budgets for up-to-date budget information. After completing its five-year long-term plan, the company's management decided to make a capital investment in new equipment. The equipment is expected to have a useful life of nine years. Which one of the following is the most appropriate time period for the capital budget for the evaluation of the capital investment?
- One year.
  - Four continuous quarters.
  - Five years.
  - Nine years.
21. A company is planning to implement a just-in-time (JIT) inventory management system. All of the following are benefits expected from implementing JIT **except**
- lower investment in inventory.
  - lower obsolescence and other carrying costs.
  - higher inventory turnover.
  - fewer defects and less rework.
22. A company uses participative budgeting. In order to more easily meet budgetary goals, the controller underestimates the amount of revenue and overestimates fixed selling and administrative expenses. This is an example of
- flexible budgeting.
  - budgetary slack.
  - zero-based budgeting.
  - budgetary variance.

23. Bell Retail Company sells antique replica trunks to customers all over the world. Bell's inventory records show the following.

	<u>Quantity (units)</u>	<u>Cost (each)</u>
Beginning inventory	200	\$1,055
Purchases:		
June 3	170	1,062
September 18	190	1,070
December 10	160	1,076

Bell sells 470 units this year. Management is researching whether the company should use last in, first out (LIFO) or first in, first out (FIFO). If Bell's management wants to lower the company's income taxes, which inventory cost flow assumption should Bell select?

- FIFO, because the cost of goods sold will be \$9,870 higher than LIFO.
  - FIFO, because the operating income will be \$840 lower than LIFO.
  - LIFO, because the operating income will be \$4,360 lower than FIFO.
  - LIFO, because the cost of goods sold will be \$5,250 higher than FIFO.
24. BusyBee Cleaning Co. is evaluating their costs to clean a standard office. The Controller has done a linear regression of the hours spent cleaning various offices and the total costs (labor, supplies, transportation) for each office cleaned. The regression analysis yielded the following information.

$$y = \$25x + \$75$$

y = the total cost to clean an office

x = the hours spent cleaning an office

What is the **best** description of the costs of cleaning an office based on this regression analysis?

- The cost is \$100 per hour to clean an office.
  - There is \$25 of fixed costs and \$75 of variable costs per hour to clean an office.
  - There is \$25 of variable costs per hour and \$75 of fixed costs to clean an office.
  - The cost is \$25 per hour to clean an office.
25. Analyzing a company's technological capabilities, employee skills, and sales team performance will provide
- external factors that identify the company's strengths and threats.
  - internal factors that identify the company's strengths and opportunities.
  - external factors that identify the company's strengths and weaknesses.
  - internal factors that identify the company's strengths and weaknesses.
26. According to U.S. GAAP, where on the income statement should a multinational company report the loss from the disposal sale of a major operating unit?

- a. Report the loss, pretax, in a separate section between income from continuing operations and net income.
  - b. Report the loss, net of tax, in a separate section between income from continuing operations and net income.
  - c. Report the loss, pretax, in a separate section between income from operations and income before income tax.
  - d. Report the loss, net of tax, in a separate section between income before tax and net income.
27. Which one of the following describes what an organization wants to accomplish and leads to the formulation of long-term business objectives?
- a. Values.
  - b. Strategy.
  - c. Competency.
  - d. Mission Statement.
28. Using management by exception allows managers to focus their attention on
- a. areas that have deviated most from expectations.
  - b. non-administrative costs and revenues.
  - c. unfavorable variances.
  - d. variable costs and revenues.
29. Which one of the following is in a company's cash budget?
- a. Depreciation of plant equipment.
  - b. Amortization of patent costs.
  - c. Conversion of debt for equity.
  - d. Disposal of land.

30. A company uses regression analysis in which monthly advertising expenses are used to predict monthly product sales, both in millions of dollars. The results show a regression coefficient for the independent variable equal to 0.8. This coefficient value indicates that
- on average, every additional dollar of advertising results in \$0.8 of additional sales.
  - advertising is not a good predictor of sales because the coefficient is so small.
  - when monthly advertising is at its average level, product sales will be \$800,000.
  - the average monthly advertising expenditure in the sample is \$800,000.
31. A company has designed its accounting system to have an automated reconciliation between its payroll and general ledger systems. Which type of control has the company implemented?
- Output control.
  - Input control.
  - Processing control.
  - Transaction control.
32. The accounting controls surrounding the revenue cycle should provide assurances of all of the following **except** the
- accurate recording, shipping, and billing of all valid sales transactions.
  - approval of all credit sales transactions after they are processed.
  - proper authorization of all sales return and allowance transactions.
  - accurate recording of customer accounts and finished goods inventories.
33. A company reported first quarter revenues of \$10,000,000, gross profit margin of 25%, and operating income of 15%. To reduce overhead expenses, a consultant recommends that the company outsource some of its operating activities beginning with the second quarter. This recommendation is anticipated to reduce operating expenses by 20% without affecting sales volume. The company has an income tax rate of 35%. Assuming cost of sales remains at 75%, what is the impact on the income statement if the company implements the recommendation?
- Gross profit will increase by 8.0%.
  - Operating income will increase by 8.7%.
  - Operating income will increase by \$200,000.
  - Operating expenses will be reduced by \$300,000.



34. During the strategic planning process, which one of the following is an external factor to be analyzed?
- a. Organizational culture.
  - b. Societal culture.
  - c. Employee morale.
  - d. Organizational structure.
35. The major feature of zero-based budgeting is that it
- a. assumes all activities are legitimate and worthy of receiving budget increases to cover any increased costs.
  - b. evaluates each activity and determines whether it should be maintained as it is, reduced, or eliminated.
  - c. uses the previous year's budget and adjusts it for inflation.
  - d. focuses on planned capital outlays for property, plant, and equipment.
36. A company has in its disaster recovery plan a process to store in a secure, offsite warehouse building a back-up of its current financial operating systems. What type of back-up location is the company **most** likely using?
- a. A hot site.
  - b. A cold site.
  - c. A mirrored data center.
  - d. A recovery operations center.
37. At the beginning of the year, a company budgeted to sell 600,000 units at a price of \$12 per unit. It actually sold 585,000 units at a price of \$12.50 per unit. The sales-volume variance is
- a. \$112,500 favorable.
  - b. \$180,000 unfavorable.
  - c. \$187,500 unfavorable.
  - d. \$292,500 favorable.

38. A sign of the successful implementation of a balanced scorecard is the presence of cause-and-effect relationship. An example of this success for a hotel is meeting the target of
- decreasing a customer's check-in time, which causes an increase in the number of implemented employee suggestions.
  - increasing employee training hours, which causes employee compensation to increase.
  - increasing profit, which causes an increase in employee job satisfaction ratings.
  - receiving more 5-star ratings from customers, which causes an increase in profit.
39. A manager is reviewing a potential investment, which has significant uncertainty related to its ultimate financial outcome. The manager has estimated the following probabilities for the various levels of net cash flows that may result from the investment.

<u>Likelihood of Outcome</u>	<u>Net Cash Flows</u>
10%	(300,000)
20%	0
50%	100,000
20%	600,000

What is the expected value of net cash flows that the manager should use in evaluating the investment?

- \$100,000.
  - \$137,000.
  - \$140,000.
  - \$400,000.
40. Which of the following is the **most** important for the internal auditor to examine in order to ascertain the quality of manufacturing operations?
- Current and historical outputs.
  - Fulfillment of production quotas.
  - Cost of material purchases.
  - The related rework and scrap.

41. A company's master budget indicated that 50,000 units of finished goods should be produced using 25,000 feet of materials at \$4 per foot. The company actually produced 48,000 units of finished goods, purchased 27,000 feet of materials at \$4.25 per foot, and used 25,000 feet of materials in production. The direct material efficiency variance is
- \$0.
  - \$4,000 unfavorable.
  - \$6,000 unfavorable.
  - \$8,000 unfavorable.
42. An accounting associate sets up a new employee in the payroll system and directs the checks to be sent to a post office box. What two duties does this employee have that are incompatible?
- Authorization and recordkeeping.
  - Custody and recordkeeping.
  - Custody and reconciliation.
  - Reconciliation and authorization.
43. Products that are identified in the BCG Growth-Share Matrix as Cash Cows possess relatively
- high market share in a low growth market.
  - low market share in a high growth market.
  - high market share in a high growth market.
  - low market share in a low growth market.
44. A company's senior management has determined that the actual full cost will be used to determine the transfer price for goods sold from one division to another division. The selling division has excess capacity and can sell goods to other divisions or to outside customers at a higher price. An advantage of this transfer pricing model is that it
- achieves goal congruence within the company.
  - is effective for performance evaluation.
  - motivates management to achieve cost-effectiveness.
  - preserves each division's autonomy.

45. A company has two business units (Division 1 and Division 2) that are currently operating as profit centers. Management is evaluating the possibility of discontinuing Division 2 because of the operating losses it has experienced over the last few years. Select information from the operating budget for the upcoming fiscal year is shown below.

	<u>Division 1</u>	<u>Division 2</u>
Sales	\$800,000	\$400,000
Cost of goods sold	<u>300,000</u>	<u>250,000</u>
Gross margin	500,000	150,000
Variable selling and administrative expenses	100,000	80,000
Fixed selling and administrative expenses	<u>75,000</u>	<u>75,000</u>
Operating income (loss)	<u>\$325,000</u>	<u>(\$5,000)</u>

Fixed selling and administrative expenses are allocated equally between the two units. If Division 2 is discontinued, fixed selling and administrative expenses are expected to decrease by 20% from the current level, and Division 1's sales are expected to increase by 15%. Based on the budget information above, should the company discontinue Division 2, and why?

- Yes, because operating income will increase by \$80,000.
  - Yes, because operating income will increase by \$20,000.
  - No, because operating income will decrease by \$40,000.
  - No, because operating income will decrease by \$10,000.
46. Blue Fox Industries had the following account balances at year end.

Sales	\$452,000
Cash	23,400
Accounts payable	14,300
Rent expense	3,700
Accounts receivable	9,400
Cost of goods sold	214,000
Land	104,000
Unearned revenue	6,800
Gain on sale	17,500
Equipment	28,800
Inventories	2,200
Notes payable	67,000

What is the amount of total current assets reported on the balance sheet?

- \$35,000.
- \$39,900.
- \$59,300.
- \$63,800.

47. A company is implementing an activity-based budgeting system. Set-up overhead is allocated based on set-up hours and manufacturing overhead is allocated based on direct manufacturing labor hours. Budget information is listed in the table below.

Cost driver information	<u>Product A</u>	<u>Product B</u>
Number of units per batch	50	25
Set-up time per batch	1.75 hours	1.25 hours
Direct manufacturing labor time per batch	1.00 hours	0.75 hours

The company plans to produce 1,000 units of Product A and 750 units of Product B. The activity rates are \$100 per set-up hour and \$150 per direct manufacturing labor hour. What is the total budgeted overhead?

- a. \$10,063.
  - b. \$13,625.
  - c. \$15,125.
  - d. \$22,188.
48. In which one of the following situations will ending inventory on the balance sheet computed under absorption costing be exactly equal to ending inventory computed under variable costing?
- a. When the number of units produced equals the number of units sold.
  - b. When there is no fixed factory overhead cost.
  - c. When the denominator variance is zero.
  - d. When there is no variable overhead cost.

49. A company has divided its customers into two groups. Group 1 consists of 20% of the company's most loyal and reliable customers. Group 2 consists of 80% of the company's customers who are either small customers or larger customers who order small quantities to test the product before placing larger orders. The most recent results are shown below.

	<u>Group 1</u>	<u>Group 2</u>
Sales	\$7,500,000	\$2,000,000
Sales discounts	375,000	0
Cost of sales	5,250,000	1,400,000
Order processing	40,000	150,000
Delivery	<u>120,000</u>	<u>500,000</u>
Income (loss)	<u>\$1,715,000</u>	<u>\$ (50,000)</u>

The **best** way for the company to improve profitability is to

- a. charge a separate fee for the delivery of small quantities.
  - b. discontinue sales to Group 2 customers.
  - c. eliminate discounts for Group 1 customers.
  - d. raise the selling price of the product.
50. A company incurred \$200,000 of manufacturing cost during the month, with a beginning finished goods inventory of \$20,000 and an ending finished goods inventory of \$15,000. Assuming no work-in-process inventories, the company's cost of goods sold was
- a. \$220,000.
  - b. \$205,000.
  - c. \$200,000.
  - d. \$105,000.
51. A corporation maintains a manufacturing division that manufactures printed circuit boards and an assembly division that produces final products. Currently, the manufacturing division has sufficient capacity to manufacture an additional 5,000 circuit boards. An external market exists for circuit boards. The market price for one circuit board is \$80 and the cost to sell is \$10. The fixed manufacturing cost per circuit board is \$15 and the unit variable cost is \$50. The assembly division plans to purchase 4,500 circuit boards. Management of the assembly division thinks that it can purchase from the manufacturing division at a lower price since both divisions are under common control of the corporation. What is the minimum transfer price between the manufacturing division and the assembly division?
- a. \$50.
  - b. \$65.
  - c. \$70.
  - d. \$80.

52. Which of the following costs are generally included in a calculation of operating income when using absorption costing?

- I. Fixed direct manufacturing costs
  - II. Variable direct manufacturing costs
  - III. Variable manufacturing overhead costs
  - IV. Fixed manufacturing overhead costs
- a. II and III, only.
  - b. I and IV, only.
  - c. I, II and III, only.
  - d. I, II, III, and IV.

53. All of the following are limitations of the balance sheet **except** that

- a. the balance sheet is prepared using management judgments and estimates.
- b. assets and liabilities are usually recorded at historical cost, which might differ significantly from current market value.
- c. the balance sheet provides information on the liquidity and solvency of the company.
- d. the balance sheet omits many items that cannot be recorded objectively but which have financial value to the company.

54. For a manufacturing firm, which of the following would be included in cash outflows from financing activities on the Statement of Cash Flows?

- a. Payment of salaries and wages.
- b. Repayment of the principal portion of firm debt.
- c. Issuance of new stock.
- d. Interest payments on firm debt.

55. A company produces a wide variety of hand-crafted rocking chairs. The most appropriate allocation base for allocating production supervisor salaries to the products is

- a. direct labor hours.
- b. machine hours.
- c. number of products.
- d. sales dollars.

56. The internal auditors of a company are assessing controls over network access. The best source of evidence to determine that terminated employees do not continue to have access to the company's network is to
- discuss password removal procedures with the database administrator.
  - review access control software to determine whether the most current version is implemented.
  - review computer logs for access attempts.
  - reconcile current payroll lists with database access lists.

57. A company established its annual direct material budget to produce 300,000 units as follows.

$$150,000 \text{ pounds of material @ } \$0.75 \text{ per pound} = \$112,500$$

Throughout the year, the company produced 310,000 units of finished goods using 0.48 pounds per unit at a cost of \$0.76 per pound. The direct material efficiency variance is

- \$588 unfavorable.
  - \$900 favorable.
  - \$1,488 unfavorable.
  - \$4,650 favorable.
58. A company uses the IFRS lower-of-cost-or-market (LCM) rule to value its inventory of frozen foods. The company applies this LCM method on a total inventory basis, not directly to each item of frozen food. Information on the frozen food inventory at December 31 of the year just ended is provided below.

Replacement cost	\$ 80,000
Net realizable value less profit margin	85,000
Weighted average cost	90,000
Net realizable value	100,000

Using this LCM approach, the company should value its inventory at

- \$80,000.
- \$85,000.
- \$90,000.
- \$100,000.



59. During its first month of operations, a company manufactured 10,000 units of finished goods, incurring \$100,000 of direct material costs, \$75,000 of direct labor costs, and \$125,000 of manufacturing overhead. During the month, the company sold 8,000 units for \$60 each. What is the company's throughput contribution margin?
- \$400,000.
  - \$380,000.
  - \$340,000.
  - \$240,000.

60. A company produces products simultaneously through a refining process costing \$186,000. The joint products, Alpha and Beta, have selling prices of \$8 and \$20 per pound, respectively, after additional processing costs of \$4 per pound of each product are incurred after the split-off point. Omega, a by-product, is sold at the split-off point for \$6 per pound. The number of pounds produced is shown below.

Alpha	10,000 pounds
Beta	5,000 pounds
Omega	1,000 pounds

Assuming the company inventories Omega, the joint cost allocated to Alpha using the sales value at split-off method is

- \$72,000.
  - \$80,000.
  - \$82,666.
  - \$100,000.
61. A company reported the following cost information for the last fiscal year when it produced 100,000 units.

Direct labor	\$200,000
Direct materials	100,000
Manufacturing overhead	200,000
Selling and administrative expenses	150,000

All costs are variable except for \$100,000 of manufacturing overhead and \$100,000 of selling and administrative expenses. Using flexible budgeting, what are the total costs associated with producing and selling 110,000 units?

- \$450,000.
- \$650,000.
- \$695,000.
- \$715,000.

62. A company's master budget for the year planned that the company would manufacture and sell 2,000 units for €500,000 in sales, €350,000 in variable expenses, and €45,000 in fixed expenses. If the company only manufactured and sold 1,750 units during the year, how much is the company's flexible budget operating income?
- a. €2,500.
  - b. €6,250.
  - c. €1,875.
  - d. €105,000.
63. A company's management is planning on making an investment of \$800,000 to launch a new product. In the first year, the new product is expected to generate sales of \$200,000 and a contribution margin of \$175,000. Incremental fixed costs are \$50,000. The company's expected return on investment in the first year is **closest** to
- a. 6%.
  - b. 16%.
  - c. 22%.
  - d. 25%.
64. Which one of the following statements **best** describes the concept of continuous improvement when developing standard costs?
- a. Standards become more challenging as time passes.
  - b. Standards are developed with zero slack or downtime factored into the calculation.
  - c. Standards remain unattainable to encourage employees to strive harder.
  - d. Standards are established at an easily attainable level to increase employee morale.

65. A company has two service departments, S1 and S2, and two production departments, P1 and P2. Departmental data for January is shown below.

	<u>S1</u>	<u>S2</u>
Costs incurred	\$27,000	\$18,000
Service provided to:		
S1	0%	20%
S2	10%	0%
P1	50%	30%
P2	40%	50%

What are the total allocated service department costs to P2 if the company uses the reciprocal method of allocating its service department costs?

- a. \$19,800.
  - b. \$21,949.
  - c. \$22,500.
  - d. \$23,051.
66. A company's master budget for the year planned for the manufacture and sale of 5,600 toys for ¥750,000 in revenue, ¥400,000 in variable expenses, and ¥255,000 in fixed expenses. By the end of the year, the company had only manufactured and sold 4,500 toys for ¥650,000 in revenue, ¥375,000 in variables expenses, and ¥195,000 in fixed expenses. What is the operating income variance for the company for the year?
- a. ¥15,000 unfavorable.
  - b. ¥25,000 favorable.
  - c. ¥75,000 unfavorable.
  - d. ¥100,000 unfavorable.

67. A company uses the calendar year as its financial results reporting time period. On May 31 of the prior year, the company committed to a plan to sell a line of business. As a result, the operation of this line of business and cash flows will be eliminated from the company's operations, and the company will have no significant continuing involvement with the line of business subsequent to the disposal. For the period January 1 through May 31 of the prior year, the line of business had revenues of \$1,000,000 and expenses of \$1,600,000. The assets of the line of business were sold on November 30, at a loss for which no tax benefit is available. In its income statement for the year ended December 31 of prior year, how should the company report the line of business operations from January 1 through May 31?
- \$600,000 should be reported as part of the loss on disposal of a component.
  - \$600,000 should be reported as an extraordinary loss.
  - \$600,000 should be included in the determination of income or loss from operations of a discontinued component.
  - \$1,000,000 and \$1,600,000 should be included with revenues and expenses, respectively, as part of continuing operations.
68. All of the following statements in regard to management's report on internal controls over financial reporting in accordance with the Sarbanes-Oxley Act are true **except** that the report must
- include a statement of management's responsibility for establishing effective internal controls over financial reporting.
  - include a statement that the design of the internal controls is the responsibility of the company's audit committee.
  - assess the effectiveness of the company's internal controls over financial reporting, as of the end of the period.
  - be attested to by an independent auditor.
69. A company has just completed construction of a new computer facility. To limit unauthorized access to this facility, which one of the following is the **most** effective procedure that the company can implement?
- Data encryption.
  - Access control software.
  - Input controls.
  - Biometric identification system.

70. A company is currently performing a cost of quality analysis of one of its facilities. The following are costs compiled by the facility accountant.

Inspection	\$1,500
Warranty repair	2,800
Testing of new materials	400
Product testing	950
Spoilage	645
Scrap	150
Preventive equipment maintenance	590
Liability claims	1,870
Rework	1,285

Total internal failure cost is

- a. \$2,080.
  - b. \$2,785.
  - c. \$4,945.
  - d. \$5,955.
71. An auditing firm is concluding its audit of a publicly-traded company in the U.S. After obtaining sufficient audit evidence, an external auditor concludes that misstatements in the aggregate are material but not pervasive to the financial statements. What type of opinion should the external auditor issue on the company's financial statements?
- a. Unmodified opinion.
  - b. Qualified opinion.
  - c. Adverse opinion.
  - d. Disclaimer of opinion.
72. An example of an item that would fall under the customer perspective on the balanced scorecard of an airline is
- a. customer complaints will decrease by 10%.
  - b. customers will have to wait no longer than 15 minutes to check their bags.
  - c. 90% of the flights will arrive on time.
  - d. three new in-flight meals will replace existing offerings that are unpopular with customers.

73. All of the following are issues that should be considered in evaluating performance when common costs are allocated to business segments **except** that
- cost allocations are not included in the calculation of long-term cost per unit.
  - common costs are not controllable by segment managers.
  - the allocation can be affected by the cost drivers used by other segments.
  - there may be no cause-and-effect relationship between an allocated cost and the segment's operations.
74. A pizza restaurant has recently experienced a decline in profit margin although sales have remained steady. An analysis of direct cost inputs revealed the following.
- A favorable materials price variance
  - An unfavorable materials quantity variance
  - A favorable labor rate variance
  - An unfavorable labor efficiency variance

Which one of the following is the **most** likely cause of the decline in the profit margin?

- The cheese supplier has raised prices.
- New employees are still learning the recipes.
- The employees are being paid more than the budgeted standard rates.
- The employees are working fewer hours than budgeted standard hours.

Answers - CMA Part 1 Practice Questions

- |       |       |       |
|-------|-------|-------|
| 1. d  | 35. b | 69. d |
| 2. c  | 36. b | 70. a |
| 3. a  | 37. b | 71. b |
| 4. a  | 38. d | 72. a |
| 5. c  | 39. c | 73. a |
| 6. a  | 40. d | 74. b |
| 7. b  | 41. b |       |
| 8. b  | 42. a |       |
| 9. b  | 43. a |       |
| 10. b | 44. a |       |
| 11. d | 45. b |       |
| 12. c | 46. a |       |
| 13. c | 47. b |       |
| 14. d | 48. b |       |
| 15. c | 49. a |       |
| 16. c | 50. b |       |
| 17. a | 51. a |       |
| 18. a | 52. d |       |
| 19. c | 53. c |       |
| 20. d | 54. b |       |
| 21. d | 55. a |       |
| 22. b | 56. d |       |
| 23. c | 57. d |       |
| 24. c | 58. c |       |
| 25. d | 59. a |       |
| 26. b | 60. b |       |
| 27. d | 61. c |       |
| 28. a | 62. b |       |
| 29. d | 63. b |       |
| 30. a | 64. a |       |
| 31. c | 65. d |       |
| 32. b | 66. a |       |
| 33. c | 67. c |       |
| 34. b | 68. b |       |



*IMA's Certification for  
Accountants and  
Financial Professionals  
in Business*

CMA Part 2 - Financial Decision Making  
Additional Examination Practice Questions  
Released March 2016

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**CMA Part 2 - Financial Decision Making  
Examination Practice Questions**

1. A company sells two products: Sparta and Volta. Volta is manufactured by a third party supplier, which charges the company a contractual price for each unit of Volta manufactured. A summary of revenue and costs assumptions for each product is as follows.

	<u>Sparta</u>	<u>Volta</u>
Planned sales units prior to promotion	100,000	20,000
Unit selling price	\$10	\$20
Unit variable cost	\$3	\$10
Fixed costs	\$500,000	0

The company has the opportunity to spend an additional \$10,000 in promotional expenditures on either Sparta or Volta, anticipating a 10% increase in unit sales volume as a result. Both product lines have idle capacity and can support the increase in unit volume. The company should spend the additional promotional expenditure on

- a. Sparta, because it would generate an additional \$10,000 in operating profit.
  - b. Sparta, because it would generate an additional \$60,000 in operating profit.
  - c. Volta, because it would generate an additional \$20,000 in operating profit.
  - d. Volta, because it would generate an additional \$10,000 in operating profit.
2. A profit-maximizing company is considering a price increase on a particular product. After extensive market research, the company has determined that demand for the product is price inelastic. Assuming all other factors remain constant, determine what course of action the company should take and the resulting impact on quantity demanded.
- a. Do not increase price; quantity demanded will decrease significantly.
  - b. Do not increase price; minimal impact on quantity demanded.
  - c. Increase price; minimal impact on quantity demanded.
  - d. Increase price; quantity demanded will increase significantly.

3. Which one of the following is **not** correct regarding the value of options?
- a. As the stock price increases, the value of a put option decreases but the value of a call option increases.
  - b. The higher the strike price, the lower the value of a call option and the higher the value of a put option.
  - c. The value of a put option is adversely related to the risk-free interest rate, and the value of a call is positively related to the risk-free interest rate.
  - d. Volatility of the underlying stock increases the value of a call option but decreases the value of a put option.
4. Elements of project risk identification include which one of the following?
- a. Cost estimates.
  - b. Actual risk events.
  - c. Interviews and observations.
  - d. Activity duration estimates.
5. Employee A observes that Employee B is improperly altering department records to meet month end goals. These records are for internal use only and do not impact the company's financial records. Employee A notifies her supervisor of the impropriety, and the supervisor advises Employee A that she instructed Employee B to alter the records and an adjustment would be made the subsequent month to correct the records. Employee A should
- a. advise the supervisor that her behavior was unethical and do not communicate the impropriety any further.
  - b. follow the organization's established procedures on the resolution of such conflict.
  - c. do nothing since the supervisor authorized the behavior.
  - d. communicate the unethical behavior to external authorities.

6. A company's year-end selected financial data is shown below.

	<u>Year 2</u>	<u>Year 1</u>
Current assets	\$250,000	\$175,000
Total assets	600,000	500,000
Total liabilities	300,000	225,000
Net sales	200,000	150,000
Net income	75,000	60,000

The company's rate of return on assets and rate of return on equity for Year 2 are

- a. 12% and 22%, respectively.
  - b. 13% and 25%, respectively.
  - c. 14% and 26%, respectively.
  - d. 36% and 25%, respectively.
7. A publicly-traded company is planning to divest its Division A for \$100 million. Private investors have pooled their capital of \$10 million and plan to finance the balance of \$90 million via debt financing with Division A's assets as collateral. The new owners plan to give the new management a bigger stake in the company by providing stock options. They also redesigned performance measures and incentive schemes for employees to minimize inefficiencies and bureaucracy. This scenario **most** closely describes a
- a. management recapitalization.
  - b. management buyout.
  - c. leveraged recapitalization.
  - d. leveraged buyout.
8. If the term structure of interest rates has a flat slope, which one of the following statements is correct?
- a. Long-term rates are higher than short-term rates.
  - b. Long-term rates are the same as short-term rates.
  - c. The intermediate-term interest rate is lower than the T-bill interest rate.
  - d. Bank borrowing rates will rise.

9. A company has a strong internal control structure in its accounting department. It has a high degree of duty segregation, regular reconciliations, strict reviews, and comprehensive internal audits. A disgruntled fixed assets accountant has been contemplating the embezzlement of cash receipts processed by the accounts receivable department. The accountant plans to use these funds to sustain his gambling problem. Using the Fraud Triangle model, what is the **best** assessment of fraud risk for the company's situation?
- Low, because both opportunity and rationalization are absent.
  - Medium, because opportunity is absent.
  - Medium, because rationalization is absent.
  - High, because pressure, opportunity, and rationalization are all present.
10. If a corporation has the option to use either a shorter period or a longer period to amortize a patent, and it can use either the declining-balance method or the straight-line method to depreciate a fixed asset. The corporation would be considered to have better earnings quality if it uses the
- longer period to amortize the patent and the declining-balance method to depreciate the fixed asset.
  - longer period to amortize the patent and the straight-line method to depreciate the fixed asset.
  - shorter period to amortize the patent and the declining-balance method to depreciate the fixed asset.
  - shorter period to amortize the patent and the straight-line method to depreciate the fixed asset.
11. If a company implements a just-in-time inventory management program, it would expect that its inventory turnover ratio will
- increase, and its days sales in inventory will decrease.
  - increase, and its days sales in inventory will increase.
  - decrease, and its days sales in inventory will decrease.
  - decrease, and its days sales in inventory will increase.
12. A company uses cost-volume-profit analysis to evaluate a new product. The total fixed costs of production per year are \$160,000. The unit variable cost is \$50. Which one of the following combinations of unit selling price and breakeven number of units sold per year is correct?
- \$50 selling price and 3,200 breakeven number of units.
  - \$100 selling price and 1,600 breakeven number of units.
  - \$25 selling price and 6,400 breakeven number of units.
  - \$70 selling price and 8,000 breakeven number of units.

13. A company had total sales of \$500,000 in the first quarter of the year, which was the same amount as it recorded in the first quarter of the prior year. However, its accounts receivable balance increased from \$230,000 last year to \$300,000 this year. Which one of the following is the **most** likely explanation for the increase in the accounts receivable balance?
- The company initiated the use of factoring in the current year.
  - The company shortened its payment terms in the current year from 60 days to 30 days.
  - The company discontinued the use of factoring in the current year.
  - The company hired more people in its credit and collections department.
14. How can a management accountant use the Fraud Triangle to identify and manage the risk of fraud?
- The Fraud Triangle provides a model for explaining the pressures, rationalizations, and opportunities that influence people to commit fraud.
  - The Fraud Triangle provides a SOX-compliant model for examining the company's internal control environment in terms of its risk of fraud.
  - The Fraud Triangle provides a model for explaining the motives, means, and opportunities that influence people to commit fraud.
  - The Fraud Triangle provides a model for explaining how persuasion, coercion, and conviction influence people to commit fraud.
15. Which one of the following is a permitted transaction under the U.S. Foreign Corrupt Practices Act?
- Payments to close friends of government officials to obtain an exception to a regulation.
  - Payments to government officials to circumvent importation rules in countries where such payments are a customary business practice by multinational competitors.
  - Payments to expedite routine governmental action.
  - Payments to customs officials to enable the release of an oil drilling rig and other equipment.
16. A commercial bank offered a \$100,000 one-year loan with an annual interest rate of 6% and a 10% compensating balance. What is the effective annual interest rate of this loan?
- 7.00%.
  - 6.67%.
  - 6.00%.
  - 5.45%.

17. Essential elements in the development of an organization's ethics policy include all of the following **except**
- articulation of organizational values.
  - input from the board of directors in addition to management and employees.
  - allowances for exceptional circumstances.
  - relevance to day-to-day implementation.
18. A firm has \$10 million in equity and \$30 million in long-term debt to finance its operations. The firm's beta is 1.125, the risk-free rate is 6%, and the expected market return is 14%. The firm issued long-term debt at the market rate of 9%. Assume the firm is at its optimal capital structure. The firm's effective income tax rate is 40%. What is the firm's weighted average cost of capital?
- 7.8%.
  - 8.6%.
  - 9.5%.
  - 10.5%.
19. Which standard in IMA's Statement of Ethical Professional Practice states that financial management professionals should not engage in activities that might discredit the profession?
- Integrity.
  - Confidentiality.
  - Competence.
  - Credibility.
20. A publicly-traded corporation made a large arithmetical error in the preparation of its year-end financial statements by improper placement of an extra digit in the calculation of bad debt expense allowance. The error caused the net income to be reported at almost half of the proper amount. In accordance with U.S. GAAP, correction of the error when discovered in the next year should be treated as
- an increase in bad debt expense for the year in which the error is discovered.
  - a component of income for the year in which the error is discovered, but separately listed on the income statement.
  - an increase in the opening accounts receivable balance.
  - a prior period adjustment to the opening retained earnings balance.

21. The treasurer of a European company plans to raise \$500 million to finance its new business expansion into the Asia Pacific region. The treasurer is analyzing initial public offerings. All of the following are correct **except** that
- a. under an underwritten offering, the investment bank will guarantee the sale of stock at an offering price, however, the commission charged to the company will be higher compared to a best efforts offering.
  - b. an initial public offering will increase the liquidity of the company's stock and establish the company's value in the market.
  - c. one of the advantages of an initial public offering is that stock price can accurately reflect the true net worth of the company after it goes public.
  - d. it is necessary for the company to file a registration statement with the SEC if it decides to launch an initial public offering.
22. Which one of the following rights is ordinarily sacrificed by the holders of preferred stock in exchange for other preferences received over common shareholders?
- a. The right to vote for members of the board of directors and in other matters requiring a vote.
  - b. The right to share in the residual assets of the company upon liquidation.
  - c. The right to share in the periodic earnings of the company through the receipt of dividends.
  - d. The right to accrue dividend payments in arrears when payments are not made for a period of time.
23. The formal code of ethical conduct for a company should do all of the following **except**
- a. effectively communicate acceptable values to all employees.
  - b. reflect only the legal standards of conduct of employees and the organization.
  - c. provide guidance on compliance requirements for domestic and international operations.
  - d. provide guidance on behavior for employees when making decisions.

24. A company is in the process of considering various methods of raising additional capital to grow the company. The current capital structure is 25% debt totaling \$5 million with a pre-tax cost of 10%, and 75% equity with a current cost of equity of 10%. The marginal income tax rate is 40%. The company's policy is to allow a total debt to total capital ratio of up to 50% and a maximum weighted-average cost of capital (WACC) of 10%. The company has the following options.

Option 1: Issue debt of \$15 million with a pre-tax cost of 10%.

Option 2: Offer shares to the public to generate \$15 million. The cost of equity is 10%.

Which option should the company select?

- a. Option 1 because it has the lower WACC of 7.72%.
- b. Option 1 because the equity to total capital ratio will be 43%.
- c. Option 2 because the equity to total capital ratio will be 86%.
- d. Either Option 1 or 2 because both will yield a WACC of 10%.

25. A company currently sells 6,000 units per month and has received a special order from an international customer. The international customer would like to purchase 1,500 units for a price of \$80 per unit. The company currently sells the product to regular customers for \$95 per unit. The company has excess capacity to produce the special order. The product unit cost is shown below.

Direct materials	\$49.50
Direct labor	16.50
Variable overhead	9.50
Fixed overhead	3.50

Fixed manufacturing overhead totals \$35,000 per month. Management has determined that the additional shipping costs for the international delivery would be \$4 per unit. Should the company accept the special order?

- a. Yes, because operating income will increase by \$750.
- b. Yes, because operating income will increase by \$6,750.
- c. No, because operating income will decrease by \$4,500.
- b. No, because operating income will decrease by \$21,000.



26. A fast food restaurant is considering the addition of a new menu item. Introduction of the new menu item would require an initial investment of \$874,200, and the project is projected to produce \$300,000 of after-tax cash flows for each of the next four years. The fast food restaurant has a weighted average cost of capital of 15%, and makes project investment decisions on the basis of internal rate of return (IRR). What is the IRR of the new menu item project, and should the fast food restaurant accept or reject the project?
- 9%, reject the project.
  - 14%, reject the project.
  - 19%, accept the project.
  - 37%, accept the project.
27. Clear Displays Inc. manufactures display screens for mobile devices and is looking to expand their business through acquisition. Clear Displays has a weighted average cost of capital of 10%. They are evaluating the opportunity to acquire one of their competitors, Bright Screens Inc. Cash flows for Bright Screens are forecasted to be \$110,000 in each of the next four years, and net income for Bright Screens is forecasted to be \$90,000 in each of the next four years. The projected terminal value for Bright Screens at the end of that four-year period is \$1,250,000. Utilizing the discounted cash flow method, the valuation for Bright Screens is expected to be
- \$1,139,050.
  - \$1,202,450.
  - \$1,535,300.
  - \$1,598,700.
28. A company currently sells 46,000 units of its product annually at a sales price of \$38 per unit. Variable costs per unit total \$21 and the total fixed costs each year are \$749,000. Fixed costs include the annual salary of three sales staff, which is \$55,000 each. Management is considering changing the sales staff's compensation. Under this proposal, sales staff salaries would decrease to \$25,000, but sales staff would also receive a commission of \$2 per unit for each unit sold. Management estimates this option will increase sales 10%. Should management change to the commission-based plan, and why?
- Yes, because it will increase operating income by \$67,000.
  - Yes, because it will increase net income by \$67,000.
  - No, because it will decrease net income by \$23,000.
  - No, because it will decrease operating income by \$23,000.

29. Which one of the following factors is **least** likely to be taken into account when analyzing a company's selling expenses?
- Percentage of variable and fixed selling expenses in relation to revenue.
  - Changes in the unit selling prices.
  - Possibility that the expense, such as sales promotion expense, will yield future benefits.
  - Variance of the expense compared with prior years.
30. Which one of the following is the **most** relevant evidence suggesting that the quality of a company's earnings is weak?
- The company's choice of accounting policies appears aggressive.
  - Inventory levels are rising during a period of falling prices.
  - A significant portion of the company's business is located in a country where it is difficult for multinational corporations to repatriate profits.
  - The company's days-sales-outstanding ratio has fallen during an economic downturn.
31. A Bangladeshi wholesale export company publishes a price list in Euros for the products sold by its European Union business unit. The management of the export company has determined that even if there are fluctuations in exchange rates between the Bangladeshi Taka and European Euro, it is not practical for it to change its product prices every six months. Which one of the following is the **most** appropriate solution available to the export company to managing this risk?
- Hedging the risk through financial instruments.
  - Diversifying its product offerings.
  - Disposing of the business unit.
  - Establishing operational sales limits.

32. A retailer planned to purchase 55,000 units and sell 50,000 units, yielding the following operating income.

Sales	\$50,000,000
Cost of goods sold	33,000,000
Variable selling costs	5,000,000
Fixed selling and administrative costs	<u>7,000,000</u>
Operating income	<u>\$ 5,000,000</u>

The company expects to receive an additional order that would allow it to sell all 55,000 units it purchased. If the company accepts this order, its operating income will be

- a. \$5,500,000.
- b. \$6,200,000.
- c. \$6,700,000.
- d. \$9,500,000.

33. A small delivery company received an order that requires nine deliveries lasting two hours each on the same day. The company owns two vans that together can make eight trips per day. The company can rent a van on a daily eight-hour basis for \$72, and the fuel cost is \$20 per trip. The company has several van drivers, each of whom earns \$30,000 annually and is expected to make 1,000 deliveries each year. The marginal cost of the ninth delivery is

- a. \$122.
- b. \$92.
- c. \$38.
- d. \$28.

34. A company produces ready-to-bake pie crusts. In deciding whether to process this product further into complete ready-to-bake pies by adding filling, relevant dollar amounts to consider would include all of the following **except** the

- a. cost to add the filling.
- b. cost to manufacture the crusts.
- c. selling price of the complete pies.
- d. selling price of the crusts.

35. A company can sell its existing building for \$500,000 in order to purchase a larger facility for \$750,000. The existing building was purchased five years ago for \$450,000 and has a current book value of \$350,000. The pre-tax net cash outflow from the purchase of the new building is
- \$100,000.
  - \$250,000.
  - \$300,000.
  - \$400,000.
36. A company with a 40% tax rate is deciding whether to keep an old machine or replace it with a new machine. Annual depreciation expense is \$3,000 for the old machine and would be \$5,000 for the new machine. When using net present value to determine if the new machine should be purchased, depreciation would increase the incremental annual cash inflows of the investment by
- \$0.
  - \$800.
  - \$1,200.
  - \$2,000.
37. A company is interested in a capital project that has a net present value of \$0. The company should
- accept the project because the company's required rate of return has been met.
  - accept the project because the company's value will increase.
  - reject the project because its cash inflows equal the project's cash outflows.
  - reject the project because its internal rate of return is 0%.
38. A large multinational company currently has its information technology department located in Germany. In order to reduce the risk of system failure, the company has decided to split up the information technology department into two geographically separate locations and set up a new location in Singapore. The company can still face a catastrophic system failure, but the risk will be greatly reduced. The risk that remains after the company sets up the second information technology department in Singapore is **best** described as
- business risk.
  - residual risk.
  - hazard risk.
  - inherent risk.

39. A toothbrush manufacturer has noticed a shift of customer preferences in its growing Asian sales market towards an electronic battery operated toothbrush from a manual toothbrush. This shifting of customer tastes **best** represents what type of risk to the toothbrush manufacturer?
- Strategic risk.
  - Operational risk.
  - Financial risk.
  - Business risk.
40. A company has developed a new technologically advanced paper-thin solar panel for residential home use. The company has decided to start selling this solar panel worldwide next month. As this is a technologically innovative product, one risk that the company faces to sell the solar panel is possible product failure. This risk of product failure is **best** representative of what type of risk to the company?
- Inherent risk.
  - Operational risk.
  - Residual risk.
  - Business risk.
41. The management of a company is considering making a capital investment to acquire a machine for its manufacturing facility at a total cost of €600,000 for equipment and installation. The machine has a useful life of 5 years and a zero salvage value at the end of its useful life. The management of the company uses the straight-line depreciation method for all machinery acquired. How much would the company's annual tax savings be upon acquiring the machine if the company's income tax rate is 30%?
- €6,000.
  - €4,000.
  - €120,000.
  - €180,000.
42. After completing a marketplace analysis of Product Z, a company's accountant has determined that a price change from \$25 to \$20 will result in a demand increase for Product Z from 1,000 units to 1,500 units. Based on the information provided, what is the price elasticity of demand for Product Z using the midpoint formula?
- 0.56.
  - 1.33
  - 1.80.
  - 2.50.

43. The management of a company is attempting to reduce the cost for Product X by analyzing the trade-offs between different types of product features and total product cost. What type of cost reduction strategy is the company using?
- Total quality management.
  - Activity-based costing.
  - Kaizen.
  - Value engineering.

44. A financial analyst has gathered the following select financial data on three companies.

	<u>Company A</u>	<u>Company B</u>	<u>Company C</u>
Total current assets	€500,000	€1,250,000	€870,000
Total current liabilities	€445,000	€970,000	€620,000

On the basis of the information provided above, the financial analyst is able to conclude that

- Company A and Company B both have a higher liquidity than Company C.
  - Company B has the highest liquidity.
  - Company B and Company C both have a higher liquidity than Company A.
  - Company A has the highest liquidity.
45. A company had \$5 million in sales, \$3 million in cost of goods sold, and \$1 million in selling and administrative expenses during the last fiscal year. If the company's income tax rate was 25%, what was the company's gross profit margin percentage?
- 20%.
  - 30%.
  - 40%.
  - 50%.
46. A company had \$6 million in credit sales last fiscal year. The company's beginning accounts receivable balance was \$1 million and its ending receivable balance was \$1.25 million on its year-end financial statements. If the industry average period for the collection of accounts receivables is 90 days, the company's accounts receivable collection period is **less** than the industry average by approximately
- 22 days.
  - 52 days.
  - 60 days.
  - 68 days.

47. Two companies have identical return on assets. Company X purchased most of its assets many years ago when prices were relatively low. Company Y purchased most of its assets in recent years when prices were relatively high. Both companies have identical debt levels, and record their assets at historical cost. The return on assets ratio is **most** likely
- overstated for both companies.
  - overstated for Company X.
  - overstated for Company Y.
  - accurate for both companies.

48. Select information from a company's year-end balance sheet is shown below.

Balance Sheet  
As of December 31, Year 1

Cash	\$ 50,000
Accounts receivable	120,000
Inventory	75,000
Property, plant and equipment, net	<u>250,000</u>
Total assets	<u>\$495,000</u>
Accounts payable	\$ 35,000
Long-term debt	<u>100,000</u>
Total liabilities	<u>135,000</u>
Common stock	300,000
Retained earnings	<u>60,000</u>
Total equity	<u>360,000</u>
Total liabilities and equity	<u>\$495,000</u>

Based on the above information, a common-size balance sheet for the company will show

- long-term debt at 74%.
  - property, plant and equipment, net at 69%.
  - retained earnings at 17%.
  - accounts receivables at 24%.
49. The **best** description of scenario analysis as a risk analysis technique is that it is a method that
- changes a key variable to assess the impact.
  - applies predetermined probability distributions to estimate risky outcomes.
  - evaluates the impact of changing a group of assumptions.
  - combines negatively correlated assets to reduce overall risk.

50. A company is planning to purchase a furnace that would cost \$20,000 and save the company \$4,000 pre-tax annually. It has an estimated useful life of seven years with no salvage value. The company would depreciate the furnace using the straight-line method. The company has an effective income tax rate of 30%. Assuming no change in working capital, the payback period for the furnace is
- 4.12 years.
  - 5.00 years.
  - 5.47 years.
  - 7.14 years.
51. The dollar value of a company's ending inventory on its balance sheet was \$500,000, \$600,000, and \$400,000 for Years 1, 2, and 3, respectively. In preparing a horizontal analysis with Year 1 as the base year, the percentage change shown for Year 3 would be
- (25%).
  - (20%).
  - 20%.
  - 80%.
52. A company has \$100,000 of sales, \$60,000 of variable costs, and \$30,000 of fixed costs. The degree of operating leverage is
- 0.1.
  - 0.3.
  - 0.4.
  - 4.0.
53. During a presentation on non-discounted cash flow models for capital budgeting decisions, an analyst made the following two statements concerning the payback method.
- Statement 1: It is the best decision criterion for accepting/rejecting the project.
- Statement 2: It may encourage excessive investments in short-term projects at the expense of investments in long-term projects.
- The analyst is correct regarding
- statement 1, only.
  - statement 2, only.
  - neither statement 1 nor statement 2.
  - both statement 1 and statement 2.



54. A U.S. company has accounts receivable from a Swiss company for 100,000 Swiss Francs (CHF) due in three months. At the time of contract, the exchange rate was 1.0 CHF =1.0 USD. The U.S. company wishes to manage its foreign exchange exposure and therefore

- a. buys a currency swap.
- b. sells Swiss franc futures.
- c. buys Swiss franc futures.
- d. sells a Swiss Francs interest rate swap.

55. A company has a portfolio of four products and incurs \$175,000 of allocated fixed costs per year. Financial data for the four products are shown below.

	<u>Product A</u>	<u>Product B</u>	<u>Product C</u>	<u>Product D</u>
Units sold	25,000	18,750	3,750	2,500
Revenue	\$750,000	\$600,000	\$150,000	\$100,000
Unit variable costs	24	24	37	41

Which product should the company discontinue?

- a. Product A.
- b. Product B.
- c. Product C.
- d. Product D.

56. A company has a current ratio of 2.0. Cash is 20%, accounts receivable is 40%, and inventory is 40% of total current assets. What is the acid-test ratio for the company?

- a. 0.8.
- b. 1.2.
- c. 1.6.
- d. 2.0.

57. A tennis equipment company produces two lines of tennis shoes, Professional and Amateur. Income statement data for the tennis shoes is shown below.

	<u>Professional</u>	<u>Amateur</u>	<u>Total</u>
Sales	\$550,000	\$750,000	\$1,300,000
Variable costs	275,000	400,000	675,000
Direct fixed costs	100,000	300,000	400,000
Allocated fixed costs	<u>37,500</u>	<u>112,500</u>	<u>150,000</u>
Operating income	<u>\$137,500</u>	<u>\$ (62,500)</u>	<u>\$ 75,000</u>

Since the Amateur line shows a loss, the company is considering eliminating this line of tennis shoes. Based on the data provided, should the company drop the Amateur tennis shoe line?

- a. No, operating income will decrease by \$50,000.
- b. No, operating income will decrease by \$350,000.
- c. Yes, operating income will increase by \$25,000.
- b. Yes, operating income will increase by \$62,500.

58. A company is analyzing the opportunity to expand into a new market. The expansion would require an initial investment of \$261,600. Cash flows for the new market expansion are forecasted to be \$120,000 for each of the next 3 years. The company has a cost of capital of 8%. The discounted payback period for the new market expansion would be

- a. 2.0 years.
- b. 2.2 years.
- c. 2.5 years.
- d. 2.8 years.

59. A company has earnings before interest and taxes of \$100,000, income taxes of \$30,000, and interest expense of \$10,000. The company's interest coverage ratio is

- a. 6.
- b. 7.
- c. 9.
- d. 10.

60. A company reported the following financial data.

Sales	\$2,000,000
Cost of goods sold	800,000
Operating expenses	400,000
Interest expense	200,000
Income tax	300,000

The company's operating profit margin percentage is

- a. 15%.
- b. 30%.
- c. 40%.
- d. 80%.

61. The common stock of a company has a market price of \$36. The company has 50,000,000 common shares outstanding and net income of \$200,000,000. At the end of the fiscal year, the company declared common dividends of \$1 per share. What is the price/earnings ratio of the stock?

- a. 4.
- b. 9.
- c. 12.
- d. 36.

62. A company has the following account balances.

Cash	\$160,000
Equipment	50,000
Inventory	35,000
Accounts receivable	25,000
Accrued wages	10,000
Long-term debt	30,000
Accounts payable	5,000

What is the company's net working capital?

- a. \$180,000.
- b. \$205,000.
- c. \$220,000.
- b. \$225,000.

63. The common stock of a beverage company has a current market price of \$34. The beverage company is estimated to earn \$2 per share in the next year. The average price/earnings ratio of companies in the beverage industry is 15. Using the price/earnings ratio as the comparable valuation method, the beverage company's stock is

- a. \$2 undervalued.
- b. \$2 overvalued.
- c. \$4 undervalued.
- d. \$4 overvalued.

64. A retail company has three segments with total operating income of \$500,000. Selected financial information for Segment 1 is presented below.

	<u>Segment 1</u>
Unit Sales	28,000
Sales revenue	\$700,000
Cost of sales	420,000
Administrative expenses	144,000
Commissions	14,000
Rent	140,000
Salaries	32,000

- Administrative expenses are allocated to the three segments equally.
- Commissions are paid to the salespersons in each segment based on 2% of gross sales.
- The company rents the entire building and allocates the rent to the three segments based on the square footage occupied by each.
- Salaries represent payments to the employees in the segment.

The controller has expressed concern about the operating loss for Segment 1 and has suggested that it be closed. If the segment is closed, none of the employees would be retained. Should the company drop Segment 1?

- a. Yes, because total operating income would increase by \$50,000.
- b. No, because total operating income would decrease by \$234,000.
- c. No, because total operating income would decrease by \$126,000.
- d. No, because total operating income would decrease by \$94,000.

65. A company uses a joint process to produce three products: A, B and C, all derived from one input. The company can sell these products at the point of split-off or process them further. The joint production costs during October were \$10,000. The company allocates joint costs to the products in proportion to the relative physical volume of output. Additional information is presented below.

<u>Product</u>	<u>Units Produced</u>	<u>Unit Sales Price at Split-off</u>	<u>If Processed Further</u>	
			<u>Unit Sales Price</u>	<u>Unit Additional Cost</u>
A	1,000	\$4.00	\$5.00	\$0.75
B	2,000	2.25	4.00	1.20
C	1,500	3.00	3.75	0.90

Assuming sufficient demand exists, to maximize profits, the company should sell

- product C at split-off and perform additional processing on products A and B.
- product B at split-off and perform additional processing on products C and A.
- product A at split-off and perform additional processing on products B and C.
- products A, B, and C at split-off.

66. A company with an accounts receivable turnover of 8.1 would be **most** concerned if

- a best practice analysis indicated an accounts receivable turnover of 13.0.
- last year's days sales outstanding in receivables was 44.9.
- the accounts receivable turnover for the industry was 10.4.
- the company's credit terms with customers are net 30 days.

67. A management accountant is leading the effort to completely identify all of the risks that face her company. Which one of the following **best** identifies a technique that she should consider using?

- Process re-engineering.
- Self-assessment workshops.
- Internal audits.
- Customer surveys.

68. Which statement below **best** indicates the order of the risk components that should be implemented in a new Enterprise Risk Management program?

- Control risks, set risk management strategy and objectives, and monitor risks.
- Communicate and monitor risks, identify risks, and treat risks.
- Assess risks, control risks, and treat risks.
- Set risk management strategy and objectives, identify risks, and assess risks.

69. A company installed new equipment with a four-year useful life and no salvage value. The new equipment cost \$600,000 and will generate pretax cash savings of \$150,000 annually. Old equipment with a book value of \$50,000 and a remaining life of two years was sold for \$20,000 when the new equipment was purchased. The company uses straight-line depreciation and its effective income tax rate is 40%. The second year's relevant after-tax cash flow is
- a. \$150,000.
  - b. \$140,000.
  - c. \$110,000.
  - d. \$90,000.
70. A company installed a piece of equipment with a 5-year life and no salvage value. The new equipment costs \$500,000 and will generate \$150,000 in savings each year. Old equipment with a book value of \$50,000 and a remaining life of 2 years was sold for \$20,000. No changes in working capital are anticipated. The effective income tax rate is 40%. The total initial investment for the new equipment is
- a. \$450,000.
  - b. \$468,000.
  - c. \$500,000.
  - d. \$550,000.
71. A company produces and sells 2,000 units of finished goods and incurs \$60,000 of fixed costs annually. The contribution margin is \$60 per unit, and variable cost is \$40 per unit. If the company expects sales quantities to increase by 10% next year, the operating profit will be
- a. \$60,000.
  - b. \$72,000.
  - c. \$120,000.
  - d. \$132,000.
72. Based on the assumptions of the Capital Asset Pricing Model, the risk premium on an investment with a beta of 0.5 is equal to
- a. the risk-free rate.
  - b. the risk premium on the market.
  - c. twice the risk premium on the market.
  - d. half the risk premium on the market.

73. Using the capital asset pricing model, an analyst has calculated an expected risk-adjusted return of 17% for the common stock of a company. The company's stock has a beta of 2, and the overall expected market return for equities is 10%. The risk-free return is 3%. All else being equal, the expected risk-adjusted return for the company's stock would increase if the
- a. risk-free return decreases.
  - b. beta of the company's stock decreases.
  - c. overall expected market return for equities decreases.
  - d. volatility of the company's stock decreases.

Answers - CMA Part 2 Practice Questions

- |       |       |       |
|-------|-------|-------|
| 1. b  | 35. b | 69. b |
| 2. c  | 36. b | 70. b |
| 3. d  | 37. a | 71. b |
| 4. c  | 38. b | 72. d |
| 5. b  | 39. a | 73. a |
| 6. c  | 40. b |       |
| 7. d  | 41. a |       |
| 8. b  | 42. c |       |
| 9. b  | 43. d |       |
| 10. c | 44. c |       |
| 11. a | 45. c |       |
| 12. d | 46. a |       |
| 13. c | 47. b |       |
| 14. a | 48. d |       |
| 15. c | 49. c |       |
| 16. b | 50. c |       |
| 17. c | 51. b |       |
| 18. a | 52. d |       |
| 19. a | 53. b |       |
| 20. d | 54. b |       |
| 21. c | 55. d |       |
| 22. a | 56. b |       |
| 23. b | 57. a |       |
| 24. c | 58. c |       |
| 25. a | 59. d |       |
| 26. b | 60. c |       |
| 27. b | 61. b |       |
| 28. a | 62. b |       |
| 29. b | 63. d |       |
| 30. a | 64. b |       |
| 31. a | 65. a |       |
| 32. b | 66. d |       |
| 33. b | 67. b |       |
| 34. b | 68. d |       |





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Financial Reporting, Planning, Performance and Control  
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Additional Examination Practice Essays  
March 2016

## Part 1 Essay Practice Question

### Question 1.1-Barton Industries

Barton Industries processes chemicals for the pharmaceutical industry. Wiley Richardson, company president, was eager to see the operating results for the just completed fiscal year as he believed that changes that were made during the year would result in increased profit on the expected sales volume of 1 million kg. At the beginning of the year, in response to a 10% increase in production costs, the sales price had been increased 12%, and the selling and administrative departments had been given strict instructions to hold expenses at the same level as the previous year. Therefore, Richardson was dismayed to learn that net income had dropped despite achieving the planned increase in sales volume. Shown below are comparative operating income statements for Barton Industries for the last two years along with budgeted operating and financial data. This year's cost of goods sold includes an adjustment of fixed overhead costs that were under-applied. Actual results were the same as budget, except for production volume. The company uses the first-in, first-out inventory valuation method, and has an ending inventory of 450,000 kg. this year.

#### Barton Industries Comparative Operating Income Statements (\$000 omitted)

	<u>Previous Year</u>	<u>Current Year</u>
Sales revenue	\$9,000	\$11,200
Cost of goods sold	6,600	8,815
Gross profit	\$2,400	\$ 2,385
Selling and administrative expense	1,500	1,500
Operating income	\$ 900	\$ 885

#### Barton Industries Budgeted Operating and Financial Data

	<u>Previous Year</u>	<u>Current Year</u>
Sales price	\$10.00/kg.	\$11.20/kg.
Material cost	1.50/kg.	1.65/kg.
Direct labor cost	2.50/kg.	2.75/kg.
Variable overhead cost	1.00/kg.	1.10/kg.
Fixed overhead cost	3.00/kg.	3.30/kg.
Total fixed overhead costs	\$3,000,000	\$3,300,000
Selling and administrative expense	\$1,500,000	\$1,500,000
Sales volume	900,000 kg.	1,000,000 kg.
Beginning inventory	300,000 kg.	600,000 kg.

**REQUIRED:**

1. Explain why Barton Industries' operating income decreased in the current fiscal year despite the sales price and sales volume increases.
2. Prepare an operating income statement for the current fiscal year for Barton Industries using the variable (direct) costing method.
3. Prepare a reconciliation of the difference in Barton's operating income using the current method of absorption costing and using the variable (direct) costing method.
4. Identify two advantages and two disadvantages of using variable (direct) costing for internal reporting.

**Question 1.2-Great Heart**

Great Heart Clinic is a medical service institute that provides various services for its patients. The doctors working for the institute are required to fill out a note in the medical system for each patient treated. The system then generates a unique bill for each patient according to the pricing for the specific service or treatment received. Included in each patient's bill is the applied overhead cost based on direct labor hours. The clinic created the following overhead budget for this year, but the actual overhead was \$296,047.

Direct labor hours	10,000
Overhead costs:	
Indirect material	\$ 3,500
Indirect labor	45,000
Utilities	6,000
Insurance	78,000
Property taxes	<u>30,000</u>
Total	<u>\$162,500</u>

During this year, the doctors actually charged a total of 12,190 hours as shown below.

Doctor A	2,000
Doctor B	1,850
Doctor C	1,960
Doctor D	2,100
Doctor E	2,500
Doctor F	<u>1,780</u>
Total	<u>12,190</u>

The overhead variance is deemed material by the CEO, and he wonders why this variance happened and how to address this variance. The CEO is also considering implementing an activity-based costing (ABC) system.

**REQUIRED:**

1. Explain whether the clinic should use a job costing system or a process costing system.
2. Calculate the applied overhead and identify if it is over or under applied. Show your calculations.
3. Identify and explain two shortcomings of using predetermined overhead rates to apply overhead.
4. Identify and explain why there is usually a difference between the applied overhead and the actual overhead.
5. Identify and explain the appropriate accounting treatment of this under or over applied overhead amount.
6. Describe how an ABC system usually assigns overhead costs.

## Part 2 Essay Practice Question

### Question 2.1-FSL Industries

FSL Industries manufactures and sells conveyor systems to large industrial customers. When systems are sold, the contracts require FSL to provide replacement parts for the systems on fairly short notice so that their customers' operations are not interrupted. FSL is in the process of introducing a new line of products, which would require an estimated \$9 million investment in replacement parts and equipment. The CFO is investigating financing options to cover the cost of carrying the replacement parts and the new equipment investment. Two financing alternatives are presented below.

- Option 1: A commercial bank has offered FSL a loan at an interest rate of 5% with a compensating balance of 10%. The loan would have to be renegotiated each year.
- Option 2: An insurance company has offered a ten-year term loan to FSL with a fixed annual interest rate of 7%. Interest is paid semi-annually.

### **REQUIRED:**

- a. In order to have sufficient funds to manufacture replacement parts and purchase the new equipment, how much would FSL have to borrow if it uses Option 1? Show your calculations.
  - b. Calculate the first year's interest cost of Option 1. Show your calculations.
- a. Calculate the annual interest cost of Option 2. Show your calculations.
  - b. Identify and explain two advantages and two disadvantages of Option 2 as compared to Option 1.
- Identify and explain the impact on FSL's net working capital and balance sheet accounts if it utilizes
  - a. Option 1, the bank loan to finance the replacement parts and new equipment.
  - b. Option 2, the term loan to finance the replacement parts and new equipment.
- In addition to the manufacturing cost of the replacement parts in inventory, identify three other costs FSL can expect to incur in relation to this inventory.

## **Question 2.2-Spreck**

Spreck Technologies manufactures microchips and interfaces for several electronics manufacturers. Spreck's reputation has been built on quality, timely delivery, and cutting edge products. The company's business is fast-paced as its products tend to have a short life. Each product is in development for about a year followed by a year of strong demand. The products then experience reduced sales as new products and technologies become available.

Marc Elvar has recently been hired by Spreck as a member of the finance department with primary responsibility for cash budgeting and cash management. During his orientation with Spreck's CFO, the CFO said, "The thing that fascinates me about this business is that change is its central ingredient. One of our key variables is a reliable stream of new products; in fact, it is the only way to deal with the threat of product obsolescence. Our products go through only the first two stages of the product life cycle as they rarely reach the other stages. Of course, this situation affects our cash flow. We have not been managing our cash well, so we are looking forward to having you improve our cash forecasting and management." In addition, Elvar has been asked to analyze the company's pricing tactics.

### **REQUIRED:**

1.
  - a. Define product life cycle.
  - b. Identify the four stages of the product life cycle.
  - c. Identify and explain the characteristics of each stage of the product life cycle.
2. Explain why pricing decisions might be different over the last three stages of the product life cycle.
3. Identify and explain two factors affecting the cash inflows and two factors affecting cash outflows at Spreck Technologies.
4. Identify and explain three actions that Elvar could take to improve Spreck Technologies' cash management processes.

## Answer to Part 1 Practice Questions

### Answer: Question 1.1-Barton Industries

1. Production was less than budget, and fixed overhead costs were under-applied. This caused an unfavorable volume variance that was charged to cost of goods sold.

2. Barton's operating income using variable costing:

Sales		\$11,200
Variable cost of goods sold:		
600,000 units (inventory) @\$5.00	\$3,000	
400,000 units (production) @\$5.50	<u>2,200</u>	<u>5,200</u>
Contribution margin		\$ 6,000
Fixed costs of operations:		
Factory overhead	\$3,300	
Selling and administrative	<u>1,500</u>	<u>4,800</u>
Operating income		<u>\$ 1,200</u>

3. Reconciliation:

Variable costing income	\$1,200
Absorption costing income	<u>885</u>
Difference	<u>\$ 315</u>
Beginning inventory reduction:	
600,000 units @\$3.00	\$1,800
Ending inventory:	
450,000 units @\$3.30	<u>1,485</u>
Difference	<u>\$ 315</u>

4. Advantages of variable costing for internal reporting:

- Aids in reporting and forecasting contribution margin.
- Because fixed costs are period costs, they are more predictable and controllable.
- Profits vary directly with sales volume and are unaffected by inventory changes.
- Aids CVP analysis/can determine breakeven point.

Disadvantages of using variable costing for internal reporting:

- Fixed costs may be overlooked as part of the decision-making process.
- Lacks acceptability for external reporting.
- Cannot be used as a basis for income tax calculations.
- Sometimes the distinction between fixed and variable costs is arbitrary.

### **Answer: Question 1.2-Great Heart**

1. The clinic should use a job costing system since the clinic has a wide variety of different services. The job costing system can accumulate costs to a specific job, which better reflect the specific service each patient received.
2. Predetermined overhead rate:  $\$162,500/10,000=\$16.25$   
Applied overhead:  $\$16.25*12,190= \$198,088<\$296,047$ , so overhead is under applied
3. The predetermined overhead rate is usually based on overall level of activity without considering the relationships between costs and their drivers. So apply overhead based on this rate usually is not accurate enough to provide management meaningful data to assist them to achieve cost effectiveness. The predetermined overhead rate is an estimated rate, applied overhead maybe quite different from the actual cost.
4. The applied overhead is likely to differ from actual overhead cost incurred for the period. Applied overhead can be higher or lower than the actual overhead because the applied overhead is based on the predetermined overhead rate, which is calculated by using budgeted overhead costs divide estimated activity level of the chosen cost drivers, times the actual level of cost drivers.
5. Since the overhead variance is deemed material, so the under-applied overhead amount usually is prorated among WIP inventory, finished goods inventory, and COGS accounts.
6. ABC assigns overhead costs to products or services using cause-and-effect criteria with several cost pools. The use of both volume-based and nonvolume-based cost drivers is determined according to the consumption of resources in performing various activities. ABC helps clinic assign overhead costs more accurately and manage costs more efficiently to achieve its strategy.
  - Identify activities and cost drivers
  - Select the cost allocation bases to use for allocating overhead cost
  - Identify the overhead costs associated with each cost allocation base on the basis of cause and effect relationship
  - Calculate the rate per unit of each cost allocation base
  - Calculate overhead costs allocated to the products



## Answer to Part 2 Practice Questions

### Answer: Question 2.1-FSL Industries

1. Since FSL requires the use of \$9 million, it will have to borrow \$10 million ( $\$9 \text{ million} / (1-10\%)$ ). This will result in 10% of the loan principle (\$1 million) being used to satisfy the compensating balance. Annual interest would be 5% of the total loan of \$10 million or \$500,000.
  
2. a. The semi-annual interest cost of the term loan would be  $\$9\text{million} \times (7\%/2) = \$315,000$ .  
The annual interest cost would then be  $\$315,000 \times 2 = \$630,000$ .
- b. Advantages of this loan over the short term loan include:
  - The loan would be outstanding for 10 years and would not have to be renegotiated each year. Since the need for these funds is quite long due to the need to carry the spare parts inventory, this is an advantage
  - The interest rate is fixed for 10 years, eliminating interest rate risk which is inherent in the short term loanDisadvantages of such a loan include:
  - FSL would not be able to take advantage of falling interest rates in the future. The short term loan would allow the interest rate to adjust each year.
  - The interest cost of this loan in the first year is \$130,000 greater than the cost of the short term loan.
  
3. a. If the bank loan was used to finance the new inventory, net working capital would decrease since current assets (inventory) and long-term assets (equipment) would increase by a combined \$9 million, and current liabilities (short term loan) would increase by \$10 million.
- b. If the term loan was used to finance the inventory, there would be an increase in net working capital since current assets would increase, and there would be no impact on current liabilities since the term loan is classified as long term.
  
4. Other costs related to this inventory would include carrying costs such as:
  - Storage
  - Security
  - Losses due to theft
  - Obsolescence

### **Answer: Question 2.2-Spreck**

1. a. The entire life cycle of a product, including design and development, acquisition, operation, maintenance, and service.  
b. Introduction, growth, maturity, and decline.
  - Introduction stage – This stage of the cycle could be the most expensive for a company launching a new product. It is generally characterized by large cash outflows and little or no cash inflows. Expenditures for research and development, plant and equipment, retooling, distribution and promotion are required. During this stage, a project or company normally generates losses and may require an infusion of outside capital.
  - Growth stage – Sales and revenues rise rapidly. Significant cash inflows are generally present. However, these inflows may be offset by cash outflows to build production capacity and for growing inventories and receivables. During this stage, manufacturing efficiencies will improve contribution margins as volume increases.
  - Maturity stage – Net cash inflows are generally at an optimum. Production capacity is in place and inventories and receivables should approach steady-state. By this stage, competitors generally have entered the market which could result in higher promotional costs to maintain market share. As a consequence, margins could begin to decline.
  - Decline stage – Both sales volume and profits fall. Increased price competition and the increased availability of alternative products will reduce margins. The declining volume will generally increase the unit cost at the manufacturing level. Sometimes, significant cash inflows can be generated from the liquidation of inventories and other product related assets.
2. Sales, costs, profits are different over the stages of the product life cycle. Marketing objectives are different. In growth stage, price is usually high to recover the investment. Pricing during maturity stage has to be competitive to hold onto market share. The price plummets during the decline stage.
3. Factors affecting cash inflow:
  - The maturity stage, the period of optimum net cash flows, is missing from the product life cycle.
  - Credit policies.
  - Factors affecting cash outflow:
    - Research and development, capital investment, and promotional costs during the introduction stage.
    - Obsolescent inventory is actually cash outflow without future cash inflow to recover the cost.

4. Careful cash budgeting and monitoring.
  - Matching cash flows from products in the growth stage with the cash outflows of products in the research and development stage.
  - Establishing good banking relationships.
  - Setting up flexible lines of credit to cover short-term borrowing needs.
  - Aggressive accounts receivable management.
  - Tight control of materials purchasing.
  - Aggressive inventory management.
  - Strict cost control.
  - Timely decisions on inventory liquidation as product life cycles end.