Cost Accounting: A Managerial Emphasis, 16e, Global Edition **(Horngren)**
Chapter 1 The Manager and Management Accounting

1.1 Objective 1.1

1) Management accounting ________.
A) focuses on estimating future revenues, costs, and other measures to forecast activities and their results
B) provides information about the company as a whole
C) reports information that has occurred in the past that is verifiable and reliable
D) provides information that is generally available only on a quarterly or annual basis
Answer: A
Explanation: Management accounting has a forward-looking orientation as opposed to financial accounting which has a historical perspective.
Diff: 1
Objective: 1
AACSB: Analytical thinking

2) Managers use management accounting information to ________.
A) help external users such as investors, banks, regulators, and suppliers
B) communicate, develop, and implement strategies
C) communicate a firm's financial position to investors, banks, regulators, and other outside parties
D) ensure that financial statements are consistent with the SEC rules
Answer: B
Diff: 1
Objective: 1
AACSB: Analytical thinking

3) Financial accounting ________.
A) focuses on the future and includes activities such as preparing next year's operating budget
B) must comply with GAAP (generally accepted accounting principles)
C) is the process of measuring, analyzing, and reporting financial and nonfinancial information related to the costs of acquiring or using resources in an organization
D) is prepared for the use of department heads and other employees
Answer: B
Diff: 1
Objective: 1
AACSB: Analytical thinking

4) Which of the following would most likely be the user of financial accounting information?
A) factory shift supervisor
B) distribution manager
C) current shareholder
D) department manager
Answer: C
Diff: 1
Objective: 1
AACSB: Analytical thinking

5) The primary user of management accounting information is a(n) ________.
A) the controller
B) a shareholder evaluating a stock investment
C) bondholder
D) external regulator
Answer: A

Diff: 1
Objective: 1
AACSB: Analytical thinking

6) Financial accounting provides the primary source of information for ________.
A) decision making in the assembly and finishing department
B) improving distribution and customer service
C) preparing the income statement for shareholders and other external parties
D) planning next year's plans and specifically; the operating budget
Answer: C
Diff: 1
Objective: 1
AACSB: Analytical thinking

7) Which of the following is true of management accounting information?
A) It focuses on documenting past business actions of a firm.
B) It is prepared based on SEC rules and FASB accounting principles.
C) It is prepared for shareholders.
D) It helps with the coordination of elements of the value chain.
Answer: D
Diff: 2
Objective: 1
AACSB: Analytical thinking

8) Which of the following statements refers to management accounting information?
A) There are no regulations governing the reports.
B) The reports are generally delayed and historical.
C) The audience tends to be stockholders, creditors, and tax authorities.
D) It primarily measures manager's compensation on reported financial results.
Answer: A
Diff: 2
Objective: 1
AACSB: Analytical thinking

9) Which of the following groups would be least likely to receive detailed management accounting reports?
A) stockholders
B) sales managers
C) production supervisors
D) distribution managers
Answer: A
Diff: 1
Objective: 1
AACSB: Analytical thinking

10) Management accounting information typically includes ________.
A) tabulated results of customer satisfaction surveys
B) the cost of producing a product
C) the percentage of units produced that are defective
D) All of these answers are correct.
Answer: D
Diff: 1
Objective: 1
AACSB: Application of knowledge

11) Cost accounting ________.
A) measures the costs of acquiring or using resources in an organization

B) measures the financial and nonfinancial information that helps managers make decisions to fulfill the goals of an organization
C) coordinates product design, production, and marketing decisions and evaluate a company's performance
D) communicates information to investors, banks, regulators, and other outside parties
Answer: A
Diff: 1
Objective: 1
AACSB: Analytical thinking

12) Which of the following differentiates cost accounting and financial accounting?
A) The primary users of cost accounting are the investors, whereas the primary users of financial accounting are the managers.
B) Cost accounting deals with product design, production, and marketing strategies, whereas financial accounting deals mainly with pricing of the products.
C) Cost accounting measures only the financial information related to the costs of acquiring fixed assets in an organization, whereas financial accounting measures financial and nonfinancial information of a company's business transactions.
D) Cost accounting measures information related to the costs of acquiring or using resources in an organization, whereas financial accounting measures a financial position of a company to investors, banks, and external parties.
Answer: D
Diff: 2
Objective: 1
AACSB: Analytical thinking

13) Which of the following is true of financial accounting information?
A) It is prepared based on cost-benefit analysis.
B) It is primarily used by managers to make internal business decisions.
C) It focuses on the past-oriented financial performance of a company.
D) It only measures the cash transactions of a company.
Answer: C
Diff: 2
Objective: 1
AACSB: Analytical thinking

14) A data warehouse or infobarn ________.
A) is reserved for exclusive use by the CFO
B) is primarily used for financial reporting purposes
C) stores information used by different managers for multiple purposes
D) gathers only nonfinancial information
Answer: C
Diff: 1
Objective: 1
AACSB: Analytical thinking

15) Which of the following is true of cost accounting?
A) It is a subset of management accounting and therefore its information is used only to meet the needs of managers.
B) It is used only by manufacturers.
C) It is part of both management and financial accounting systems.
D) The distinction between management accounting and cost accounting is clear-cut.
Answer: C
Diff: 2
Objective: 1
AACSB: Analytical thinking

16) Which of the following deals with management accounting?
A) identifying the costs of acquiring the resources of the company
B) developing budgets
C) preparing the income statement
D) preparing the statement of cash flows
Answer: B
Diff: 1
Objective: 1
AACSB: Analytical thinking

17) Financial accounting is concerned primarily with ________.
A) external reporting to investors, creditors, and government authorities
B) cost planning and cost controls
C) product design and marketing strategies
D) providing information for strategic and tactical decisions
Answer: A
Diff: 1
Objective: 1
AACSB: Analytical thinking

18) Financial accounting provides a historical perspective, whereas management accounting emphasizes ________.
A) the future
B) past transactions
C) a current perspective
D) reports to shareholders
Answer: A
Diff: 1
Objective: 1
AACSB: Analytical thinking

19) Rules for measurement and reporting for management accounting ________.
A) state that information must only be useful to management.
B) do not need to follow GAAP but must meet the cost-benefit test.
C) must follow GAAP.
D) must follow GAAP, IRS rules or government standards.
Answer: B
Diff: 2
Objective: 1
AACSB: Analytical thinking

20) The approaches and activities of managers in short-run and long-run planning and control decisions that increase value for customers and lower costs of products and services are known as ________.
A) value chain management
B) enterprise resource planning
C) cost management
D) customer value management
Answer: C
Diff: 1
Objective: 1
AACSB: Analytical thinking

21) Financial accounting information focuses on internal reporting.
Answer: FALSE
Explanation: Management accounting information focuses on internal reporting and financial accounting focuses on external reporting.
Diff: 1
Objective: 1
AACSB: Analytical thinking

22) Cost accounting provides information for both management accounting and financial accounting professionals.
Answer: TRUE
Diff: 2
Objective: 1
AACSB: Analytical thinking

23) Management accounting information and reports do not have to follow set principles or rules such as GAAP but should be useful to its audience and meet the cost/benefit test.
Answer: TRUE
Diff: 1
Objective: 1
AACSB: Analytical thinking

24) Management accounting ensures communication of an organization's financial position to investors, banks, and regulators.
Answer: FALSE
Explanation: Financial accounting, not management accounting, ensures communication of an organization's financial position to investors, banks, and regulators.
Diff: 1
Objective: 1
AACSB: Analytical thinking

25) The balance sheet and income statement are primarily management accounting reports.
Answer: FALSE
Explanation: The balance sheet and income statement are primarily financial accounting reports produced for owners, investors, and other external parties that provide capital or regulate the business.
Diff: 1
Objective: 1
AACSB: Analytical thinking

26) Financial accounting is broader in scope than management accounting in that financial accounting can include external reporting and reporting that helps managers plan and control operations.
Answer: FALSE
Explanation: Management accounting is broader in scope than financial accounting as it can encompass some GAAP issues such as inventory valuation and cost of goods sold and it also provides reporting to help managers make decisions and plan and control operations.
Diff: 1
Objective: 1
AACSB: Analytical thinking

27) Cost accounting measures and reports short-term, long-term, financial, and non financial information.
Answer: TRUE
Diff: 2
Objective: 1
AACSB: Analytical thinking

28) Cost accounting is the process of measuring, analyzing, and reporting financial and nonfinancial information related to the costs of acquiring or using resources in an organization.
Answer: TRUE
Diff: 1
Objective: 1
AACSB: Analytical thinking

29) Management accounting has to strictly follow the rules of generally accepted accounting principles for the purposes of measurement and reporting.
Answer: FALSE
Explanation: Internal measures and reports do not have to follow GAAP. Usefulness and the cost/benefit approach are the guiding principles of management accounting.
Diff: 2
Objective: 1
AACSB: Analytical thinking

30) For management accounting, internal measurement and reporting are based on cost-benefit analysis.
Answer: TRUE
Diff: 2
Objective: 1
AACSB: Analytical thinking

31) Management accounting report time spans can vary from one hour to many years, while financial accounting report time periods usually span a quarter or a year.
Answer: TRUE
Diff: 1
Objective: 1
AACSB: Analytical thinking

32) Financial accounting provides an organization's past-oriented information such as the previous years' financial statements.
Answer: TRUE
Explanation: Financial accounting provides an organization's past-oriented information such as the previous years' financial statements.
Diff: 1
Objective: 1
AACSB: Analytical thinking

33) Cost management not only helps reduce costs but also improve customer satisfaction and the quality of a firm's products.
Answer: TRUE
Diff: 1
Objective: 1
AACSB: Analytical thinking

34) For each report listed below, identify whether the major purpose of the report is for (1) routine internal reporting, (2) nonroutine internal reporting, or for (3) external reporting to investors and other outside parties.

Item:
a. study detailing sale information of the top-ten selling products
b. weekly report of total sales generated by each store in the metropolitan area
c. annual Report sent to shareholders
d. monthly report comparing budgeted sales by store to actual sales
Answer:
a. (2) nonroutine internal reporting
b. (1) routine internal reporting
c. (3) external reporting to investors and other outside parties
d. (1) routine internal reporting
Diff: 3
Objective: 1
AACSB: Application of knowledge

35) Describe management accounting and financial accounting.
Answer: Management accounting provides information to internal decision makers of the business such as top executives, managers, sales representatives, and production supervisors. Its purpose is to help managers predict and evaluate future results. Reports are generated often and usually broken down into smaller reporting divisions such as department or product line. There are no rules to be complied with since these reports are for internal use only. Management accounting embraces more extensively such topics as the development and implementation of strategies and policies, budgeting, special studies and forecasts, influence on employee behavior, and nonfinancial as well as financial information.

Financial accounting, by contrast, provides information to external decision makers such as investors and creditors. Its purpose is to present a fair picture of the financial condition of the company. Reports are generated quarterly or annually and report on the company as a whole. The financial statements must comply with GAAP (generally accepted accounting principles). A CPA audits, or verifies, that GAAP is being followed.
Diff: 3
Objective: 1
AACSB: Analytical thinking

36) Cost accounting provides information for both management accounting and financial accounting professionals. Explain.
Answer: Cost accounting is the process of measuring, analyzing, and reporting financial and nonfinancial information related to the costs of acquiring or using resources in an organization. For example, calculating the cost of a product is a cost accounting function that meets both the financial accountant's inventory-valuation needs and the management accountant's decision-making needs such as deciding how to price products and choosing which products to promote.
Diff: 3
Objective: 1
AACSB: Analytical thinking

37) There is an overlap or intersection between management accounting and financial accounting. Explain.
Answer: Management accounting develops the cost information that is necessary to value inventory for the balance sheet and cost of goods sold for the income statement. GAAP requires absorption costing.
Diff: 2
Objective: 1
AACSB: Analytical thinking

38) What competitive advantage could a company obtain from having a successful cost management program?
Answer: There are three broad outcomes from a successful cost management program: 1) costs are reduced with no loss in customer value. In this scenario, a company might gain a competitive advantage by lowering its price with no loss in profit, or maintain the same price and increase profit; 2) customer value is increased with no change in costs. This scenario might increase customer satisfaction resulting in increased customer loyalty and perhaps increase the overall demand for the product; 3) customer value might be increased while costs are reduced simultaneously. This scenario would result in the benefits described in both 1) and 2).
Diff: 3
Objective: 1
AACSB: Analytical thinking

1.2 Objective 1.2

1) Which of the following statements concerning an organization's strategy is true?
A) Strategy specifies how an organization matches its own capabilities with the opportunities in the marketplace to accomplish its objectives.
B) Cost accountants formulate strategy in an organization since they have more inputs about costs.
C) A good strategy will always overcome poor implementation.
D) Businesses usually follow one of two broad strategies: offering a quality product at a high price, or offering a unique product or service priced lower than the competition.
Answer: A
Diff: 2
Objective: 2
AACSB: Analytical thinking

2) Strategy specifies ________.
A) how an organization matches its own capabilities with the opportunities in the marketplace
B) standard procedures to ensure quality products
C) incremental changes for improved performance
D) the demand created for products and services
Answer: A
Diff: 2
Objective: 2
AACSB: Analytical thinking

3) Which of the following is not a concern for management accountants in formulating a strategy?
A) identifying the most important warehouse location for the distribution of goods
B) substituting products that exist in the marketplace
C) strategizing compliance with GAAP (Generally Accepted Accounting Principles)
D) maintaining adequate fixed assets available to implement the strategy
Answer: C
Explanation: This is more of a concern of financial accountants than of management accountants.
Diff: 2
Objective: 2
AACSB: Analytical thinking

4) Strategy is formulated ________.
A) by identifying the most important customers
B) by forecasting the composition of adequate fixed assets
C) based on the qualified opinion of external auditors
D) by eliminating sunk costs
Answer: A
Diff: 2
Objective: 2
AACSB: Analytical thinking

5) In designing strategy, a company must match its opportunities in the marketplace with ________.
A) environmental friendly goals
B) its resources and capabilities
C) branding opportunities
D) the requirements of credit rating agencies
Answer: B
Diff: 2
Objective: 2
AACSB: Analytical thinking

6) Which of the following statements about customer value is true?
A) Customer value is shown in a corporation's balance sheet.
B) Creating value for customers is an important part of planning and implementing strategy.
C) Customer value is the only focus that helps managers to formulate strategies.
D) Customer value is lost with increase in costs of the product.
Answer: B
Diff: 2
Objective: 2
AACSB: Analytical thinking

7) A company's strategy specifies how an organization matches its capabilities with the opportunities in the marketplace.
Answer: TRUE
Diff: 2
Objective: 2
AACSB: Analytical thinking

8) The two broad strategies that companies follow are cost leadership strategy and product differentiation strategy.
Answer: TRUE
Diff: 1
Objective: 2
AACSB: Analytical thinking

9) The best-designed strategies are valuable, whether or not they are effectively implemented.
Answer: FALSE
Explanation: Implementation is essential or the strategy is useless.
Diff: 1
Objective: 2
AACSB: Analytical thinking

10) The key to a company's success is creating value for customers while differentiating itself from its competitors.
Answer: TRUE
Diff: 1
Objective: 2
AACSB: Analytical thinking

11) The key to a company's success is always to be the low cost producer in a particular industry.
Answer: FALSE
Explanation: The low cost producer in a particular industry will not necessarily be successful.
Diff: 2
Objective: 2
AACSB: Analytical thinking

12) Management accountants work closely with managers in various departments to formulate strategies by providing information about the sources of competitive advantage.
Answer: TRUE
Diff: 2
Objective: 2
AACSB: Analytical thinking

13) Management accountants should have little or no role in deciding on a company's strategy.
Answer: FALSE
Explanation: Management accountants should play a significant role in deciding on a company's strategy.
Diff: 1
Objective: 2
AACSB: Analytical thinking

14) Companies can decide on an appropriate strategy based strictly on internally available information.
Answer: FALSE
Explanation: Companies must obtain external information as well as internal information to decide on an appropriate strategy.
Diff: 2
Objective: 2
AACSB: Analytical thinking

15) Strategic cost management describes cost management that specifically focuses on strategic issues.
Answer: FALSE
Explanation: Strategic cost management describes cost management that specifically focuses on strategic issues.
Diff: 2
Objective: 2
AACSB: Analytical thinking

16) Identifying a company's most important customers helps to formulate a strategy.
Answer: TRUE
Diff: 1
Objective: 2
AACSB: Analytical thinking

17) The best-designed strategies and the best-developed capabilities are useless unless they are effectively executed.
Answer: TRUE
Diff: 1
Objective: 2
AACSB: Analytical thinking

18) Describe the major differences between management accounting and financial accounting for the following:
1. Primary users
2. Focus and emphasis
3. Rules of measurement and reporting
Answer:
1. The primary users of management accounting information are managers of the organization. The primary users of financial accounting are external users such as investors, banks, regulators, and suppliers.
2. Management accounting is future oriented. Financial accounting is past oriented.
3. Management accounting measurement and reporting does not have to follow GAAP but are based on cost-benefit analysis. Financial accounting measurement and reporting must be prepared in accordance with GAAP and be certified by external, independent auditors.
Diff: 3
Objective: 2
AACSB: Analytical thinking

19) What is strategy? Briefly describe the two broad types of strategies that companies may choose to pursue.
Answer: Strategy specifies how an organization matches its own capabilities with the opportunities in the marketplace to accomplish its objectives. In other words, strategy describes how a company will compete.

Companies follow one of two broad strategies. One is provide a quality product or service at low prices. The other is to compete on their ability to offer a unique product or service that is generally offered at a higher price.
Diff: 2
Objective: 2
AACSB: Analytical thinking

20) Briefly describe the list of items that managers undertake to formulate strategies.
Answer: ONE: Identifying the most important customers, and how the company can be competitive and deliver value to them.
TWO: Identifying the substitute products existing in the marketplace, and how do they differ from our product in terms of features, price, cost, and quality.
THREE: Identifying most critical capability-whether it is technology, production or marketing.
FOUR: Checking the adequacy of cash available to fund the strategy, or will additional funds need to be raised-through issue of debt or equity.
Diff: 3
Objective: 2
AACSB: Analytical thinking

21) Generally, companies follow one of two broad strategies: offering a quality product at a low price, or offering a unique product or service priced higher than the competition. Assume you are opening a small

food outlet across the street from your campus. How might that business be operated under each of the two broad strategies? Consider the following specific operational areas:

a. target customers
b. products offered
c. product pricing
d. location choice
e. advertising content
f. advertising media

Answer: The purpose of this question is to explore some of the differences in business operations as a result of a broad strategic choice. Answers will differ from student to student, but you should see some specific themes.

Operational Area	Low Price Strategy	Differential Strategy
Target customers	Target customers might be students on a tight budget.	Target customers might be more wealthy students, faculty, or perhaps neighbors who live nearby.
Products offered	Few products, heavy emphasis on tight cost control, probably set up as a high volume operation.	High quality products, probably a reasonable choice, restaurant might have a lot of ambience.
Product pricing	Priced at or lower than the competition in the area.	Higher priced products.
Location choice	Convenient to the target customers.	Not as convenient, perhaps in a higher-end shopping or entertainment area. Customers might seek out the high quality and be willing to travel a bit for it.
Advertising content	Advertising would emphasize the low price of the products offered.	Advertising would emphasize quality or ambience.
Advertising media	Media that would be looked at by the target customers, such as student newspapers.	Media that would be looked at by the target customer, local magazines and newspapers.

Diff: 3
Objective: 2
AACSB: Application of knowledge

22) Generally, companies follow one of two broad strategies: offering a quality product at a low price, or offering a unique product or service priced higher than the competition. Is it possible to follow a strategy that is "in the middle"?
Answer: There is some dispute about the correct answer to this question. Some will argue that it is not good for companies to get "caught in the middle" because the customer might get confused as to whether or not the company is competing on price or is trying to make some other appeal. If the customer is confused about how the company is giving them value, they might perceive they are getting no value and abandon the product to a competitor with a clearer customer value proposition. The other side of the argument is that cost management is a necessary part of any strategy and even if the company chooses to pursue a differential strategy, management of the company should always be seeking ways to manage costs and increase customer value simultaneously regardless of their strategy. The student should be able to articulate one or the other arguments coherently.
Diff: 3
Objective: 2
AACSB: Application of knowledge

1.3 Objective 1.3

1) Place the four business functions in the order they appear along the value chain:

Customer service
Design

Marketing
Production

A) Customer Service, Design, Production, Marketing
B) Customer Service, Marketing, Production, Design
C) Design, Production, Marketing, Customer Service
D) Design, Customer Service, Production, Marketing
Answer: C
Diff: 2
Objective: 3
AACSB: Analytical thinking

2) R&D, production, and customer service are business functions that are all included as part of ________.
A) the value chain
B) benchmarking
C) customer relationship management
D) the supply chain
Answer: A
Diff: 1
Objective: 3
AACSB: Analytical thinking

3) The value chain is the sequence of business functions in which ________.
A) value is deducted from the products or services of an organization
B) producing and delivering the product or service is of prime importance
C) products and services are evaluated with respect to their value to the supply chain
D) usefulness is added to the products or services of an organization
Answer: D
Diff: 2
Objective: 3
AACSB: Analytical thinking

4) ________ is the generation of, and experimentation with, ideas related to new products, services, or processes.
A) Research and development
B) Design of products, services, or processes
C) Production
D) Marketing
Answer: A
Diff: 1
Objective: 3
AACSB: Analytical thinking

5) ________ is the detailed planning and engineering and testing of products, services, or processes.
A) Plan of implementation
B) Design
C) Production
D) Research and development
Answer: B
Diff: 1
Objective: 3
AACSB: Analytical thinking

6) Production is the ________.
A) generation of, and experimentation with, ideas related to new products, services, or processes
B) processing orders and shipping products or services to customers

C) acquisition, coordination, and assembly of resources to produce a product or deliver a service
D) detailed planning and engineering of products, services, or processes
Answer: C
Diff: 2
Objective: 3
AACSB: Analytical thinking

7) That part of the value chain that includes ordering and shipping the product to retail outlets is ________.
A) Customer service
B) Production
C) Marketing
D) Distribution
Answer: D
Diff: 2
Objective: 3
AACSB: Analytical thinking

8) Which of the following differentiates marketing from customer service?
A) Marketing is the process of promoting and selling products or services to customers or prospective customers, whereas customer service is the process of providing after-sales service to customers.
B) Marketing is the process of processing orders and shipping products or services to customers, whereas customer service is the process of providing additional information to customers about the product.
C) Marketing is the process of detailed planning, engineering, and testing of products and processes, whereas customer service concentrates on existing customers.
D) Marketing is the process of processing orders and shipping products or services to customers, whereas customer service is concerned with choosing the right customer for the product.
Answer: A
Diff: 2
Objective: 3
AACSB: Analytical thinking

9) ________ is an after-sale support provided to customers.
A) Distribution
B) Customer service
C) Production
D) Marketing
Answer: B
Diff: 1
Objective: 3
AACSB: Analytical thinking

10) ________ is a strategy that integrates people and technology in all business functions to enhance relationships with customers, partners, and distributors.
A) Supply-chain analysis
B) Customer relationship management
C) Value-chain analysis
D) Continuous quality improvement
Answer: B
Diff: 1
Objective: 3
AACSB: Analytical thinking

11) Customer relationship management initiatives use technology to coordinate all ________.
A) advertising and marketing techniques to attract customers
B) research activities
C) customer-facing activities
D) quality control management activities
Answer: C
Diff: 1
Objective: 3
AACSB: Analytical thinking

12) ________ describes the flow of goods, services, and information from the purchase of materials to the delivery of products to consumers, regardless of whether those activities occur in the same organization or with other organizations.
A) Supply chain
B) Production process
C) Quality control
D) Customer relationship management
Answer: A
Diff: 1
Objective: 3
AACSB: Analytical thinking

13) Processing orders and shipping products or providing services to customers is known as ________.
A) after-sales services
B) distribution
C) marketing
D) supply chain
Answer: B
Diff: 1
Objective: 3
AACSB: Analytical thinking

14) ________ is a philosophy in which management improves operations throughout the value chain to deliver products and services that exceed customer expectations.
A) Cost-benefit approach
B) Customer focus
C) Customer relationship management
D) Total quality management
Answer: D
Diff: 1
Objective: 3
AACSB: Analytical thinking

15) Which of the following is an area that customers want to see improved levels of performance?
A) higher sales margin
B) quality of the product
C) lower marginal costs
D) profit margins
Answer: B
Diff: 2
Objective: 3
AACSB: Analytical thinking

16) Which of the following statements about a company's supply chain is true?
A) A company's supply chain is always internal to a firm.
B) A company's supply chain is always external to a firm.
C) A company's supply chain is the same thing as a company's value chain.
D) Management accountants provide information to enhance a company's supply chain.
Answer: D
Diff: 2
Objective: 3
AACSB: Analytical thinking

17) When managers determine whether it is less expensive to buy products from a vendor or make them in house they are performing ________.
A) Cost-benefit analysis
B) Supply-chain analysis
C) Value-chain analysis
D) Research and development
Answer: A
Diff: 2
Objective: 3
AACSB: Analytical thinking

18) The ________ function supports the six functions of value-chain analysis.
A) controlling
B) administration
C) planning
D) direction
Answer: B
Diff: 1
Objective: 3
AACSB: Analytical thinking

19) ________ aims to improve operations throughout the value chain and to deliver products and services that exceed customer expectations.
A) Total Quality Management
B) Innovation
C) Customer response time
D) Cost and efficiency
Answer: A
Diff: 1
Objective: 3
AACSB: Analytical thinking

20) New-product development time is the time taken to ________.
A) test the prototype and start the large scale production of a product
B) design and develop the prototype product
C) create new products and bring them to market
D) improvise existing products and re-launch them to market
Answer: C
Diff: 2
Objective: 3
AACSB: Analytical thinking

21) Customer response time involves ________.
A) the speed it takes a customer to respond to an advertisement and place an order
B) the speed at which an organization responds to customer requests
C) the speed it takes to develop a new product
D) the speed it takes an organization to develop a Total Quality Management (TQM) program
Answer: B
Diff: 2
Objective: 3
AACSB: Analytical thinking

22) Sustainability is a strategy to achieve long term ________.
A) cost reductions and efficiency objectives.
B) financial and quality goals.
C) financial, social, and environmental goals.
D) innovation and technology goals.
Answer: C
Diff: 2
Objective: 3
AACSB: Analytical thinking

23) The supply chain refers to the sequence of business functions in which customer usefulness is added to products or services.
Answer: FALSE
Explanation: The value chain refers to the sequence of business functions in which customer usefulness is added to products or services.
Diff: 2
Objective: 3
AACSB: Analytical thinking

24) An effective way to cut costs is to eliminate activities that do NOT improve the product attributes that customers value.
Answer: TRUE
Diff: 1
Objective: 3
AACSB: Analytical thinking

25) For optimal planning success it is best if each business function within the value chain is performed one at a time in sequence.
Answer: FALSE
Explanation: Optimally, success is achieved when two or more of the individual business functions work concurrently as a team.
Diff: 2
Objective: 3
AACSB: Analytical thinking

26) For best results, cost management emphasizes independently coordinating supply chain activities within your company and with other companies that act as suppliers and customers.
Answer: TRUE
Diff: 2
Objective: 3
AACSB: Analytical thinking

27) Technological innovation has led to shorter product-life cycles and increased the need to bring new products to market more rapidly.
Answer: TRUE
Diff: 1
Objective: 2

AACSB: Analytical thinking

28) Management accounting information helps managers calculate a target cost for a product by subtracting from the target price the net income per unit of product that the company wants to earn.
Answer: FALSE
Explanation: Management accounting information helps managers calculate a target cost for a product by subtracting from the target price the operating income per unit of product that the company wants to earn.
Diff: 2
Objective: 2
AACSB: Analytical thinking

29) Customer relationship management initiatives use technology to coordinate all customer-facing activities (such as marketing, sales calls, distribution, and after-sales support) and the design and production activities necessary to get products to customers.
Answer: TRUE
Diff: 2
Objective: 3
AACSB: Analytical thinking

30) The supply chain describes the flow of goods, services, and information from the initial sources of materials and services to the delivery of products to consumers.
Answer: TRUE
Diff: 2
Objective: 3
AACSB: Analytical thinking

31) The supply chain always occurs within a single organization.
Answer: FALSE
Explanation: The supply chain can include organizations external to a single organization.
Diff: 1
Objective: 3
AACSB: Analytical thinking

32) Distribution refers to promoting and selling products or services to customers or prospective customers.
Answer: FALSE
Explanation: Marketing refers to promoting and selling products or services to customers or prospective customers.
Diff: 1
Objective: 3
AACSB: Analytical thinking

33) The design of products, services, and processes component of the supply chain refers to the detailed planning, engineering, and testing of products and processes.
Answer: TRUE
Diff: 2
Objective: 3
AACSB: Analytical thinking

34) Management accountants might provide information on decisions on whether to buy a product from outside or manufacture it in-house.
Answer: TRUE
Diff: 1
Objective: 3
AACSB: Analytical thinking

35) The parts of the value chain associated with producing and delivering a product or service– production and distribution – are referred to as the supply chain.
Answer: TRUE
Diff: 2
Objective: 3
AACSB: Analytical thinking

36) Value chain refers to its value to the employee.
Answer: FALSE
Explanation: Value chain refers to its value to the *customer*.
Diff: 1
Objective: 3
AACSB: Analytical thinking

37) Managers track the costs incurred in each value-chain category is to reduce costs and to improve efficiency.
Answer: TRUE
Diff: 1
Objective: 3
AACSB: Analytical thinking

38) Competitive information serves as a benchmark that managers use to continuously improve their operations.
Answer: TRUE
Diff: 1
Objective: 3
AACSB: Analytical thinking

39) Increased global competition is placing pressure on companies to reduce costs.
Answer: TRUE
Diff: 1
Objective: 3
AACSB: Analytical thinking

40) The increasing pace of technological information has resulted in longer product life cycles.
Answer: FALSE
Explanation: The increasing pace of technological information has resulted in shorter product life cycles.
Diff: 2
Objective: 3
AACSB: Application of knowledge

41) Managers rely on management accounting information to evaluate alternative investment and R&D decisions.
Answer: TRUE
Diff: 1
Objective: 3
AACSB: Analytical thinking

42) Classify each cost item into one of the business functions of the value chain, either (1) R&D, (2) design, (3) production, (4) marketing, (5) distribution, or (6) customer service.

Item:
a. cost of samples mailed to promote sales of a new product
b. labor cost of workers in the manufacturing plant
c. bonus paid to a person with a 90% satisfaction rating in handling customers with complaints
d. transportation costs for shipping products to retail outlets
Answer:
a. (4) marketing
b. (3) production
c. (6) customer service
d. (5) distribution
Diff: 3
Objective: 3
AACSB: Application of knowledge

43) Classify each cost item of Ripon Printers given below into one of the business functions of the value chain, either (1) R&D, (2) design of products and processes, (3) production, (4) marketing (including sales), (5) distribution, or (6) customer service.

Item:
a. cost of customer order forms
b. cost of paper used in manufacture of books
c. cost of paper used in packing cartons to ship books
d. cost of paper used in display at national trade show
e. depreciation of trucks used to transport books to college bookstores
f. cost of the wood used to manufacture paper
g. salary of the scientists attempting to find another source of printing ink
h. cost of designing the book size so that a standard-sized box is filled to capacity

Answer:
a. (4) marketing (including sales)
b. (3) production
c. (5) distribution
d. (4) marketing (including sales)
e. (5) distribution
f. (3) production
g. (1) research and development
h. (2) design of products and processes

Diff: 3
Objective: 3
AACSB: Application of knowledge

44) Describe the value chain and how it can help organizations become more effective.
Answer: A value chain is a sequence of business functions whose objective is to provide a product to a customer or provide an intermediate good or service in a larger value chain. These business functions include R&D, design, production, marketing, distribution, and customer service.

An organization can become more effective by focusing on whether each link in the chain adds value from the customer's perspective by focusing on the organization's objectives.
Diff: 2
Objective: 3
AACSB: Application of knowledge

45) **Value chain and classification of costs, car company.**
General Motors incurs the following costs:
a. Electricity costs for the plant assembling the Chevrolet Camaro
b. Transportation costs for shipping the Camaro to dealers
c. Payment to Shelby Designs for the design of the Camaro.
d. Salary of an engineer working on the next generation of Camaros
e. Cost of GM employees' visit to an auto show to demonstrate the Camaro
f. Testing the Camaro at the GM track
g. Payment to television network for running Camaro advertisements
h. Cost of brake pads purchased from outside supplier to be installed on the Camaro

Required:
Classify each of the cost items (**a-h**) into one of the business functions of the value chain.
1) Research and development
2) Design of products and processes
3) Production
4) Marketing and sales
5) Distribution
6) Customer service
Answer:
a. 3) Production
b. 5) Distribution
c. 2) Design of products and processes
d. 1) Research and development
e. 4) Marketing and sales
f. 2) Design of products and processes
g. 4) Marketing and sales
h. 3) Production
Diff: 3
Objective: 3
AACSB: Application of knowledge

1.4 Objective 1.4

1) Place the five steps in the decision-making process in the correct order:

A = Obtain information
B = Make decisions by choosing among alternatives
C = Identify the problem and uncertainties
D = Implement the decision, evaluate performance, and learn
E = Make predictions about the future

A) C D B E A
B) E D A B C
C) C A E B D
D) A E B D C
Answer: C
Diff: 2
Objective: 4
AACSB: Analytical thinking

2) Which of the following is true of planning in decision making?
A) It helps an organization to select goals and strategies.
B) It improves the quality of products.
C) It helps in evaluating performance.
D) It helps in the analysis of actual performance.
Answer: A
Diff: 1
Objective: 4
AACSB: Analytical thinking

3) Which of the tools shown below would be the most effective planning tool?
A) performance evaluation report
B) fishbone diagram
C) control chart
D) budget
Answer: D
Diff: 2
Objective: 4
AACSB: Analytical thinking

4) A report showing the actual financial results for a period compared to the budgeted financial results for that same period would most likely be called a ________.
A) strategic plan
B) management forecast
C) performance report
D) revised plan
Answer: C
Diff: 2
Objective: 4
AACSB: Analytical thinking

5) A budget ________.
A) is the qualitative expression of a proposed plan of action by management
B) is an aid for coordinating what needs to be done to execute a plan
C) helps in identifying problems and uncertainties
D) promotes production automation
Answer: B

Diff: 2
Objective: 4
AACSB: Analytical thinking

6) Management accountants serve as key business partners in the planning process because they understand the key ________ factors that create ________.
A) success ... value
B) accounting .... profits
C) financial ... value.
D) success ..... income
Answer: A
Diff: 1
Objective: 4
AACSB: Analytical thinking

7) A budget serves as much as a control tool as a planning tool because ________.
A) it aids in the coordination and communication among various business functions
B) it helps to evaluate customer needs and feedback
C) it is a benchmark against which actual performance can be compared
D) it helps to make predictions about the future
Answer: C
Diff: 2
Objective: 4
AACSB: Analytical thinking

8) Which of the following is an example of an extrinsic reward?
A) receiving a high rating on customer service
B) appreciation mail from a customer
C) promotions based on performance
D) verbal appreciation from CEO
Answer: C
Diff: 1
Objective: 4
AACSB: Application of knowledge

9) Which of the following is an example of an intrinsic reward?
A) bonuses paid to employees
B) recognition of job well done
C) promotions based on performance
D) salaries paid to employees
Answer: B
Diff: 1
Objective: 4
AACSB: Application of knowledge

10) Linking rewards to performance ________.
A) helps to motivate managers
B) allows companies to charge premium prices
C) should only be based on financial information
D) enhances agency costs
Answer: A
Diff: 2
Objective: 4
AACSB: Analytical thinking

11) Control measures should ________.
A) be set and not changed until the next budget cycle so as to provide an effective benchmark
B) be set by excluding nonfinancial information
C) be kept confidential from employees so that competitors don't have an opportunity to gain a competitive advantage
D) be linked by feedback to help learning and future planning
Answer: D
Diff: 2
Objective: 4
AACSB: Analytical thinking

12) A well-conceived plan allows managers the ability to ________.
A) set static goals and still be flexible
B) control lower-level managers from implementing change
C) conservatively estimate costs so that actual operating results will be favorable when comparisons are made
D) take advantage of unforeseen opportunities
Answer: D
Diff: 2
Objective: 4
AACSB: Analytical thinking

13) Which of the following statements is true of performance reports?
A) The performance report shows actual performance as compared to the budget.
B) The performance report depicts the performance of a firm's competitors.
C) The performance report compares only the budgeted performance over the years.
D) The performance report contains no actual results due to confidentiality.
Answer: A
Diff: 2
Objective: 4
AACSB: Analytical thinking

14) Examining past performance and exploring alternative ways to make better informed decisions in the future is ________.
A) control
B) planning
C) learning
D) implementation
Answer: C
Diff: 2
Objective: 4
AACSB: Analytical thinking

15) The last step in the decision-making process is to make decisions by choosing among alternatives.
Answer: FALSE
Explanation: The last step in the decision-making process is to implement the decision, evaluate performance, and learn.
Diff: 1
Objective: 4
AACSB: Analytical thinking

16) One of the steps in planning is evaluating the performance and taking corrective measures.
Answer: FALSE
Explanation: Evaluating the performance and taking corrective measures is a benefit to installing a budgeting system. This is not one of the steps in planning, but a guideline for management..
Diff: 2
Objective: 4
AACSB: Analytical thinking

17) A budget helps to control activities by adhering to the prescribed plan.
Answer: TRUE
Diff: 1
Objective: 4
AACSB: Analytical thinking

18) To take advantage of changing market opportunities, the annual budget should be strictly enforced.
Answer: FALSE
Explanation: To take advantage of changing market opportunities, the annual budget should be updated to reflect those changes.
Diff: 2
Objective: 4
AACSB: Analytical thinking

19) A budget is a qualitative expression of a plan.
Answer: FALSE
Explanation: Explanation: A budget is a quantitative expression of a plan.
Diff: 1
Objective: 4
AACSB: Analytical thinking

20) The process of preparing a budget encourages coordination and communication throughout the company.
Answer: TRUE
Diff: 1
Objective: 4
AACSB: Analytical thinking

21) Linking rewards to performance helps motivate managers and leads to good management performance.
Answer: TRUE
Diff: 1
Objective: 4
AACSB: Analytical thinking

22) Control comprises taking actions that implement the planning decisions, evaluating past performance, and providing feedback and learning to help future decision making.
Answer: TRUE
Diff: 1
Objective: 4
AACSB: Analytical thinking

23) A budget can only be used as a planning tool.
Answer: FALSE
Explanation: A budget may be used as a planning tool and also as a control tool.
Diff: 1
Objective: 4
AACSB: Analytical thinking

24) Gathering information before making a decision is not efficient within the decision-making process.
Answer: FALSE
Explanation: Gathering information before making a decision helps managers gain a better understanding of uncertainties.
Diff: 1
Objective: 4
AACSB: Analytical thinking

25) Evaluating actual performance, receiving feedback and learning from that feedback helps in the future decision-making process.
Answer: TRUE
Diff: 1
Objective: 4
AACSB: Analytical thinking

26) Bonuses given to employees based on performance is an example of extrinsic reward.
Answer: TRUE
Diff: 2
Objective: 4
AACSB: Application of knowledge

27) A budget is a benchmark against which actual performance can be compared.
Answer: TRUE
Diff: 2
Objective: 4
AACSB: Analytical thinking

28) A performance report compares actual performance to the amount budgeted.
Answer: TRUE
Diff: 1
Objective: 4
AACSB: Analytical thinking

29) Management accounting is playing an increasingly important role by helping managers develop and implement strategy.
Answer: TRUE
Diff: 1
Objective: 4
AACSB: Analytical thinking

30) In order, list the five steps in the decision-making process.
Answer:
1. Identify the problem and uncertainties
2. Obtain information
3. Make predictions about the future
4. Make decisions by choosing among alternatives
5. Implement the decision, evaluate performance, and learn
Diff: 2
Objective: 4
AACSB: Analytical thinking

31) For each type of report listed below, identify one planning decision and one controlling decision for which the information would be helpful. Assume you are a Walgreen Company store.

Item:
a. annual financial statements for the past three years
b. report detailing sales by department by each hour of the day for the past week
c. special study regarding increased road traffic due to the construction of a new shopping mall at a near-by intersection
Answer: Please note that answers will vary, but may include the following:

a. Planning: Decision by shareholder about whether to purchase more stock in the company.
Control: Decision by bank to determine if financial ratios maintained in the line-of-credit (LOC) agreement warrant increasing the LOC amount.

b. Planning: Decisions regarding future staffing needs.
Control: Decision regarding whether the recent sales promotion led to an increase in revenue.

c. Planning: Decision of the store manager about whether to change the types of retail items carried.
Control: Decision of the store manager regarding performance of the analyst that prepared the special study.
Diff: 3
Objective: 4
AACSB: Application of knowledge

32) Briefly explain the planning and control activities in management accounting. How are these two activities linked to each other?
Answer: Planning business operations relates to designing, producing, and marketing a product or service. This includes preparing budgets and determining the prices and cost of products and services. A company must know the cost of each product and service to decide which products to offer and whether to expand or discontinue product lines.

Controlling business operations includes comparing actual results to the budgeted results and taking corrective action when needed.

Feedback links planning and control. The control function provides information to assist in better future planning.
Diff: 3
Objective: 4
AACSB: Analytical thinking

33) Explain how a budget can help management implement strategy.
Answer: A budget is a planning tool, a quantitative expression of a plan of action. First, actions are planned and then they are communicated to the entire organization.

The budget also helps with coordination.
Diff: 1
Objective: 4
AACSB: Analytical thinking

34) What is planning in decision making? Explain how a budget helps in planning.
Answer: Planning consists of selecting an organization's goals and strategies, predicting results under various alternative ways of achieving those goals, deciding how to attain the desired goals, and communicating the goals and how to achieve them to the entire organization. Management accountants serve as business partners in these planning activities because they understand the key success factors and what creates value.
The most important planning tool when implementing strategy is a budget. A budget is the quantitative

expression of a proposed plan of action by management and is an aid to coordinating what needs to be done to execute that plan. It helps in the production, distribution, and customer-service costs to achieve the company's sales goals; the anticipated cash flows; and the potential financing needs.
Diff: 3
Objective: 4
AACSB: Analytical thinking

35) Complete a performance report for the month of May, 2018, for First News Corp, a regional newspaper showing four columns: 1) Actual Result; 2) Budgeted Amount; 3) Difference: Actual Result minus Budgeted Amount; 4) Difference as a Percentage of Budgeted Amount, given the following data:

Actual pages sold	600
Budgeted advertising pages	510
Actual Advertising revenue	$4,200,000
Budgeted Advertising revenue	$4,000,000

Does the report indicate any cause for managerial investigation?
Answer: The performance report should look something like the following:

	Actual Result (1)	Budgeted Amount (2)	Difference (Actual Result - Budgeted Amount) (3) = (1) - (2)	Difference as a Percentage of Budgeted Amount (4) = (3) / (2)
Advertising pages sold	600 pages	510 pages	90 pages Favorable	17.6% Favorable
Average rate per page (Advertising Revenues) / (Advertising pages sold)	$7,000	$7,843.14	$843.14 Unfavorable	10.75% Unfavorable
Advertising revenues	$4,200,000	$4,000,000	$200,000 Favorable	5% Favorable

The overall 5% favorable difference in advertising revenue is caused by offsetting differences in advertising pages sold (favorable) and the average rate per page (unfavorable). The performance report highlights the favorable increase in the advertising pages sold. The percentage drop in advertising revenue per page is marginal in comparison with the favorable increase of the pages sold.
Diff: 3
Objective: 4
AACSB: Application of knowledge

1.5 Objective 1.5

1) Which of the following is a guideline used by management accountants to assist in strategic and operational decision making?
A) employing a cost-benefit approach
B) employing a supply chain approach
C) employing a six sigma approach
D) employing a regression approach
Answer: A
Diff: 1
Objective: 5
AACSB: Analytical thinking

2) The scenario that says resources should be spent if the expected benefits to the company exceed the expected costs describes ________.
A) cost-benefit approach
B) behavioral and technical considerations
C) balanced scorecard
D) different costs for different purposes
Answer: A
Diff: 1
Objective: 5
AACSB: Analytical thinking

3) Which of the following is true of a budgeting system?
A) It compels managers to plan ahead.
B) It increases agency costs.
C) It is easy to measure the exact benefits of a budgeting system.
D) It leads to operational inefficiency.
Answer: A
Diff: 2
Objective: 5
AACSB: Analytical thinking

4) In a cost-benefit approach, managers should spend resources if the ________.
A) marginal costs to the company exceed the marginal benefits
B) expected benefits to the company exceed the expected costs
C) marginal costs to the company equal the marginal benefits
D) expected benefits to the company equal the expected costs
Answer: B
Diff: 3
Objective: 5
AACSB: Analytical thinking

5) Technical consideration ________.
A) help managers make wise economic decisions by providing them with the desired information
B) focuses on encouraging individuals to do their jobs better
C) focuses on compensating the managers for good performance
D) emphasize on different costs for different purposes
Answer: A
Diff: 2
Objective: 5
AACSB: Analytical thinking

6) Which of the following statements about the cost-benefit approach is true?
A) Resources should be spent if the expected costs exceed the expected benefits of the company.
B) In a cost-benefit analysis, both costs and benefits are not easy to measure.
C) Resources should be spent if the costs of a decision outweigh the benefits of the decision.
D) A cost-benefit approach would not be appropriate for a decision to install a budgeting system.
Answer: B
Diff: 2
Objective: 5
AACSB: Analytical thinking

7) Exact quantification of costs and benefits is not always possible when making a decision.
Answer: TRUE
Diff: 1
Objective: 5
AACSB: Analytical thinking

8) The technical considerations of budgeting encourage managers and other employees to strive for achieving the goals of the organization.
Answer: FALSE
Explanation: The behavioral considerations of budgeting encourage managers and other employees to strive for achieving the goals of the organization.
Diff: 2
Objective: 5
AACSB: Analytical thinking

9) A cost concept used for the purposes of external reporting will always be appropriate for internal reporting.
Answer: FALSE
Explanation: A cost concept used for the purposes of external reporting may not be appropriate for internal, routine reporting. For external reporting, GAAP requires costs to be fully expenses in the year they are incurred. However, those costs could be capitalized and than amortized or written off as expenses over several years.
Diff: 2
Objective: 5
AACSB: Analytical thinking

10) Accounting methods for internal reporting purposes are specified by Generally Accepted Accounting Principles (GAAP).
Answer: FALSE
Explanation: Accounting methods for internal reporting are not specified by Generally Accepted Accounting principles (GAAP).
Diff: 2
Objective: 5
AACSB: Analytical thinking

11) Discuss the cost-benefit approach guideline management accountants use to provide value in strategic decision making.
Answer: Management accountants continually face resource allocation decisions. The cost-benefit approach should be used in making these decisions. Resources should be spent if the expected benefits to the company exceed the expected costs. The expected benefits and costs may not be easy to quantify, but it is a useful approach for making resource allocation decisions. Companies now use budgeting system that compels managers to plan ahead, compare actual to budgeted information, learn, and take corrective action.
Diff: 3
Objective: 5
AACSB: Analytical thinking

12) Discuss the behavioral considerations that provide value to strategic decision making.
Answer: Management is primarily a human activity that should focus on encouraging individuals to do their jobs better. Budgets have a behavioral effect by motivating and rewarding employees for achieving an organization's goals. So, when workers underperform, for example, behavioral considerations suggest that managers need to discuss ways to improve their performance with them rather than just sending them a report highlighting their underperformance.
Diff: 3
Objective: 5
AACSB: Analytical thinking

1.6 Objective 1.6

1) Which of the following is true of line management?
A) It is directly responsible for achieving the goals of the organization.
B) It is responsible of management accounting functions.
C) It provides advice, support, and assistance to staff management.
D) It only includes the top level management.
Answer: A
Diff: 2
Objective: 6
AACSB: Analytical thinking

2) Which of the following is true of staff management?
A) It plans income taxes, sales taxes, and international taxes.
B) It is directly responsible for achieving the goals of the organization.
C) It provides advice, support, and assistance to line management.
D) It controls the main business functions such as production and marketing.
Answer: C
Diff: 2
Objective: 6
AACSB: Analytical thinking

3) ________ includes providing financial information for reports to managers and shareholders, and overseeing the overall operations of the accounting system.
A) Risk management
B) Treasury management
C) Controllership
D) Strategic planning
Answer: C
Diff: 1
Objective: 6
AACSB: Analytical thinking

4) ________ includes banking and short- and long-term financing, investments, and cash management.
A) Risk management
B) Strategic planning
C) Controllership
D) Treasury management
Answer: D
Diff: 1
Objective: 6
AACSB: Analytical thinking

5) Line management includes ________.
A) distribution managers
B) human-resource managers
C) information-technology managers
D) management-accounting managers
Answer: A
Diff: 1
Objective: 6
AACSB: Analytical thinking

6) Staff management includes ________.
A) manufacturing managers
B) management accountants
C) purchasing managers
D) distribution managers
Answer: B
Diff: 1
Objective: 6
AACSB: Application of knowledge

7) Which of the following is a responsibility of the CFO?
A) budget funds for a plant upgrade
B) managing short-term and long-term financing
C) investing in new equipment
D) conducting internal audit

Answer: B
Diff: 2
Objective: 6
AACSB: Analytical thinking

8) The ________ is primarily responsible for management accounting and financial accounting.
A) COO (Chief Operating Officer)
B) CIO (Chief Information Officer)
C) treasurer
D) controller
Answer: D
Diff: 2
Objective: 6
AACSB: Analytical thinking

9) Which of the following reports to the CFO?
A) external auditor
B) distribution manager
C) production manager
D) treasurer
Answer: D
Diff: 2
Objective: 6
AACSB: Application of knowledge

10) Which of the following is a function of a controller?
A) operations administration
B) controlling the stock price
C) communication with the shareholders
D) interest-rate risk management
Answer: A
Explanation: Found in exhibit 1-6
Diff: 2
Objective: 6
AACSB: Analytical thinking

11) Arrangement of long-term financing is an integral part of the ________ function in an organization.
A) CFO's
B) controller's
C) auditor's
D) president's
Answer: A
Diff: 1
Objective: 6
AACSB: Analytical thinking

12) Line management is directly responsible for attaining the goals of the organization.
Answer: TRUE
Diff: 1
Objective: 6
AACSB: Analytical thinking

13) Staff management, such as management accountants and information technology and human-resources management, provides advice, support, and assistance to line management.
Answer: TRUE
Diff: 1
Objective: 6

AACSB: Analytical thinking

14) Treasury includes banking and short- and long-term financing, investments, and cash management.
Answer: TRUE
Diff: 1
Objective: 6
AACSB: Analytical thinking

15) The controller is usually responsible for budgeting.
Answer: TRUE
Diff: 1
Objective: 6
AACSB: Analytical thinking

16) The treasurer (also called the chief accounting officer) is the financial executive primarily responsible for both management accounting and financial accounting.
Answer: FALSE
Explanation: The controller is also called the chief accounting officer. The controller is the financial executive primarily responsible for both management accounting and financial accounting.
Diff: 2
Objective: 6
AACSB: Analytical thinking

17) Management accountants must work well in cross-functional teams and as a business partner.
Answer: TRUE
Diff: 1
Objective: 6
AACSB: Analytical thinking

18) A company's CFO oversees banking and short- and long-term financing, investments, and cash management.
Answer: TRUE
Diff: 2
Objective: 6
AACSB: Analytical thinking

19) Management accountants must promote fact-based analysis and make tough-minded, critical judgments
without being adversarial.
Answer: TRUE
Diff: 1
Objective: 6
AACSB: Analytical thinking

20) What areas of responsibility does a chief financial officer have in a typical organization?
Answer: The responsibilities vary among organizations, but generally include the following areas: controllership, treasury, risk management, taxation, investor relations, and internal audit.
Diff: 2
Objective: 6
AACSB: Analytical thinking

21) The successful management accountant possesses several skills and characteristics that reach well beyond
basic analytical abilities. Discuss.
Answer: The skills required are as follows:
Management accountants must work well in cross-functional teams and as a business partner.
They must promote fact-based analysis and make tough-minded, critical judgments without being adversarial.
They must lead and motivate people to change and be innovative.
They must communicate clearly, openly, and candidly.
They must have a strong sense of integrity.
Diff: 3
Objective: 6
AACSB: Analytical thinking

1.7 Objective 1.7

1) Which of the following issues is addressed by the Sarbanes-Oxley legislation?
A) safety aspects of products
B) environmental damages caused by industries
C) disclosure practices of public corporations
D) disclosure practices of private companies
Answer: C
Diff: 2
Objective: 7
AACSB: Analytical thinking

2) The Standards of Ethical Conduct for management accountants include concepts related to ________.
A) competence, performance, diligence, and reporting
B) competence, confidentiality, integrity, and credibility
C) experience, diligence, reporting, and objectivity
D) diligence, objectivity, conflicts of interest, and credibility
Answer: B
Diff: 2
Objective: 7
AACSB: Ethical understanding and reasoning

3) Which item is an indication of competence under the Standards of Ethical Conduct?
A) Maintain an appropriate level of professional expertise by continually developing knowledge and skills.
B) Keep information confidential except when disclosure is authorized or legally required.
C) Abstain from engaging in or supporting any activity that might discredit the profession.

D) Refrain from engaging in any conduct that would prejudice carrying out duties ethically.
Answer: A
Diff: 2
Objective: 7
AACSB: Ethical understanding and reasoning

4) Which of the following differentiates confidentiality and credibility under the Standards of Ethical Conduct?
A) Credibility deals with refraining from activities that would prejudice carrying duties ethically, while confidentiality deals with communicating information fairly and objectively.
B) Confidentiality deals with refraining from the usage of critical information for unethical or illegal advantage, while credibility ensures disclosing the relevant information that would help the intended user's understanding.
C) Credibility deals with refraining from the usage of critical information for unethical or illegal advantage, while confidentiality ensures disclosing the relevant information that would help the user's understanding.
D) Credibility ensures appropriate level of professional expertise by continually developing knowledge and skills, while confidentiality encourages mitigation of actual conflicts of interest.
Answer: B
Diff: 3
Objective: 7
AACSB: Ethical understanding and reasoning

5) Which item is an indication of integrity under the Standards of Ethical Conduct?
A) Refrain from engaging in any conduct that would prejudice carrying out duties ethically.
B) Communicate information fairly and objectively.
C) Keep information confidential except when disclosure is authorized or legally required.
D) Recognize and communicate professional limitations or other constraints that would preclude responsible judgment or successful performance of an activity.
Answer: A
Diff: 2
Objective: 7
AACSB: Ethical understanding and reasoning

6) Which item is an indication of credibility under the Standards of Ethical Conduct?
A) Maintain an appropriate level of professional expertise by continually developing knowledge and skills.
B) Refrain from using confidential information for unethical or illegal advantage.
C) Abstain from engaging in or supporting any activity that might discredit the profession.
D) Disclose delays or deficiencies in information, timeliness, processing, or internal controls in conformance with organization policy and/or applicable law.
Answer: D
Diff: 2
Objective: 7
AACSB: Ethical understanding and reasoning

7) Ethical challenges for management accountants include ________.
A) whether to accept gifts from suppliers, knowing it is an effort to indirectly influence decisions
B) adhering to the principles of accounting
C) whether to file a tax return this year
D) whether to accept gifts higher incentives from the company for their performance
Answer: A
Diff: 2
Objective: 7
AACSB: Ethical understanding and reasoning

8) Which of the following actions should a management accountant take first in confronting a potential ethical conflict concerning your direct supervisor?
A) Inform the Board of Directors of the existence of a potential conflict.
B) Clarify relevant ethical issues by initiating a confidential discussion with an IMA Ethics Counselor.
C) Consult the attorney as to legal obligations and rights concerning the ethical conflict.
D) Follow the organization's procedures concerning resolution of such a conflict.
Answer: D
Diff: 2
Objective: 7
AACSB: Ethical understanding and reasoning

9) If there is an ethical conflict concerning your direct supervisor, you should first contact ________.
A) the local media
B) an IMA Ethics Counselor
C) an attorney
D) the board of directors
Answer: D
Diff: 2
Objective: 7
AACSB: Ethical understanding and reasoning

10) If there is an ethical conflict concerning your direct supervisor, when is it appropriate to contact authorities or individuals not employed by the organization?
A) when there is a personal conflict
B) when your supervisor is about to be promoted
C) when there is a clear violation of the law
D) when you face injustice from your supervisor
Answer: C
Diff: 2
Objective: 7
AACSB: Ethical understanding and reasoning

11) Competence includes maintaining an appropriate level of professional expertise by continually developing knowledge and skills.
Answer: TRUE
Explanation: Competence includes maintaining an appropriate level of professional expertise by continually developing knowledge and skills.
Diff: 1
Objective: 7
AACSB: Ethical understanding and reasoning

12) As part of the Sarbanes-Oxley Act, internal auditors are solely responsible for the fair representation of the business operations in the financial statements.
Answer: FALSE
Explanation: As part of the Sarbanes-Oxley Act, CEOs and CFOs must certify that the financial statements of their firms fairly represent the results of their operations.
Diff: 2
Objective: 7
AACSB: Analytical thinking

13) A management accountant who is not capable of completing a project because her skills, knowledge, and abilities are lacking could be ethically in violation of the competence standard.
Answer: TRUE
Diff: 1
Objective: 7
AACSB: Ethical understanding and reasoning

14) As per IMA statement of ethical professional practice, integrity refers to disclosing all relevant information that could reasonably be expected to influence an intended user's understanding of the reports, analyses, or recommendations is a responsibility.
Answer: FALSE
Explanation: As per IMA statement of ethical professional practice, credibility refers to disclosing all relevant information that could reasonably be expected to influence an intended user's understanding of the reports, analyses, or recommendations is a responsibility.
Diff: 2
Objective: 7
AACSB: Ethical understanding and reasoning

15) Performing professional duties in accordance with relevant laws, regulations, and technical standards is a competent responsibility.
Answer: TRUE
Diff: 1
Objective: 7
AACSB: Ethical understanding and reasoning

16) If a managerial accountant suspected his or her immediate superior of unethical behavior, who happens to be a chief executive officer or equivalent, the managerial accountant should request an immediate meeting with the executive committee or the audit committee.
Answer: TRUE
Explanation: If a managerial accountant suspected his or her immediate superior of wrongdoing, the managerial accountant should first present the situation to the next higher managerial level.
Diff: 2
Objective: 7
AACSB: Ethical understanding and reasoning

17) The Institute of Management Accountants provides a hotline to discuss ethical issues.
Answer: TRUE
Diff: 1
Objective: 7
AACSB: Analytical thinking

18) When faced with a potential ethical conflict, the managerial accountant should first consult IMA ethics counselor.
Answer: FALSE
Explanation: The managerial account should first discuss the issue with their immediate supervisor except when it appears that the supervisor is involved. In that case, present the issue to the next level.
Diff: 1
Objective: 7
AACSB: Ethical understanding and reasoning

19) IMA's overarching ethical principles include: Honesty, Fairness, Objectivity, and Responsibility.
Answer: TRUE
Diff: 2
Objective: 7
AACSB: Ethical understanding and reasoning

20) Integrity is to abstain from engaging in or supporting any activity that might discredit the profession.
Answer: TRUE
Diff: 1
Objective: 7
AACSB: Ethical understanding and reasoning

21) List the four standards of ethical conduct for management accountants. For each standard, give an example that demonstrates compliance with that standard.
Answer: Please note that answers may vary, but may include the following:

1. Competence: Maintain an appropriate level of professional expertise by continually developing knowledge and skills

2. Confidentiality: Refrain from using confidential information for unethical or illegal advantage

3. Integrity: Abstain from engaging in or supporting any activity that might discredit the profession

4. Credibility: Communicate information fairly and objectively
Diff: 2
Objective: 7
AACSB: Ethical understanding and reasoning

22) You have been employed as an entry-level management accountant for a little under a year. You suspect that your immediate supervisor is involved in a significant fraud involving diverting of company assets to personal use. Briefly describe the steps you might take to resolve this dilemma.
Answer: The management accountant should first consult any internal company procedures concerning the resolution of ethical issues, and make sure these procedures are followed as closely as possible. If these policies do not resolve the situation, present the facts to the next higher managerial level. If your immediate superior is the chief executive officer or equivalent, the acceptable reviewing authority may be a group such as the audit committee, executive committee, board of directors, board of trustees, or owners. Clarify the relevant ethical issues with an objective advisor (e.g., Institute of Management Accountants hotline). Consult your own attorney to be aware of your own rights and responsibilities. If all internal review procedures have still not resolved the ethical situation, the managerial accountant might have to resign and write an informative letter to an appropriate representative of the organization, and perhaps notify other parties.
Diff: 3
Objective: 7
AACSB: Ethical understanding and reasoning

Cost Accounting: A Managerial Emphasis, 16e, Global Edition **(Horngren)**
Chapter 3 Cost-Volume-Profit Analysis

3.1 Objective 3.1

1) Managers use cost-volume-profit (CVP) analysis to ________.
A) forecast the cost of capital for a given period of time
B) to study the behavior of and relationship among the elements such as total revenues, total costs, and income
C) estimate the risks associated with a given job
D) analyse a firm's profitability and help to decide wealth distribution among its stakeholders
Answer: B
Diff: 1
Objective: 1
AACSB: Analytical thinking

2) One of the first steps to take when using CVP analysis to help make decisions is ________.
A) calculating the break-even point
B) identifying the variable and fixed costs
C) calculation of the degree of operating leverage for the company
D) estimating the volume of sales to make a good profit
Answer: B
Diff: 2
Objective: 1
AACSB: Analytical thinking

3) Which of the following is true of cost-volume-profit analysis?
A) The theory assumes that all costs are variable.
B) The theory assumes that units manufactured equal units sold.
C) The theory states that total variable costs remain the same over a relevant range.
D) The theory states that total costs remain the same over the relevant range.
Answer: B
Diff: 2
Objective: 1
AACSB: Application of knowledge

4) The selling price per unit less the variable cost per unit is the ________.
A) fixed cost per unit
B) gross margin
C) margin of safety
D) contribution margin per unit
Answer: D
Diff: 1
Objective: 1
AACSB: Analytical thinking

5) In the graph method of CVP analysis, ________.
A) The total revenue line starts at the origin and the total costs line starts at the fixed intercept.
B) The operating income line starts at the origin and the total costs line starts at the fixed intercept.
C) The breakeven point is at the fixed intercept where the total revenues line intersects.
D) The operating income area is the section where the total costs line is above the total revenues line.
Answer: A
Diff: 2
Objective: 1
AACSB: Analytical thinking

6) Which of the following is an assumption of CVP analysis?
A) Total costs can be divided into a fixed component and a component that is variable with respect to the level of output.
B) When graphed, total costs curve upward.
C) The unit-selling price is variable as it is subject to demand and supply.
D) Total costs can be divided into inventoriable and period costs with respect to the level of output.
Answer: A
Diff: 2
Objective: 1
AACSB: Analytical thinking

7) Which of the following is true of CVP analysis?
A) Costs may be separated into separate inventoriable and period components with respect to the level of output.
B) Total revenues and total costs are linear in relation to output units.
C) Unit selling price, unit variable costs, and unit fixed costs are known and remain constant.
D) Proportion of different products will vary according to demand and supply when multiple products are sold.
Answer: B
Diff: 2
Objective: 1
AACSB: Analytical thinking

8) A revenue driver is defined as ________.
A) any factor that affects costs and revenues
B) any factor that affects revenues
C) the only factor that can influence a change in selling price
D) the only factor that can influence a change in demand
Answer: B
Diff: 1
Objective: 1
AACSB: Analytical thinking

9) The contribution margin per unit equals _____ .
A) fixed cost - contribution margin ratio
B) selling price - fixed costs per unit
C) selling price - variable costs per unit
D) selling price - costs of goods sold
Answer: C
Diff: 1
Objective: 1
AACSB: Analytical thinking

10) Which of the following is true about the assumptions underlying basic CVP analysis?
A) Selling price varies with demand and supply of the product.
B) Only selling price and variable cost per unit are known and constant.
C) Only selling price, variable cost per unit, and total fixed costs are known and constant.
D) Selling price, variable cost per unit, fixed cost per unit, and total fixed costs are known and constant.
Answer: C
Diff: 1
Objective: 1
AACSB: Analytical thinking

11) The contribution margin income statement ________.
A) reports gross margin
B) is allowed for external reporting to shareholders
C) categorizes costs as either direct or indirect
D) can be used to predict operating income at different levels of activity
Answer: D
Diff: 1
Objective: 1
AACSB: Analytical thinking

12) Contribution margin equals ________.
A) revenues minus period costs
B) revenues minus product costs
C) revenues minus variable costs
D) revenues minus fixed costs
Answer: C
Diff: 1
Objective: 1
AACSB: Analytical thinking

13) Sparkle Jewelry sells 800 units resulting in $9,000 of sales revenue, $3,000 of variable costs, and $1,500 of fixed costs. Contribution margin per unit is ________. (Round the final answer to the nearest cent.)
A) $13.75
B) $11.25
C) $7.50
D) $5.00
Answer: C
Explanation: ($9,000 – $3,000) / 800 units = $7.50 per unit
Diff: 2
Objective: 1
AACSB: Application of knowledge

14) Sparkle Jewelry sells 500 units resulting in $10,000 of sales revenue, $4,000 of variable costs, and $1,500 of fixed costs. Calculate the variable cost per unit. (Round the final answer to the nearest cent.)
A) $12.00
B) $6.00
C) $2.00
D) $8.00
Answer: D
Explanation: $4,000 / 500 = $8.00
Diff: 2
Objective: 1
AACSB: Application of knowledge

15) Tally Corp. sells softwares during the recruiting seasons. During the current year, 14,000 software packages were sold resulting in $460,000 of sales revenue, $110,000 of variable costs, and $50,000 of fixed costs.

Contribution margin per software is ________.
A) $32.86
B) $25.00
C) $29.29
D) $7.86
Answer: B
Explanation: ($460,000 – $110,000) / 14,000 = $25.00 per software
Diff: 2
Objective: 1
AACSB: Application of knowledge

16) Tally Corp. sells software during the recruiting seasons. During the current year, 10,000 software packages were sold resulting in $470,000 of sales revenue, $130,000 of variable costs, and $48,000 of fixed costs.

If sales increase by $80,000, operating income will increase by ________. (Round interim calculations to two decimal places and the final answer to the nearest whole dollar.)
A) $30,588
B) $32,000
C) $48,000
D) $57,872
Answer: D
Explanation: Price = $470,000 / 10,000 = $47.00
Sales in software packages = $80,000 / $47.00 = 1,702.13 software packages
Operating income increase = 1,702.13 software packages × $34.00 per = $57,872
Diff: 2
Objective: 1
AACSB: Application of knowledge

17) Pacific Company sells only one product for $12 per unit, variable production costs are $3 per unit, and selling and administrative costs are $1.70 per unit. Fixed costs for 11,000 units are $6,000. The operating income is ________ when 11,000 units are sold.
A) $8.45 per unit
B) $6.75 per unit
C) $7.30 per unit
D) $4.70 per unit
Answer: B
Explanation: Operating income = $12 − $3 − $1.70 - ($6,000 / 11,000) = $6.75
Diff: 2
Objective: 1
AACSB: Application of knowledge

18) The contribution income statement highlights ________.
A) gross margin
B) the segregation of costs into period costs and inventoriable costs
C) different product lines
D) variable and fixed costs
Answer: D
Diff: 1
Objective: 1
AACSB: Analytical thinking

19) Fixed costs equal $16,000, unit contribution margin equals $35, and the number of units sold equal 1,300. Operating income is ________.
A) $45,500
B) $29,500
C) $16,000
D) $61,500
Answer: B
Explanation: (1,300 × $35) − $16,000 = $29,500
Diff: 2
Objective: 1
AACSB: Application of knowledge

20) Orion Company sells several products. Information of average revenue and costs is as follows:

Selling price per unit	$23
Variable costs per unit:	
Direct material	$4
Direct manufacturing labor	$1.60
Manufacturing overhead	$0.40
Selling costs	$2.10
Annual fixed costs	$100,000

The company sells 12,000 units at the end of the year.

The contribution margin per unit is ________.
A) $16.50
B) $14.90
C) $18.60
D) $19.00
Answer: B
Explanation: Contribution margin per unit = ($23 − $4 − $1.60 − $0.40 − $2.10) = $14.90
Diff: 2
Objective: 1
AACSB: Application of knowledge

21) Orion Company sells several products. Information of average revenue and costs is as follows:

Selling price per unit	$23
Variable costs per unit:	
Direct material	$4
Direct manufacturing labor	$1.70
Manufacturing overhead	$0.40
Selling costs	$2
Annual fixed costs	$100,000

The company sells 12,000 units at the end of the year.

If direct labor and direct material costs increase by $1 each, contribution margin ________.
A) increases by $24,000
B) increases by $12,000
C) decreases by $24,000
D) decreases by $12,000
Answer: C
Explanation: Contribution margin = ($23 − $5 − $2.70 − $0.40 − $2) × 12,000 = $154,800.
The previous contribution margin was $178,800 which means it decreased by $24,000
Diff: 3
Objective: 1
AACSB: Application of knowledge

22) Bell Company sells several products. Information of average revenue and costs is as follows:

Selling price per unit	$33.00
Variable costs per unit:	
Direct material	$6.00
Direct manufacturing labor	$1.50
Manufacturing overhead	$0.30
Selling costs	$2.25
Annual fixed costs	$113,000

The company sells 10,000 units.

The contribution margin per unit is ________.
A) $11.65
B) $22.95
C) $25.20
D) $25.50
Answer: B
Explanation: Contribution margin per unit = $33.00 − $6.00 − $1.50 −$0.30 − $2.25 = $22.95
Diff: 2
Objective: 1
AACSB: Application of knowledge

23) Bell Company sells several products. Information of average revenue and costs is as follows:

Selling price per unit	$29
Variable costs per unit:	
Direct material	$6
Direct manufacturing labor	$1.75
Manufacturing overhead	$0.25
Selling costs	$2
Annual fixed costs	$111,000

The company sells 13,000 units.

What is the proportion of variable costs to total costs?
A) 43.15%
B) 41.27%
C) 77.25%
D) 53.94%
Answer: D
Explanation: Total variable costs = $6 + $$1.75 + $0.25 + $2 = $10 × 13,000 = $130,000
Total costs = $130,000 + $111,000 = $241,000.
Variable cost proportion = $130,000 / $241,000 = 53.94%
Diff: 2
Objective: 1
AACSB: Application of knowledge

24) Family Furniture sells a table for $900. Its fixed costs are $30,000, while its variable costs are $600 per table. It currently plans to sell 175 tables this month.

What is the budgeted revenue for the month assuming that Family Furniture sells 175 tables?
A) $52,500
B) $157,500
C) $127,500
D) $105,000
Answer: B
Explanation: Budgeted revenue = 175 × $900 = $157,500
Diff: 2
Objective: 1
AACSB: Application of knowledge

25) Family Furniture sells a table for $950. Its fixed costs are $2,500, while its variable costs are $500 per table. It currently plans to sell 180 tables this month.

What is the budgeted operating income for the month assuming that Family Furniture sells 180 tables?
A) $168,500
B) $81,000
C) $78,500
D) $171,000
Answer: C
Explanation: Budgeted operating income = $171,000 – [(180 × $500) + $2,500] = $171,000 – $92,500 = $78,500
Diff: 2
Objective: 1
AACSB: Application of knowledge

26) SaleCo sells 8,400 units resulting in $120,000 of sales revenue, $35,000 of variable costs, and $45,000 of fixed costs. The contribution margin percentage is ________.
A) 62.5%
B) 70.83%
C) 33.33%
D) 29.17%
Answer: B
Explanation: ($120,000 – $35,000) / $120,000 = 70.83%
Diff: 2
Objective: 1
AACSB: Application of knowledge

27) Which of the following is the mathematical expression of contribution margin ratio?
A) Contribution margin ratio = Contribution margin percentage × Revenues (in dollars)
B) Contribution margin ratio = Contribution margin percentage × Fixed costs (in dollars)
C) Contribution margin ratio = Contribution margin percentage × Variable costs (in dollars)
D) Contribution margin ratio = Contribution margin percentage × Operating leverage
Answer: A
Diff: 1
Objective: 1
AACSB: Analytical thinking

28) Contribution Margin = Total revenues - Total variable costs
Answer: TRUE
Diff: 1
Objective: 1
AACSB: Analytical thinking

29) Contribution margin = Total revenues - Total manufacturing costs
Answer: FALSE
Explanation: Gross Margin = Total revenues - Total manufacturing costs OR
Contribution Margin = Total Revenue - Total variable costs
Diff: 1
Objective: 1
AACSB: Analytical thinking

30) Contribution margin percentage = Selling price - Variable cost per unit
Answer: FALSE
Explanation: Contribution margin percentage = Contribution margin / revenues OR
Contribution margin per unit = Selling price - Variable cost per unit
Diff: 1
Objective: 1

AACSB: Analytical thinking

31) Contribution margin per unit equals contribution margin divided by number of units sold.
Answer: TRUE
Diff: 2
Objective: 1
AACSB: Analytical thinking

32) In CVP analysis, the graph of total revenues versus total costs is linear in nature relation to units sold within a relevant range and time period.
Answer: TRUE
Diff: 1
Objective: 1
AACSB: Analytical thinking

33) The difference between total revenues and total variable costs is called profit margin.
Answer: FALSE
Explanation: The difference between total revenues and total variable costs is called contribution margin.
Diff: 2
Objective: 1
AACSB: Analytical thinking

34) The shorter the time horizon, the lower the percentage of total costs considered fixed.
Answer: FALSE
Explanation: The shorter the time horizon, the higher the percentage of total costs considered fixed.
Diff: 2
Objective: 1
AACSB: Analytical thinking

35) The three methods used to study CVP analysis are graph method, contribution method, and equation method.
Answer: TRUE
Diff: 1
Objective: 1
AACSB: Analytical thinking

36) Contribution margin = Contribution margin percentage × Revenues (in dollars).
Answer: TRUE
Diff: 1
Objective: 1
AACSB: Analytical thinking

37) A revenue driver is a variable, such as volume, that causally affects revenues.
Answer: TRUE
Diff: 1
Objective: 1
AACSB: Analytical thinking

38) Operating income plus total fixed costs equals the contribution margin.
Answer: TRUE
Explanation: Total revenues less total variable costs equal the contribution margin.
Diff: 2
Objective: 1
AACSB: Analytical thinking

39) Contribution margin percentage equals the unit contribution margin divided by the selling price.
Answer: TRUE
Explanation: Contribution margin per unit divided by selling price per unit equals contribution margin percentage.
Diff: 1
Objective: 1
AACSB: Analytical thinking

40) The classification of costs as variable and fixed depends on the relevant range, the length of the time horizon, and the specific decision situation.
Answer: TRUE
Diff: 2
Objective: 1
AACSB: Analytical thinking

41) The difference between total revenues and total variable costs is called contribution margin.
Answer: TRUE
Diff: 1
Objective: 1
AACSB: Analytical thinking

42) Only variable production costs are used when calculating contribution margin.
Answer: FALSE
Explanation: False because all variable costs, production and selling/admin, are subtracted from revenue to determine contribution margin.
Diff: 2
Objective: 1
AACSB: Analytical thinking

43) Arthur's Plumbing reported the following:

Revenues	$4,500
Variable manufacturing costs	$ 900
Variable nonmanufacturing costs	$ 810
Fixed manufacturing costs	$ 630
Fixed nonmanufacturing costs	$ 545

Required:
a. Compute contribution margin.
b. Compute contribution margin percentage.
c. Compute gross margin.
d. Compute gross margin percentage.
e. Compute operating income.
Answer:
a. Contribution margin $4,500 - $900 - $810 = $2,790
b. Contribution margin percentage = ($2,790/$4,500) × 100 = 62%
c. Gross margin $4,500 - $900 - $630 = $2,970
d. Gross margin percentage = ($2,970/$4,500) × 100 = 66%
e. Operating income $4,500 - $900 - $810 - $630 - $545 = $1,615
Diff: 3
Objective: 1
AACSB: Application of knowledge

3.2 Objective 3.2

1) SaleCo sells 11,000 units resulting in $110,000 of sales revenue, $50,000 of variable costs, and $45,000 of fixed costs. To achieve $150,000 in operating income, sales must total ________. (Round intermediate calculations to two decimal places and the final answer to the nearest dollar.)
A) $245,000
B) $253,846
C) $160,000
D) $357,500
Answer: D
Explanation: ((110,000 - 50,000) / 110,000) = 55%
($150,000 + $45,000) / 55% = $357,500 in sales
Diff: 2
Objective: 2
AACSB: Application of knowledge

2) Sparkle Jewelry sells 600 units resulting in $75,000 of sales revenue, $32,000 of variable costs, and $26,000 of fixed costs.

Breakeven point in units is ________. (Round to the nearest whole unit.)
A) 447 units
B) 684 units
C) 810 units
D) 363 units
Answer: D
Explanation: Contribution margin per unit = ($75,000 − $32,000) / 600 = $71.67
Breakeven point = $26,000 / $71.67 = 363 units.
Diff: 2
Objective: 2
AACSB: Application of knowledge

3) Sparkle Jewelry sells 800 units resulting in $85,000 of sales revenue, $32,000 of variable costs, and $26,000 of fixed costs.

The number of units that must be sold to achieve $41,000 of operating income is ________.
A) 909 units
B) 393 units
C) 1,012 units
D) 619 units
Answer: C
Explanation: ($85,000 − $32,000) / 800 = $66.25
The number of units that must be sold to achieve $41,000 of operating income = ($26,000 + $41,000) / $66.25 = 1,012 units
Diff: 2
Objective: 2
AACSB: Application of knowledge

4) Sky High sells helicopters. During the current year, 130 helicopters were sold resulting in $820,000 of sales revenue, $250,000 of variable costs, and $345,000 of fixed costs. Breakeven point in units is ________.
A) 95 units
B) 58 units
C) 79 units
D) 55 units
Answer: C
Explanation: Explanation: Contribution margin per unit = ($820,000 - $250,000) / 130 = $570,000 / 130 = $4,384.62 per unit.
Breakeven point = $345,000 / $4,384.62 = 79 units
Diff: 2
Objective: 2
AACSB: Application of knowledge

5) Sky High sells helicopters. During the current year, 130 helicopters were sold resulting in $840,000 of sales revenue, $260,000 of variable costs, and $350,000 of fixed costs. The number of helicopters that must be sold to achieve $320,000 of operating income is ________.
A) 151 units
B) 104 units
C) 79 units
D) 130 units
Answer: A
Explanation: Number of helicopters to be sold to achieve an operating income of $320,000 = ($350,000 + $320,000) / $4,461.54 = 151 units
Diff: 2
Objective: 2
AACSB: Application of knowledge

6) The controller at TellCo is examining her books. She determines that at the breakeven point of 5,000 units, variable costs total $4,000 and fixed costs total $7,000. Therefore, 5,001st unit sold will contribute ________ to profits. (Round the final answer to the nearest cent.)
A) $0.80
B) $0.60
C) $1.40
D) $2.20
Answer: C
Explanation: Fixed costs of $7,000/5,000 units = Contribution Margin of $1.40 per unit.
Diff: 2
Objective: 2
AACSB: Application of knowledge

7) The breakeven point is the activity level where ________.
A) revenues equal fixed costs
B) revenues equal variable costs
C) contribution margin equals total costs
D) revenues equal the sum of variable and fixed costs
Answer: D
Explanation: Revenue - Variable Costs - Fixed Costs = Operating income, thus;
Revenue = Variable Costs + Fixed Costs
Diff: 1
Objective: 2
AACSB: Analytical thinking

8) Breakeven point in units is ________.
A) total costs divided by profit margin per unit
B) contribution margin per unit divided by total cost per unit
C) fixed costs divided by contribution margin per unit
D) the sum of fixed and variable costs divided by contribution margin per unit
Answer: C
Diff: 1
Objective: 2
AACSB: Analytical thinking

9) Sales total $400,000 when variable costs total $300,000 and fixed costs total $80,000. The breakeven point in sales dollars is ________. (Round interim calculations to two decimal places and the final answer to the nearest dollar.)
A) $320,000
B) $400,000
C) $1,200,000
D) $500,000
Answer: A
Explanation: Contribution margin percentage = ($400,000 – $300,000) / $400,000 = 25%;
BE sales = $80,000 / 0.25 = $320,000
Diff: 3
Objective: 2
AACSB: Application of knowledge

10) The breakeven point revenues is calculated by dividing ________.
A) fixed costs by total revenues
B) fixed costs by contribution margin percentage
C) total revenues by fixed costs
D) contribution margin percentage by fixed costs
Answer: B
Diff: 2
Objective: 2
AACSB: Analytical thinking

11) At breakeven point, ________.
A) operating income is equal to zero
B) contribution margin minus fixed costs is equal to profits earned
C) revenues equal fixed costs minus variable costs
D) breakeven revenues equal fixed costs divided by the variable cost per unit
Answer: A
Diff: 2
Objective: 2
AACSB: Analytical thinking

12) The breakeven point decreases if ________.
A) the variable cost per unit increases
B) the total fixed costs decrease
C) the contribution margin per unit decreases
D) the selling price per unit decreases
Answer: B
Diff: 2
Objective: 2
AACSB: Analytical thinking

13) Assume only the specified parameters change in a CVP analysis. The contribution margin percentage increases when ________.
A) total fixed costs increase
B) total fixed costs decrease
C) variable costs per unit increase
D) variable costs per unit decrease
Answer: D
Diff: 1
Objective: 2
AACSB: Analytical thinking

14) What is the breakeven point in units, assuming a product's selling price is $300, fixed costs are $18,000, unit variable costs are $20, and operating income is $6,000?
A) 22 units
B) 86 units
C) 60 units
D) 65 units
Answer: D
Explanation: Unit contribution margin = $300 – $20 = $280.
Breakeven point in units = $18,000 / $280 = 65 units
Diff: 2
Objective: 2
AACSB: Application of knowledge

15) Rosewood company sells wooden carvings for $300 each. The direct materials cost per unit is $160 and the direct labor is 2 hours at a rate of $26 per hour. Manufacturing overhead is applied on the basis of labor hours at a rate of $36 per hour. Rosewood makes and sells 1,000 units per period. How many units must Rosewood sell to breakeven?
A) 409 units
B) 450 units
C) 240 units
D) 818 units
Answer: D
Explanation: Correct. Unit Contribution Margin 300 - 160 - (2 x $26) = $88
Fixed cost per period = (2 x $36) x 1,000 units = $72,000
Breakeven = FC / CM = $72,000 / $88 = 818 units
Diff: 3
Objective: 2
AACSB: Application of knowledge

16) If unit outputs exceed the breakeven point ________.
A) there will be an increase in fixed costs
B) total sales revenue will exceed fixed costs
C) total sales revenue will exceed variable costs
D) there will be a profit
Answer: D
Diff: 2
Objective: 2
AACSB: Analytical thinking

17) Firebird Ltd. sells packaged birdseed for $6.00 per package. Variable product costs are $3.00 per package. Fixed costs are $12,000 per period. How many packages must Firebird sell to earn a target operating income of $7,900?
A) 4,000 packages
B) 2,633 packages
C) 6,633 packages

D) 3,317 packages
Answer: C
Explanation: Correct. Quantity required = (fixed costs + target OpInc) / CM per unit
Q = ($12,000 + $7,900) / ($6.00 - $3.00) = 6,633 units.
Diff: 3
Objective: 2
AACSB: Application of knowledge

18) How many units would have to be sold to yield a target operating income of $26,000, assuming variable costs are $27 per unit, total fixed costs are $2,000, and the unit selling price is $32?
A) 400 units
B) 1,038 units
C) 5,600 units
D) 1,273 units
Answer: C
Explanation: Desired sales = ($2,000 + $26,000) / ($32 − $27) = 5,600 units
Diff: 3
Objective: 2
AACSB: Application of knowledge

19) If the breakeven point is 1,300 units and each unit sells for $50, then ________.
A) selling 1,340 units will result in a loss
B) selling $85,000 will result in a loss
C) selling $65,000 will result in zero profit
D) selling $58,000 will result in profit
Answer: C
Explanation: 1,300 × $50 = $65,000 of BE sales
Diff: 2
Objective: 2
AACSB: Application of knowledge

20) Slickware sells porcelain cups. The breakeven point is 5,000 units. The variable cost per unit is $18 and the fixed costs are $20,000. What is the contribution margin at 5,000 units?
A) 20,000
B) 90,000
C) 110,000
D) 40,000
Answer: A
Explanation: Correct. The contribution margin equals fixed costs at breakeven.
Diff: 3
Objective: 2
AACSB: Application of knowledge

21) Slickware sells porcelain cups. The breakeven point is 5,000 units. The variable cost per unit is $12 and the fixed costs are $20,000. What is the selling price?
A) $16
B) $24
C) $28
D) $20
Answer: A
Explanation: Correct. The contribution margin equals fixed costs at breakeven.
Therefore $20,000/5,000 units = $4 CM per unit. VC = $12 so selling price must be $16.
Diff: 3
Objective: 2
AACSB: Application of knowledge

22) If breakeven point is 1,000 units, each unit sells for $31, and fixed costs are $30,000, then on a graph the ________.
A) total revenue line and the total cost line will intersect at $31,000 of revenue
B) total cost line will be zero at zero units sold
C) revenue line will start at $30,000
D) total revenue line and the total cost line will intersect at $61,000 of revenue
Answer: A
Explanation: $(1,000 x 31) = $31,000
Diff: 3
Objective: 2
AACSB: Application of knowledge

23) When fixed costs are $70,000 and variable costs are 60% of the selling price, then breakeven sales are ________. (Round the final answer to the nearest dollar.)
A) $116,667
B) $175,000
C) $112,000
D) $98,000
Answer: B
Explanation: $70,000 / (1 − 0.6) = $175,000 in BE sales
Diff: 2
Objective: 2
AACSB: Application of knowledge

24) Ruben is a travel agent. He intends to sell his customers a special round-trip airline ticket package. He is able to purchase the package from the airline for $170 each. The round-trip tickets will be sold for $200 each and the airline intends to reimburse Ruben for any unsold ticket packages. Fixed costs include $5,500 in advertising costs. What is the contribution margin per ticket package?
A) $30
B) $370
C) $170
D) $200
Answer: A
Explanation: $200 - $170 = $30
Diff: 2
Objective: 2
AACSB: Application of knowledge

25) Ruben is a travel agent. He intends to sell his customers a special round-trip airline ticket package. He is able to purchase the package from the airline for $160 each. The round-trip tickets will be sold for $200 each and the airline intends to reimburse Ruben for any unsold ticket packages. Fixed costs include $5,200 in advertising costs. How many ticket packages will Ruben need to sell to break even?
A) 26 packages

B) 40 packages
C) 130 packages
D) 160 packages
Answer: C
Explanation: $200X - $160X - $5,200 = 0; X = 130
Diff: 2
Objective: 2
AACSB: Application of knowledge

26) Ruben is a travel agent. He intends to sell his customers a special round-trip airline ticket package. He is able to purchase the package from the airline for $140 each. The round-trip tickets will be sold for $230 each and the airline intends to reimburse Ruben for any unsold ticket packages. Fixed costs include $5,500 in advertising costs. How many ticket packages will Ruben need to sell in order to achieve $60,000 of operating income?
A) 62 packages
B) 667 packages
C) 285 packages
D) 728 packages
Answer: D
Explanation: $230X - $140X - $5,500 = $60,000; X = 728
Diff: 2
Objective: 2
AACSB: Application of knowledge

27) Ruben intends to sell his customers a special round-trip airline ticket package. He is able to purchase the package from the airline carrier for $170 each. The round-trip tickets will be sold for $200 each and the airline intends to reimburse Ruben for any unsold ticket packages. Fixed costs include $5,140 in advertising costs. For every $27,000 of ticket packages sold, operating income will increase by ________.
A) $4,050
B) $34,000
C) $22,950
D) $27,000
Answer: A
Explanation: $27,000 × [($200 - $170 / $200)] = $4,050
Diff: 3
Objective: 2
AACSB: Application of knowledge

28) Quality Stores, Inc., sells several products. Information of average revenue and costs is as follows:

Selling price per unit	$20
Variable costs per unit:	
Direct material	$4
Direct manufacturing labor	$1.80
Manufacturing overhead	$0.4
Selling costs	$3
Annual fixed costs	$96,000

What is the contribution margin percentage? (Round your answer to the nearest whole percent.)
A) 54%
B) 69%
C) 43%
D) 47%
Answer: A
Explanation: Contribution margin percentage = ($20 – $4 – $1.80 – $0.4 – $3) / 20 = 54%
Diff: 2
Objective: 2
AACSB: Application of knowledge

29) Quality Stores, Inc., sells several products. Information of average revenue and costs is as follows:

Selling price per unit	$23
Variable costs per unit:	
Direct material	$6
Direct manufacturing labor	$1.90
Manufacturing overhead	$0.40
Selling costs	$2
Annual fixed costs	$96,000

The revenues that the company must earn annually to make a profit of $144,000 are ________. (Round the final answer to the nearest dollar.)
A) $375,510
B) $365,563
C) $434,646
D) $324,706
Answer: C
Explanation: Desired sales = ($96,000 + $144,000) / 0.55 = $434,646
Diff: 2
Objective: 2
AACSB: Application of knowledge

30) Frazer Corp sells several products. Information of average revenue and costs is as follows:

Selling price per unit	$28.5
Variable costs per unit:	
Direct material	$6.00
Direct manufacturing labor	$1.45
Manufacturing overhead	$0.85
Selling costs	$2.60
Annual fixed costs	$125,000

What is the operating income earned if the company sells 20,000 units?
A) $279,000
B) $296,000
C) $325,000
D) $227,000
Answer: D
Explanation: Contribution = $28.5 - $6.00 – $1.45 – $0.85 - $2.60 = $17.6 × 20,000 = $352,000
Operating income = $352,000 - $125,000 = $227,000
Diff: 2
Objective: 2
AACSB: Application of knowledge

31) Frazer Corp sells several products. Information of average revenue and costs is as follows:

Selling price per unit	$28.50
Variable costs per unit:	
Direct material	$6.00
Direct manufacturing labor	$1.45
Manufacturing overhead	$0.85
Selling costs	$2.50
Annual fixed costs	$135,000

If the company decides to lower its selling price by 14.25%, but continues to sell 16,000 units, the operating income is reduced by ________.
A) $64,960
B) $135,000
C) $13,200
D) $16,000
Answer: A
Explanation: $28.50 × 14.25% = 4.06. Therefore the new selling price is $24.44 ($28.50 - $4.06).
Contribution = ($24.44 - $6.00 – $1.45 – $0.85 - $2.50) × 16,000 = $218,240
Operating income = $218,240 - $135,000 = $83,240.
Diff: 3
Objective: 2
AACSB: Application of knowledge

32) The following information is for High Corp:

Selling price	$60 per unit
Variable costs	$40 per unit
Total fixed costs	$135,000

The number of units that High Corp must sell to reach targeted operating income of $25,000 is ________. (Round up to the nearest unit.)
A) 6,750 units
B) 8,000 units
C) 1,250 units
D) 2,667 units
Answer: B
Explanation: ($135,000 + $25,000)/($60 − $40) = 8,000 units
Diff: 2
Objective: 2
AACSB: Application of knowledge

33) The following information is for High Corp:

Selling price	$60 per unit
Variable costs	$40 per unit
Total fixed costs	$130,000

If targeted operating income is $50,000, then targeted sales revenue is ________. (Round the final answer to the nearest dollar.)
A) $540,000
B) $390,000
C) $150,000
D) $180,000
Answer: A
Explanation: ($130,000 + $50,000) / [($60 − $40) / $60] = $540,000
Diff: 2
Objective: 2
AACSB: Application of knowledge

34) Katrina's Bridal Shoppe sells wedding dresses. The average selling price of each dress is $1,200, variable costs are $400, and fixed costs are $110,000. What is Katrina's operating income when 200 dresses are sold?
A) $50,000
B) $240,000
C) $80,000
D) $130,000
Answer: A
Explanation: 200($1,200) - 200($400) - $110,000 = $50,000
Diff: 2
Objective: 2
AACSB: Application of knowledge

35) Katrina's Bridal Shoppe sells wedding dresses. The average selling price of each dress is $1,100, variable costs are $500, and fixed costs are $100,000. How many dresses are sold when operating income is zero?
A) 200 dresses
B) 167 dresses
C) 310 dresses
D) 91 dresses

Answer: B
Explanation: $1,100N - $500N - $100,000 = 0; $600N = $100,000; N = 167 dresses
Diff: 3
Objective: 2
AACSB: Application of knowledge

36) Dr. Charles Hunter, MD, performs a certain outpatient procedure for $1,300. His fixed costs are $24,000 per month and his variable costs are $500 per procedure. Dr. Hunter currently plans to perform 400 procedures this month. What is the breakeven point for the month assuming that Dr. Hunter plans to perform the procedure 400 times?
A) 30 times
B) 19 times
C) 28 times
D) 10 times
Answer: A
Explanation: $1,300N - $500N - $24,000 = 0; $500N = $24,000; N = 30 times
Diff: 3
Objective: 2
AACSB: Application of knowledge

37) Zirconia Fantasy sells only necklaces. 11,000 units were sold resulting in $270,000 of sales revenue, $80,000 of variable costs, and $40,000 of fixed costs. The breakeven point in total sales dollars is ________.
A) $40,000
B) $56,843
C) $120,000
D) $72,000
Answer: B
Explanation: $40,000 / ($270,000 - 80,000) x 270,000 = $56,843 (rounded up)
Diff: 2
Objective: 2
AACSB: Application of knowledge

38) Burgandy Manufacturing produces a single product that sells for $80. Variable costs per unit equal $35. The company expects total fixed costs to be $90,000 for the next month at the projected sales level of 2,500 units. In an attempt to improve performance, management is considering a number of alternative actions. Each situation is to be evaluated separately. What is the current breakeven point in terms of number of units?
A) 2,000 units
B) 1,125 units
C) 2,572 units
D) 2,046 units
Answer: A
Explanation: $80X – $35X – $90,000 = 0; X = 2,000 units
Diff: 2
Objective: 2
AACSB: Application of knowledge

39) Lights Manufacturing produces a single product that sells for $130. Variable costs per unit equal $55. The company expects total fixed costs to be $100,000 for the next month at the projected sales level of 1,300 units. What is the current breakeven point in terms of number of units?
A) 770 units
B) 1,819 units
C) 541 units
D) 1,334 units
Answer: D
Explanation: $100,000/($130 – $55) = 1,334 units
Diff: 2
Objective: 2
AACSB: Application of knowledge

40) Which of the following will increase a company's breakeven point?
A) increasing variable cost per unit
B) increasing contribution margin per unit
C) reducing its total fixed costs
D) increasing the selling price per unit
Answer: A
Diff: 1
Objective: 2
AACSB: Analytical thinking

41) The breakeven point is _______.
A) where selling one more unit will not increase income
B) where contribution margin equals fixed costs
C) where total revenues equal contribution margin
D) fixed costs divided by revenues equals zero
Answer: B
Diff: 2
Objective: 2
AACSB: Analytical thinking

42) You can find the breakeven revenues using total revenues, total variable costs, and total fixed costs; you don't need unit prices and costs.
Answer: TRUE
Explanation: Revenues needed to earn target operating income = (Fixed costs + Target OpInc) / Contribution Margin Percentage
Diff: 2
Objective: 2
AACSB: Analytical thinking

43) In the graph method of CVP analysis, the horizontal line above the *x*-axis represents the total cost line.
Answer: FALSE
Explanation: In the graph method of CVP analysis, the horizontal line above the *x*-axis represents the fixed cost line.
Diff: 2
Objective: 2
AACSB: Analytical thinking

44) A profit-volume graph shows the impact on operating income from changes in the output level.
Answer: TRUE
Diff: 1
Objective: 2
AACSB: Analytical thinking

45) In the profit-volume graph the point at which the profit-volume line and *x*-axis intersect is the breakeven point.
Answer: TRUE
Diff: 1
Objective: 2
AACSB: Analytical thinking

46) MyArt sells framed art prints for $100. The unit variable cost per phone is $50 plus a selling commission of 10%. Fixed manufacturing costs total $1,250 per month, while fixed selling and administrative costs total $2,500.

Required:

a. What is the contribution margin per print?

b. What is the breakeven point in prints?

c. How many prints must be sold to earn pretax income of $7,500?

Answer:

a. CM per print = $100 - $50 - 0.1($100) = $40

b. N = Breakeven in prints

$100N - $50N - $10N - $1,250 - $2,500 = 0

$40N - $3,750 = 0

N = $3,750 / $40 = 93.75 prints

Breakeven is 94 prints

c. N = Prints to be sold

$100N - $50N - $10N - $1,250 - $2,500 = $7,500

$40N = $11,250

N = $11,250 / $40 = 281.25 prints

282 prints must be sold

Diff: 3
Objective: 2
AACSB: Application of knowledge

47) What is meant by the term breakeven point? Why should a manager be concerned about the breakeven point and what helps them study the breakeven analysis?

Answer: The breakeven point is the level of production and sales at which total revenues equal total costs. Managers should be concerned about the breakeven point because it helps determine when a business venture will be profitable. Breakeven point shows a company how far sales can decline before a net loss will be incurred. It helps to assess the risk of loss. The graph method helps managers visualize the relationships between total revenues and total costs. The graph shows each relationship as a line.

Diff: 2
Objective: 2
AACSB: Analytical thinking

3.3 Objective 3.3

1) Stephanie's Bridal Shoppe sells wedding dresses. The average selling price of each dress is $1,200, variable costs are $700, and fixed costs are $100,000. How many dresses must the Bridal Shoppe sell to yield after-tax net income of $20,000, assuming the tax rate is 40%?
A) 267 dresses
B) 240 dresses
C) 200 dresses
D) 400 dresses
Answer: A
Explanation: 1,200N - $700N - $100,000 = $20,000 / (1 - 0.4); $500N - $100,000 = $33,333; N = 267 units
Diff: 3
Objective: 3
AACSB: Analytical thinking

2) Anglico's most recent income statement is given below.

Sales (8,000 units)	$160,000
Less variable expenses	(68,000)
Contribution margin	92,000
Less fixed expenses	(50,000)
Net income	$42,000

Required:

a.	Contribution margin per unit is	$ ________ per unit
b.	If sales are doubled total variable costs will equal	$ ________
c.	If sales are doubled total fixed costs will equal	$ ________
d.	If 20 more units are sold, profits will increase by	$ ________
e.	Compute how many units must be sold to break even.	# ________
f.	Compute how many units must be sold to achieve operating income of $60,000.	# ________
g.	Compute the revenue needed to achieve an after tax income of $30,000 given a tax rate of 30%.	$ ________

Answer:
a. Contribution margin per unit is $92,000 / 8,000 = $11.5
b. Variable cost = $68,000 × 2 = $136,000
c. Fixed cost = $50,000
d. Contribution margin of $11.50 × 20 units = $230
e. Breakeven point in units = Fixed costs of $50,000 / Contribution margin per unit $11.50 = 4,348 units (rounded up)
f. Desired sales = (Fixed costs of $50,000 + Desired operating income $60,000) / $11.50 = 9,566 units (rounded up)
g. After tax income of $35,000 / (1-30%) = operating income of $50,000. Contribution margin ratio = $92,000 / $160,000 = 56.25%. Desired sales = (fixed costs of $50,000 + desired operating income of $50,000) / 56.25% = $177,778 (rounded up)

Diff: 3
Objective: 3
AACSB: Application of knowledge

3) Black Pearl, Inc., sells a single product. The company's most recent income statement is given below.

Sales	$50,000
Less variable expenses	(30,000)
Contribution margin	20,000
Less fixed expenses	(12,500)
Net income	$ 7,500

Required:

a. Contribution margin ratio is ________%

b. Breakeven point in total sales dollars is $ ________

c. To achieve $40,000 in operating income, sales must total $ ________

d. If sales increase by $50,000, operating income will increase by $ ________

e. To achieve a $40,000 after tax income, given a tax rate of 20%, sales must total $________

Answer:
a. Contribution margin ratio is $20,000 / $50,000 = 40%
b. Fixed costs $12,500 / 0.40 CM% = $31,250 in sales
c. [Fixed costs $12,500 + operating income $40,000] / 0.40 CM% = $131,250 in sales
d. $50,000 × 0.40 CM% = $20,000 increase in net income
e. After tax income of $40,000 / (1-20%) = operating income of $50,000. Desired sales = (fixed costs of $12,500 + desired operating income of $50,000) / CM% of 40% = $156,250)

Diff: 3
Objective: 3
AACSB: Application of knowledge

4) The selling price per unit is $25, variable cost per unit $15, and fixed cost per unit is $4 when sales are 10,000 units. If one more unit is sold, operating income will increase by $6.
Answer: FALSE
Explanation: The sale of one more unit will increase net income by $10, ($25 - $15 = $10).
Diff: 2
Objective: 3
AACSB: Application of knowledge

5) A company with sales of $50,000, a contribution margin ratio of 30%, and fixed costs of $25,000 will earn a net income of $10,000.
Answer: FALSE
Explanation: Net income = $50,000 - $35,000 - $25,000 = ($10,000)
Diff: 2
Objective: 3
AACSB: Application of knowledge

6) Which of the following statements about net income (NI) is true?
A) NI = operating income plus nonoperating revenue.
B) NI = operating income plus operating costs.
C) NI = operating income less income taxes.
D) NI = operating income less cost of goods sold.
Answer: C
Diff: 1
Objective: 3
AACSB: Analytical thinking

7) Assume the following cost information for Fernandez Company:

Selling price	$180 per unit
Variable costs	$60 per unit
Total fixed costs	$90,000
Tax rate	40%

What minimum volume of sales dollars is required to earn an after-tax net income of $40,000? (Do not round interim calculations and round the final answer to the nearest dollar.)
A) $135,000
B) $100,000
C) $235,000
D) $225,000
Answer: C
Explanation: Minimum volume of sales dollars is required = [$90,000 + ($40,000 / 0.6)] / [($180 - $60) / $180] = $235,000
Diff: 3
Objective: 3
AACSB: Application of knowledge

8) Assume the following cost information for Fernandez Company:

Selling price	$200 per unit
Variable costs	$60 per unit
Total fixed costs	$80,000
Tax rate	30%

What is the number of units that must be sold to earn an after-tax net income of $50,000? (Do not round interim calculations and round the final answer to the nearest unit.)
A) 1,082 units
B) 929 units
C) 650 units
D) 817 units
Answer: A
Explanation: Required number of units = [$80,000 + ($50,000 / 0.7)] / ($200 - $60) = 1,082 units
Diff: 3
Objective: 3
AACSB: Application of knowledge

9) In CVP analysis, focusing on target net income rather than operating income ________.
A) will increase the breakeven point
B) will decrease the breakeven point
C) will not change the breakeven point
D) will help managers construct a better capital policy
Answer: C
Diff: 2
Objective: 3
AACSB: Analytical thinking

10) Which of the following is true of net income?
A) Net income is operating income divided by income tax rate.
B) Net income is operating income plus operating revenues minus operating costs minus income taxes.
C) Net income is operating income plus nonoperating revenues minus nonoperating costs minus income taxes.
D) Net income is operating income minus nonoperating revenues minus nonoperating costs minus sales taxes.
Answer: C
Diff: 2
Objective: 3
AACSB: Analytical thinking

11) If selling price per unit is $55, variable costs per unit are $25, total fixed costs are $24,000, the tax rate is 35%, and the company sells 7,000 units, net income is ________.
A) $186,000
B) $75,250
C) $136,500
D) $120,900
Answer: D
Explanation: Net income = [(($55 − $25) × 7,000) − $24,000] × (1.0 − 0.35) = $120,900
Diff: 2
Objective: 3
AACSB: Application of knowledge

12) The planned operating income is calculated by ________.
A) dividing net income by tax rate
B) dividing net income by 1 − tax rate
C) multiplying net income by tax rate
D) multiplying net income by 1 − tax rate
Answer: B
Diff: 2
Objective: 3
AACSB: Analytical thinking

13) If Beta Corp's net income is $230,000 and the tax rate is 40%, then the company's planned operating income is ________.
A) $322,000
B) $383,333
C) $193,200
D) $552,000
Answer: B
Explanation: Operating income = $230,000 / (0.6) = $383,333
Diff: 2
Objective: 3
AACSB: Application of knowledge

14) The Marietta Company has fixed costs of $75,000 and variable costs are 75% of the selling price. To realize operating income of $10,000 from sales of 80,000 units, the selling price per unit ________. (Round the answer to the nearest cent.)
A) must be $1.06
B) must be $1.42
C) must be $4.25
D) must be $3.75
Answer: C
Explanation: Breakeven sales = ($75,000 + $10,000) / 0.25 = $340,000
Selling price = $340,000 / 80,000 units = $4.25 per unit
Diff: 3
Objective: 3
AACSB: Application of knowledge

15) An increase in the tax rate will increase the breakeven point.
Answer: FALSE
Explanation: A change in the tax rate will not change the breakeven point.
Diff: 2
Objective: 3
AACSB: Application of knowledge

16) A firm operating at breakeven point will pay an income tax of 10%.
Answer: FALSE
Explanation: A firm operating at breakeven point will not pay income tax as operating income is $0.
Diff: 2
Objective: 3
AACSB: Analytical thinking

17) All else being constant, an increase in operating income will result in an increase in net income.
Answer: TRUE
Diff: 1
Objective: 3
AACSB: Application of knowledge

18) If planned net income is $30,000 and the tax rate is 30%, then planned operating income would be $39,000.
Answer: FALSE
Explanation: If planned net income is $30,000 and the tax rate is 30%, then planned operating income would be $42,857, [$30,000 / (1.0 − 0.3) = $42,857].
Diff: 1
Objective: 3
AACSB: Application of knowledge

19) The Holiday Card Company, a producer of specialty cards, has asked you to complete several calculations based upon the following information:

Income tax rate	30%
Selling price per unit	\$6.60
Variable cost per unit	\$5.28
Total fixed costs	\$46,200.00

Required:
a. What is the breakeven point in cards?
b. What sales volume is needed to earn an after-tax net income of \$13,028.40?
c. How many cards must be sold to earn an after-tax net income of \$18,480?
Answer:
a. Breakeven point in units = \$46,200/(\$6.60 – \$5.28) = 35,000 units

b. Operating income = \$13,028.40 / 0.70 = \$18,612
\$18,612 + \$46,200 = \$64,812
Contribution per unit = \$6.60 – \$5.28 = \$1.32
Breakeven sales in units = \$64,812 / \$1.32 = 49,100 units
Breakeven sales = 49,100 units × \$6.60 = \$324,060

c. Operating income = \$18,480/0.70 = \$26,400
\$26,400 + \$46,200 = \$72,600
Breakeven sales in units = \$72,600 / \$1.32 = 55,000 units
Diff: 2
Objective: 3
AACSB: Application of knowledge

20) James Corporation gathered the following information:

Variable costs	\$550,000
Income tax rate	40%
Contribution-margin ratio	30%

Required:
a. Calculate the fixed costs, assuming breakeven revenue is \$2,000,000.
b. Calculate sales volume in dollars to produce an after-tax net income of \$150,000.
Answer:
a. \$2,000,000 revenue x CM% 30% = CM of \$600,000 so FC must be \$600,000 for operating income to be zero.

b. \$150,000 / (1- 0.40) = \$250,000 desired operating income. \$250,000 + \$600,000 FC / 0.30 = \$2,833,333 (rounded).
Diff: 3
Objective: 3
AACSB: Application of knowledge

21) Explain what net income and what taxes can have on a manager's decision?
Answer: Net income is operating income plus nonoperating revenues such as interest revenue minus nonoperating costs such as interest cost minus income taxes. Some decisions might not result in a large operating income, but their tax consequences make them attractive because they have a positive effect on net income–the measure that drives shareholders' dividends and returns.
Diff: 2
Objective: 3
AACSB: Analytical thinking

3.4 Objective 3.4

1) Assume only the specified parameters change in a cost-volume-profit analysis. If the contribution margin increases by $6 per unit, then ________.
A) fixed costs increases by $6 per unit
B) operating income decreases by $6 per unit
C) fixed costs decreases by $6 per unit
D) operating income increases by $6 per unit
Answer: D
Diff: 2
Objective: 4
AACSB: Application of knowledge

2) If a company is planning to reduce the selling price, they must believe that ________.
A) variable costs will decline as well
B) the fixed costs will cover the lower sales price
C) more units will be sold
D) increased collections will increase income
Answer: C
Explanation: Correct - management must believe a lower price will increase demand.
Diff: 1
Objective: 4
AACSB: Analytical thinking

3) All else being equal, a reduction in selling price will ________.
A) increase contribution margin
B) reduce fixed costs
C) increase variable costs
D) reduce operating income
Answer: D
Diff: 2
Objective: 4
AACSB: Application of knowledge

4) All else being equal, an increase in advertising expenditures will ________.
A) reduce operating income
B) reduce contribution margin
C) increase variable costs
D) increase selling price
Answer: A
Diff: 2
Objective: 4
AACSB: Application of knowledge

5) Blistre Company operates on a contribution margin of 30% and currently has fixed costs of $550,000. Next year, sales are projected to be $3,100,000. An advertising campaign is being evaluated that costs an additional $120,000. How much would sales have to increase to justify the additional expenditure?
A) $280,000
B) $930,000
C) $400,000
D) $550,000
Answer: C
Explanation: Required sales = $120,000 / 0.3 = $400,000
Diff: 2
Objective: 4
AACSB: Application of knowledge

6) Tony Manufacturing produces a single product that sells for $100. Variable costs per unit equal $45. The company expects total fixed costs to be $78,000 for the next month at the projected sales level of 3,000 units. In an attempt to improve performance, management is considering a number of alternative actions. Each situation is to be evaluated separately. Suppose management believes that a $85,000 increase in the monthly advertising expense will result in a considerable increase in sales. Sales must increase by ________ to justify this additional expenditure?
A) 850 units
B) 1,546 units
C) 1,412 units
D) 1,419 units
Answer: B
Explanation: $100X − $45X − $85,000 = 0; X = 1,546 units to cover the expenditures
Diff: 3
Objective: 4
AACSB: Application of knowledge

7) Tony Manufacturing produces a single product that sells for $80. Variable costs per unit equal $50. The company expects total fixed costs to be $82,000 for the next month at the projected sales level of 2,800 units. In an attempt to improve performance, management is considering a number of alternative actions. Each situation is to be evaluated separately. Suppose that management believes that a 14% reduction in the selling price will result in a 14% increase in sales. If this proposed reduction in selling price is implemented ________.
A) operating income will decrease by $23,990
B) operating income will increase by $7,370
C) operating income will decrease by $31,360
D) operating income will increase by $23,990
Answer: A
Explanation: Reduction in revenues = $80 × 14% = $11.2 × 2,800 units = ($31,360)
Increase in contribution = 2,800 units × 14% = 392 units × ($68.8 − $50) = $23,990
Change in operating income ($7,370)
Diff: 3
Objective: 4
AACSB: Application of knowledge

8) Craylon Manufacturing produces a single product that sells for $130. Variable costs per unit equal $30. The company expects total fixed costs to be $60,000 for the next month at the projected sales level of 1,200 units. In an attempt to improve performance, management is considering a number of alternative actions. Each situation is to be evaluated separately. Suppose that management believes that a $12,000 increase in the monthly advertising expense will result in a considerable increase in sales. Sales must increase by ________ to justify this additional expenditure.
A) 93 units
B) 120 units
C) 400 units
D) 924 units
Answer: B
Explanation: $12,000/($130 − $30) = 120 units to cover the expenditure
Diff: 2
Objective: 4
AACSB: Application of knowledge

9) Craylon Manufacturing produces a single product that sells for $140. Variable costs per unit equal $35. The company expects total fixed costs to be $60,000 for the next month at the projected sales level of 1,500 units. In an attempt to improve performance, management is considering a number of alternative actions. Each situation is to be evaluated separately. One alternative is to increase advertising expenses by $11,000. What is the effect on operating income with the increase of advertising expenses?
A) Operating income will decrease by $11,000.
B) Operating income will increase by $11,000.
C) Operating income will decrease by $86,500.
D) Operating income will increase by $86,500.
Answer: A
Explanation: Operating income without advertising expenses = $140 - 35 = $105 × 1,500 = 157,500 - 60,000 = $97,500
Operating income with advertising expenses = 157,500 - (60,000 + 11,000) = $86,500
Diff: 3
Objective: 4
AACSB: Application of knowledge

10) If contribution margin decreases by $1 per unit, then operating profits will increase by $1 per unit.
Answer: FALSE
Explanation: If contribution margin decreases by $1 per unit, then operating profits will decrease by $1 per unit.
Diff: 1
Objective: 4
AACSB: Application of knowledge

11) If variable costs per unit increase, then the breakeven point will decrease.
Answer: FALSE
Explanation: If variable costs per unit increase, then the breakeven point will also *increase*.
Diff: 2
Objective: 4
AACSB: Application of knowledge

12) A planned increase in advertising would be considered an increase in variable costs in CVP analysis.
Answer: FALSE
Explanation: A planned increase in advertising would be considered an increase in fixed costs in CVP analysis.
Diff: 1
Objective: 4
AACSB: Analytical thinking

13) A planned decrease in selling price would be expected to cause an increase in the quantity sold.
Answer: TRUE
Diff: 1
Objective: 4
AACSB: Analytical thinking

14) In 2017, Craylon Company has sales of $1,000,000, variable costs of $250,000, and fixed costs of $200,000. In 2018, the company expects annual property taxes to decrease by $15,000.

Required:
a. Calculate operating income and the breakeven point for 2017.
b. Calculate the breakeven point for 2018.
Answer:
a. In 2017, operating income is $1,000,000 sales revenue – $250,000 variable costs – $200,000 fixed costs = $550,000.

The breakeven point for 2017 is $266,667 in total sales dollars.
Contribution margin ratio = ($1,000,000 - $250,000) / $1,000,000 = 0.75.
Breakeven sales = $200,000 / 0.75 = $266,667.

b. The breakeven point for 2018 is $246,667 in total sales dollars.
Estimated fixed costs for 2018 = $200,000 – $15,000 = $185,000.
Breakeven sales = $185,000 total fixed costs / 75% CM ratio = $246,667.
Diff: 3
Objective: 4
AACSB: Application of knowledge

15) Furniture, Inc., sells lamps for $30. The unit variable cost per lamp is $22. Fixed costs total $9,600.

Required:
a. What is the contribution margin per lamp?
b. What is the breakeven point in lamps?
c. How many lamps must be sold to earn a pretax income of $8,000?
d. What is the margin of safety, assuming 1,500 lamps are sold?
Answer: a. Contribution margin per lamp = $30 - $22 = $8

b. N = Breakeven point in lamps
$30N - $22N - $9,600 = 0
$8N - $9,600 = 0
N = $9,600/$8 = 1,200 lamps

c. N = Target sales in lamps
$30N - $22N - $9,600 - $8,000 = 0
$8N - $17,600 = 0
N = $17,600/$8 = 2,200 lamps

d. Margin of safety = Sales - Breakeven sales
= ($30.00 × 1,500) - $36,000 = $9,000
Diff: 3
Objective: 4
AACSB: Application of knowledge

16) Tom's Tire Tower, Inc., sells tires for $110. The unit variable cost per tire is $85. Fixed costs total $475,000.

Required:
a. What is the contribution margin per tire?
b. What is the breakeven point in tires?
c. How many tires must be sold to earn a pretax income of $450,000?
d. What is the margin of safety, assuming 33,000 tires are sold?
Answer:
a. Contribution margin per tire = $110 - $85 = $25

b. N = Breakeven point in tires
$110N - $85N - $475,000 = 0
$25N - $475,000 = 0
N = $475,000/$25 = 19,000 tires

c. N = Target sales in tires
$110N - $85N - $450,000 -$ 475,000 = 0
$25N - $925,000 = 0
N = $925,000/$25 = 37,000 tires

d. Margin of safety = Sales - Breakeven sales
= ($110 × 33,000) - ($110 × 19,000) = $1,540,000
Diff: 3
Objective: 4
AACSB: Application of knowledge

3.5 Objective 3.5

1) The margin of safety is the difference between ________.
A) budgeted expenses and breakeven expenses
B) budgeted revenues and breakeven revenues
C) actual operating income and budgeted operating income
D) actual sales margin and budgeted sales margin
Answer: B
Diff: 1
Objective: 5
AACSB: Analytical thinking

2) Sensitivity analysis is ________.
A) a way of determining what will happen if assumptions change
B) a way of seeing how employees will be affected by changes
C) a way of determining how customers will react to new products
D) a way of seeing how far from budget actual results are
Answer: A
Diff: 2
Objective: 5
AACSB: Application of knowledge

3) Stones Manufacturing sells a marble slab for $1,100. Fixed costs are $33,000, while the variable costs are $550 per slab. The company currently plans to sell 210 slabs this month. What is the margin of safety assuming 85 slabs are actually sold? (Round interim calculations and final calculations to the nearest whole number.)
A) $165,000
B) $49,500

C) $27,500
D) $33,000
Answer: C
Explanation: Breakeven in number of slabs = $33,000 / ($1,100 − $550) = 60 slabs

Actual sales	85 slabs	×	$1,100	=	$93,500
Breakeven sales	60 slabs	×	$1,100	=	$66,000
Margin of safety	25 slabs				$27,500

Diff: 3
Objective: 5
AACSB: Application of knowledge

4) Globus Autos sells a single product. 8,000 units were sold resulting in $83,000 of sales revenue, $21,000 of variable costs, and $20,000 of fixed costs. If variable costs decrease by $1.00 per unit, the new margin of safety is ________. (Round intermediate calculations to the nearest cent.)
A) $83,000
B) $21,000
C) $59,190
D) $63,000
Answer: C
Explanation: Variable cost per unit = $21,000 / 8,000 = $2.63
Contribution margin percentage = [$10.38 − ($2.63 − $1.00)] / $10.38 = 0.84
New breakeven point = [$10.38 − ($2.63 − $1.00)] / $10.38 = 0.84; $20,000 / 0.84 = $23,810
Old breakeven point = $10.38 - 2.63 = $8 / $10.38 = 1; $20,000 / 1 = $20,000
Margin of safety = $83,000 - $23,810 = $59,190
Diff: 3
Objective: 5
AACSB: Application of knowledge

5) Globus Autos sells a single product. 8,000 units were sold resulting in $83,000 of sales revenue, $21,000 of variable costs, and $10,000 of fixed costs. If Globus reduces the selling price by $1.20 per unit, the new margin of safety is:
A) 6,911 units
B) 3,042 units
C) 4,958 units
D) 8,000 units
Answer: A
Explanation: Correct.
New contribution margin = $9.18 - $2.63 = $6.55
New breakeven = $10,000/ $6.55 = 1,089 (rounded)
8,000 units sold - 1,089 breakeven units = 6,911 MOS units (rounded)
Diff: 1
Objective: 5
AACSB: Analytical thinking

6) The margin of safety refers to how many more sales are needed in order to breakeven,
Answer: FALSE
Explanation: Margin of safety refers to how many sales are in excess of breakeven.
Diff: 1
Objective: 5
AACSB: Analytical thinking

7) If a company''s breakeven revenue is $1,000 and its budgeted revenue is $1,250, then its margin of safety percentage is 20%.
Answer: TRUE
Explanation: The margin of safety percentage is 20% as the denominator of the ratio is the budgeted level and not the breakeven level. 1,250 - 1,000 = $250 / $1,250 = 20%

Diff: 2
Objective: 5
AACSB: Analytical thinking

8) Sensitivity analysis is a simple approach to recognizing uncertainty.
Answer: TRUE
Diff: 1
Objective: 5
AACSB: Analytical thinking

9) Dental Comfort Services provides dental cleanings to its patients. The selling price of a cleaning is $150 and the variable costs associated are $85. The monthly relevant fixed costs are $10,000.

Required:

a. What is the breakeven point in cleanings?

b. What is the margin of safety in dollars, assuming sales total $30,000?

c. What is the breakeven level in cleanings, assuming variable costs decrease by 20%?

d. What is the breakeven level in dollars, assuming the selling price goes down by 10% and fixed costs increase $1,000 per month?

Answer:

a. N = Breakeven units

$150N - $85N - $10,000 = 0

$65N = $10,000

N = $10,000/$65 = 153.8 or 154 cleanings.

b. Margin of safety = $30,000 - ($150 × 154) = $6,900

c. N = Breakeven units

$150N - ($85N x 80%) - $10,000 = 0

$150N - $68N = $10,000

N = $10,000/$68 = 147.06 or 148 (rounded up) cleanings.

d. N = Breakeven dollars

CM% = [($150 x 90%) - 85] / ($150 x 90%) = 35.04%

N = ($10,000 + $1,000) / 35.04%

N = $31,393 (rounded)

Diff: 3
Objective: 5
AACSB: Application of knowledge

10) Explain sensitivity analysis and how do managers use sensitivity analysis to evaluate its implications?
Answer: Sensitivity analysis is a "what-if" technique managers use to examine how an outcome will change if the original predicted data are not achieved or if an underlying assumption changes. The analysis answers questions such as "What will operating income be if the quantity of units sold decreases by 5% from the original prediction?" and "What will operating income be if variable cost per unit increases by 10%?" This helps visualize the possible outcomes that might occur before the company commits to funding a project.
Diff: 2
Objective: 5
AACSB: Analytical thinking

11) ________ is the process of varying key estimates to identify those estimates that are the most critical to a decision.
A) The graph method
B) A sensitivity analysis
C) The degree of operating leverage
D) Sales mix
Answer: B
Diff: 1
Objective: 5
AACSB: Analytical thinking

3.6 Objective 3.6

Answer the following questions using the information below:

Southwestern College is planning to hold a fund raising banquet at one of the local country clubs. It has two options for the banquet:

OPTION one: *Crestview Country Club*
a. Fixed rental cost of $1,000
b. $12 per person for food

OPTION two: *Tallgrass Country Club*
a. Fixed rental cost of $3,000
b. $8.00 per person for food

Southwestern College has budgeted $1,800 for administrative and marketing expenses. It plans to hire a band which will cost another $800. Tickets are expected to be $30 per person. Local business supporters will donate any other items required for the event.

1) Which option provides the least amount of risk?
A) Option one
B) Option two
C) Both options provide the same amount of risk.
D) It depends on how many donations it receives.
Answer: A
Diff: 1
Objective: 6
AACSB: Analytical thinking

2) Which option has the lowest breakeven point?
A) Option one
B) Option two
C) Both options have the same breakeven point.
D) The lowest breakeven point cannot be determined.
Answer: A
Explanation: Option one: $30X - $12X - $1,000 - $1,800 - $800 = 0; X = $200
Option two: $30X - $8X - $3,000 - $1,800 - $800 = 0; X = $255
Diff: 2
Objective: 6
AACSB: Analytical thinking

3) Which option provides the greatest operating income if 600 people attend?
A) Option one
B) Option two
C) Operating incomes are identical.
D) It depends on how many donations it receives.

Answer: B
Explanation: Option one: $18 × 600 - $3,600 = $7,200; Option two: $22 × 600 - $5,600 = $7,600
Diff: 3
Objective: 6
AACSB: Application of knowledge

4) Which option provides the greatest degree of operating leverage if 600 people attend?
A) Option one
B) Option two
C) Both options provide equal degrees of operating leverage.
D) Operating leverage is indeterminable.
Answer: B
Explanation: Option one: $18 × 600 / $7,200 = 1.50; Option two: $22 × 600 / $7,600 = 1.74
Diff: 3
Objective: 6
AACSB: Application of knowledge

5) Kanga Company is considering two different production plans.
Option one: Fixed costs of $10,000 and a breakeven point of 500 units.
Option two: Fixed costs of $20,000 and a breakeven point of 700 units.
Which option should Kanga choose if it is expecting to produce 600 units?
A) Option one.
B) Option two.
C) Both options are equally good.
D) It isn't possible to determine from the information given.
Answer: A
Explanation: Option one will result in operating income while Option 2 will result in an operating loss.
Diff: 2
Objective: 6
AACSB: Application of knowledge

6) Sales of Blistre Autos are 380,000, variable cost is 230,000, fixed cost is 90,000 tax rate is 40%. Calculate the operating leverage of the company.
A) 1.50 times
B) 4.17 times
C) 1.53 times
D) 2.50 times
Answer: D
Explanation: Operating income $380,000 - $230,000 - $90,000 = $60,000
Operating leverage ($380,000 - $230,000)/$60,000 = 2.50 times
Diff: 2
Objective: 6
AACSB: Application of knowledge

7) In a company with low operating leverage, ________.
A) fixed costs are more than the contribution margin
B) contribution margin and operating income are inversely related
C) there is a higher possibility of net loss than a higher-leveraged firm
D) less risk is assumed than in a highly leveraged firm
Answer: D
Diff: 1
Objective: 6
AACSB: Analytical thinking

8) If the contribution margin ratio is 0.60, targeted operating income is $95,000, and targeted sales volume in dollars is $530,000, then the degree of operating leverage is ________.
A) 0.30 times
B) 0.67 times
C) 3.35 times
D) 2.23 times
Answer: C
Explanation: 0.60 = X / $530,000 = $318,000 contribution. Operating leverage = $318,000 / $95,000 = 3.35
Diff: 3
Objective: 6
AACSB: Application of knowledge

9) If the contribution margin ratio is 0.60, targeted operating income is $50,000, and fixed costs are $75,000, then sales volume in dollars is ________. (Round the final answer to the nearest dollar.)
A) $312,500
B) $208,333
C) $125,000
D) $83,333
Answer: B
Explanation: X = (50,000 + 75,000)/ 0.60; X = $208,333
Diff: 2
Objective: 6
AACSB: Application of knowledge

10) If the contribution margin ratio is 0.25, targeted operating income is $50,000, and targeted sales volume in dollars is $260,000, then total fixed costs are ________.
A) $35,000
B) $210,000
C) $157,500
D) $15,000
Answer: D
Explanation: (X + $50,000)/0.25 = $260,000; X = 15,000
Diff: 3
Objective: 6
AACSB: Application of knowledge

11) Which of the following statements is true?
A) Managers can lower operating risk by changing fixed costs to variable costs in the long-term.
B) Managers can lower operating risk by changing variable costs to fixed costs in the long-term.
C) Managers can lower operating risk by reducing the selling price and increasing volume.
D) Managers can lower operating risk by increasing the selling price and reducing volume.
Answer: A
Explanation: Correct. Eliminating fixed costs reduces risk.
Diff: 2
Objective: 6
AACSB: Analytical thinking

12) When a greater proportion of costs are fixed costs, then ________.
A) a small increase in sales results in a small decrease in operating income
B) when demand is low the risk of loss is high
C) a decrease in sales reduces the total fixed cost per unit
D) a decrease in sales reduces the cost per unit
Answer: B
Diff: 2
Objective: 6
AACSB: Analytical thinking

13) Companies with a greater proportion of direct costs have a greater risk of loss than companies with a greater proportion of indirect costs.
Answer: FALSE
Explanation: Companies with a greater proportion of fixed costs have a greater risk of loss than companies with a greater proportion of variable costs.
Diff: 2
Objective: 6
AACSB: Analytical thinking

14) The degree of operating leverage at a specific level of sales helps the managers calculate the effect that potential changes in sales will have on operating income.
Answer: TRUE
Diff: 1
Objective: 6
AACSB: Analytical thinking

15) If a company increases fixed costs, then the breakeven point will be lower.
Answer: FALSE
Explanation: If a company increases fixed costs, then the breakeven point will be higher.
Diff: 2
Objective: 6
AACSB: Analytical thinking

16) Companies that are substituting variable costs for fixed costs receive a greater per unit return above the breakeven point.
Answer: FALSE
Explanation: Companies that are substituting fixed costs for variable costs receive a greater per unit return above the breakeven point.
Diff: 2
Objective: 6
AACSB: Analytical thinking

17) A company with a higher degree of operating leverage is at greater risk during economic downturns because of its higher fixed costs.
Answer: TRUE
Explanation: A company with a low degree of operating leverage is at *lesser* risk during downturns in the economy.
Diff: 2
Objective: 6
AACSB: Analytical thinking

18) The risk-return tradeoff across alternative cost structures can be measured as operating leverage.
Answer: TRUE
Diff: 1
Objective: 6
AACSB: Analytical thinking

19) If a company has a degree of operating leverage of 4.0, that means a 10% increase in sales will result in a 40% increase in operating income.
Answer: TRUE
Explanation: If a company has a degree of operating leverage of 2.0, that means a 20% increase in sales will result in a 40% increase in operating income.
Diff: 2
Objective: 6
AACSB: Application of knowledge

20) When a company has the least fixed costs, the company is operating at a very high operating leverage.
Answer: FALSE
Explanation: When a company has the least fixed costs, the company is operating at a low operating leverage.
Diff: 1
Objective: 6
AACSB: Analytical thinking

21) Query Company sells pillows for $25.00 each. The manufacturing cost, all variable, is $10 per pillow. The company is planning on renting an exhibition booth for both display and selling purposes at the annual crafts and art convention. The convention coordinator allows three options for each participating company. They are:

1. paying a fixed booth fee of $5,010, or
2. paying an $4,000 fee plus 10% of revenue made at the convention, or
3. paying 20% of revenue made at the convention.

Required:

a. Compute the breakeven sales in pillows of each option.
b. Which option should Query Company choose, assuming sales are expected to be 800 pillows?
Answer:
a. Option 1 N = Breakeven in pillows
$25N - $10N - $5,010 = 0
$15N - $5,010 = 0
N = $5,010/$15 = 334 pillows

Option 2 N = Breakeven in pillows
$25N - $10N - 0.10($25N) - $4,000 = 0
$12.5N - $4,000 = 0
N = $4,000/$12.5 = 320 pillows

Option 3 N = Breakeven in pillows
$25N - $10N - 0.20($25N) = 0
$10N - $0 = 0
N = $0/$10 = 0 pillows

b. Option 1 profit for 800 pillows = $15 × 800 - $5,010 = $6,990
Option 2 profit for 800 pillows = $12.5 × 800 - 4,000 = $6,000
Option 3 profit for 800 pillows = $10 × 800 = $8,000
Option 3 is the best choice.
Diff: 3
Objective: 6
AACSB: Application of knowledge

22) Auto Tires has been in the tire business for four years. It rents a building but owns all of its equipment. All employees are paid a fixed salary except for the busy season (April-June), when temporary help is hired by the hour. Utilities and other operating charges remain fairly constant during each month except those in the busy season.

Selling prices per tire average $75 except during the busy season. Because a large number of customers buy tires prior to winter, discounts run above average during the busy season. A 15% discount is given when two tires are purchased at one time. During the busy months, selling prices per tire average $60.

The president of Auto Tires is somewhat displeased with the company's management accounting system because the cost behavior patterns displayed by the monthly breakeven charts are inconsistent; the busy months' charts are different from the other months of the year. The president is never sure if the company has a satisfactory margin of safety or if it is just above the breakeven point.

Required:
a. Why might it be difficult to use CVP in this situation?
b. How can the information be presented in a better format for the president?
Answer:
a. The accounting system includes some assumptions about the CVP model that does not hold for Auto Tire. The CVP model requires cost and revenue to be linear. During the busy months, the company has costs and revenues which behave differently than during the other months of the year. The revenue line turns down (less slope) with the average selling price per tire decreasing from $75 to $60. The variable costs line probably turns upward (increasing slope) with the additional hourly workers being added to the work force.

b. The accountant may want to present two sets of information regarding the revenue and cost behaviors of the company: one for the busy season and one for the other months of the year. It would show that while the breakeven point actually increases during the busy months (a negative), the marginal income increases because of increased sales (a positive).
Diff: 3
Objective: 6
AACSB: Analytical thinking

23) Dolph and Evan started the DE Restaurant in 2015. They rented a building, bought equipment, and hired two employees to work full time at a fixed monthly salary. Utilities and other operating charges remain fairly constant during each month.

During the past two years, the business has grown with average sales increasing 1% a month. This situation pleases both Dolph and Evan, but they do not understand how sales can grow by 1% a month while profits are increasing at an even faster pace. They are afraid that one day they will wake up to increasing sales but decreasing profits.

Required:
Explain why the profits have increased at a faster rate than sales. Use the terms variable costs and fixed costs in your response.
Answer: The fixed cost per meal served is decreasing with increased volumes, while the contribution margin per meal served remains constant. Apparently, most of the restaurant's expenses are fixed. Therefore, as sales pass the breakeven point the profit will increase even faster because the fixed expenses have already been covered. This allows sales to cover only variable expenses before contributing to the profit margin, thereby causing it to increase at a faster rate.
Diff: 3
Objective: 6
AACSB: Analytical thinking

24) Freddie's Company has mostly fixed costs and Valerie's Company has mostly variable costs. Which company has the greatest risk of a net loss? Explain why.
Answer: Freddie's Company has the greatest risk of net loss because more units are required to reach breakeven point than for Valerie. Freddie's Company is operating at a higher operating leverage than Valerie's Company and hence faces a larger risk of loss during economic downturn.
Diff: 2
Objective: 6
AACSB: Analytical thinking

25) Suppose a company decided to automate a production line. Explain what effects this would have on a company's cost structure using CVP terminology. Could these changes have any possible negative effect on the firm?
Answer: An automated production line would increase fixed costs through extra depreciation on the new machinery and also decrease variable costs due to the elimination of direct labor as a result of automation. This would increase the breakeven point. This could possibly have a negative effect on the firm if demand for the product produced by this production line is expected to decline in the future. With high fixed costs and low demand, a decline in profits might be more severe due to the presence of unchanging fixed costs as volume drops.
Diff: 2
Objective: 6
AACSB: Analytical thinking

26) If a company has a degree of operating leverage of 5 and sales increase by 30%, then ________.
A) total fixed costs will increase by 150%
B) total costs will increase by 150%
C) profit will increase by 120%
D) profit will increase by 150%
Answer: D
Explanation: $5 \times 30\% = 150\%$
Diff: 3
Objective: 6
AACSB: Application of knowledge

27) If a company would like to increase its degree of operating leverage it should ________.
A) increase its sales relative to its fixed costs
B) increase its sales relative to its variable costs
C) increase its variable costs relative to its fixed costs
D) increase its fixed costs relative to its variable costs
Answer: D
Diff: 2
Objective: 6
AACSB: Analytical thinking

3.7 Objective 3.7

1) The following information is for Alex Corp:

Product X: Revenue	\$12.00
Variable Cost	\$4.50
Product Y: Revenue	\$44.50
Variable Cost	\$9.50
Total fixed costs	\$75,000

What is the breakeven point assuming the sales mix consists of two units of Product X and one unit of Product Y?
A) 842.5 units of Y and 1,685 units of X
B) 3,000 units of Y and 1,500 units of X
C) 1 units of Y and 10,000 units of X
D) 1,500 units of Y and 3,000 units of X
Answer: D
Explanation: D) N = units of product Y; and 2N = units of product X;
$(\$12.00 - \$4.50) \times 2N + (\$44.50 - \$9.50) \times N - \$75,000 = 0$
$\$15.00N + \$35.00N = \$75,000$
$\$50N = \$75,000$
$N = 1,500$ units
Product Y = 1,500 units; Product X = 3,000 units
Diff: 3
Objective: 7
AACSB: Application of knowledge

2) The following information is for Alex Corp:

Product X: Revenue	\$12.00
Variable Cost	\$4.50

Product Y: Revenue	$25.00
Variable Cost	$10.00
Total fixed costs	$40,500

What is the operating income, assuming actual sales total 120,000 units, and the sales mix is two units of Product X and one unit of Product Y?
A) 1,159,500
B) 1,200,000
C) 1,960,000
D) 1,240,500
Answer: A

Explanation:	**Product X**	**Product Y**	**Total**
Sales units	80,000	40,000	120,000
Revenue	$960,000	$1,000,000	$1,960,000
Var. costs	360,000	400,000	760,000
CM			1,200,000
Fixed costs			40,500
			$1,159,500

Diff: 3
Objective: 7
AACSB: Application of knowledge

Answer the following questions using the information below:

The following information is for Alex Corp:

Product X: Revenue	$15.00
Variable Cost	$2.50
Product Y: Revenue	$25.00
Variable Cost	$10.00
Total fixed costs	$50,000

3) If the sales mix shifts to one unit of Product X and two units of Product Y, then the weighted-average contribution margin will ________.
A) increase per unit
B) stay the same
C) decrease per unit
D) decrease by $0.50 per unit
Answer: A
Diff: 3
Objective: 7
AACSB: Application of knowledge

4) If the sales mix shifts to one unit of Product X and two units of Product Y, then the breakeven point will ________.
A) increase
B) stay the same
C) decrease
D) will be greater than the original breakeven point
Answer: C
Diff: 2
Objective: 7
AACSB: Application of knowledge

5) The following information is for the Jeffries Corporation:

Product A: Revenue	$14.00
Variable Cost	$8.00
Product B: Revenue	$36.00
Variable Cost	$14.00
Total fixed costs	$522,000

What is the breakeven point, assuming the sales mix consists of three units of Product A and one unit of Product B?
A) 14,500 units of A and 4,833 units of B
B) 39,150 units of A and 13,050 units of B
C) 87,000 units of A and 0 units of B
D) 13,050 units of A and 39,150 units of B
Answer: B
Explanation: N = units of product B; and 3N = units of product A;
($14.00 - $8.00) x 3N + ($36.00 - $14.00) x N - $522,000 = 0
$18.00N + $22.00N = $522,000
$40N = $522,000
N = 13,050 units
Product A = 39,150 units; Product B = 13,050 units
Diff: 3
Objective: 7
AACSB: Application of knowledge

6) The following information is for the Jeffries Corporation:

Product A: Revenue	$18.00
Variable Cost	$14.00
Product B: Revenue	$21.00

Variable Cost	$13.00
Total fixed costs	$143,000

What is the operating income of Jeffries Corporation, assuming actual sales total 35,600 units, and the sales mix is three units of Product A and one unit of Product B?
A) $35,000
B) $178,000
C) $667,500
D) $321,000
Answer: A

Explanation:	**Product A**	**Product B**	**Total**
Sales units	26,700	8,900	35,600
Revenue	$480,600	$186,900	$667,500
Var. costs	373,800	115,700	489,500
CM			$178,000
Fixed costs			143,000
			$35,000

Diff: 3
Objective: 7
AACSB: Application of knowledge

Answer the following questions using the information below:

The following information is for the Jeffries Corporation:

Product A: Revenue	$16.00
Variable Cost	$12.00
Product B: Revenue	$24.00
Variable Cost	$16.00
Total fixed costs	$75,000

7) Assume the sales mix consists of three units of Product A and one unit of Product B. If the sales mix shifts to four units of Product A and one unit of Product B, then the weighted-average contribution margin will ________.
A) increase per unit
B) stay the same
C) decrease per unit
D) cannot be determined from this information
Answer: C
Diff: 2
Objective: 7
AACSB: Application of knowledge

8) Assume the sales mix consists of three units of Product A and one unit of Product B. If the sales mix shifts to four units of Product A and one unit of Product B, then the breakeven point will ________.
A) increase
B) stay the same
C) decrease
D) cannot be determined from this information
Answer: A
Diff: 2
Objective: 7
AACSB: Application of knowledge

9) Assuming a constant mix of 3 units of X for every 1 unit of Y.

	X	Y	Total
Sales	$29	$45	
VC	18	25	
Total fixed costs			$81,000

The breakeven point in units would be ________.
A) 4,584 units of X and 1,528 units of Y
B) 1,528 units of X and 1,528 units of Y
C) 3,056 units of X and 9,168 units of Y
D) 1,528 units of X and 4,584 units of Y
Answer: A

Explanation:	X	Y
Sales	$29	$45
Variable costs	18	25
Contribution margin	$11	$20
Sales mix	× 3	× 1
Contribution margin per mix	$33	$20

Total contribution margin per mix = $33 + $20 = $53

Breakeven point in composite units = $81,000 / $53 = 1,528

X: 1,528 × 3 = 4,584 units
Y: 1,528 × 1 = 1,528 units
Diff: 3
Objective: 7
AACSB: Application of knowledge

10) In multiproduct situations, when sales mix shifts toward the product with the lowest contribution margin then ________.
A) total revenues will increase
B) interest cost will decrease
C) total contribution margin will increase
D) operating income will decrease
Answer: D
Diff: 3
Objective: 7
AACSB: Analytical thinking

11) Sales mix is the quantities or proportion of various products or services that constitute a company's total unit sales.
Answer: TRUE
Diff: 1
Objective: 7
AACSB: Analytical thinking

12) If the sales mix shifts toward the lower-contribution-margin product, the breakeven quantity will decrease.
Answer: FALSE
Explanation: If the sales mix shifts toward the lower-contribution-margin product the breakeven quantity will increase.
Diff: 1
Objective: 7
AACSB: Application of knowledge

13) In multiproduct situations, when sales mix shifts toward the product with the lowest contribution margin, the operating income will be lower.
Answer: TRUE
Diff: 1
Objective: 7
AACSB: Application of knowledge

14) In most multiproduct situations when sales mix shifts toward the product with the highest contribution margin, operating income will be higher.
Answer: TRUE
Diff: 2
Objective: 7
AACSB: Application of knowledge

15) To calculate the breakeven point in a multiproduct situation, one must assume that the sales mix of the various products remains constant.
Answer: TRUE
Diff: 2
Objective: 7
AACSB: Application of knowledge

16) If a company's sales mix is 2 units of product A for every 3 units of product B, and the company sells 3,000 units in total of both products, only 2,000 units of product A will be sold.
Answer: FALSE
Explanation: If a company's sales mix is 2 units of product A for every 3 units of product B, and the company sells 3,000 units in total of both products, 1,200 units of product A will be sold and 1,800 units of product B will be sold.
Diff: 2
Objective: 7
AACSB: Analytical thinking

17) Ken's Beer Emporium sells beer and ale in both pint and quart sizes. If Ken's sells twice as many pints as it sells quarts, and sells 2,400 items total, it will sell 800 quarts of ale.
Answer: TRUE
Diff: 2
Objective: 7
AACSB: Analytical thinking

18) Karen Hefner, a florist, operates retail stores in several shopping malls. The average selling price of an arrangement is $30 and the average cost of each sale is $18. A new mall is opening where Karen wants to locate a store, but the location manager is not sure about the rent method to accept. The mall operator offers the following three options for its retail store rentals:

1. paying a fixed rent of $15,000 a month, or
2. paying a base rent of $9,000 plus 10% of revenue received, or
3. paying a base rent of $4,800 plus 20% of revenue received up to a maximum rent of $25,000.

Required:

a. For each option, compute the breakeven sales and the monthly rent paid at break-even.
b. Beginning at zero sales, show the sales levels at which each option is preferable up to 5,000 units.

Answer:

a. Option 1   N = Breakeven units
$30N - $18N - $15,000 = 0
$12N - $15,000 = 0
N = $15,000/$12 = 1,250 units
Rent at breakeven = $15,000

Option 2   N = Breakeven units
$30N - $18N - 0.10($30N) - $9,000 = 0
$9N - $9,000 = 0
N = $9,000/$9 = 1,000 units
Rent at breakeven = $9,000 + (0.10 × $30 × 1,000) = $12,000

Option 3   N = Breakeven units
$30N - $18N - 0.20($30N) - $4,800 = 0
$6N - $4,800 = 0
N = $4,800/$6 = 800 units
Rent at breakeven = $4,800 + (0.20 × $30 × 800) = $9,600

b. Option 3 from 0 to 1,400 units for $4,800 plus $6 per unit.
Option 2 from 1,401 to 2,000 for $9,000 plus $3 per unit.
Option 1 above 2,000 for $15,000.

Option 1 equals Option 2 when sales are 2,000 and favors Option 1 above 2,000 units.
$15,000 = $9,000 + 0.10($30N); $6,000 = $3N; N = 2,000

Option 1 equals Option 3 when sales are 1,700 and favors Option 1 above 1,700 units.
$15,000 = $4,800 + 0.20($30N); $10,200 = $6N; N = 1,700 units

Diff: 3
Objective: 7
AACSB: Application of knowledge

19) Craylon Manufacturing Company produces two products, X and Y. The following information is presented for both products:

	X	Y
Selling price per unit	$40	$25
Variable cost per unit	25	15

Total fixed costs are $275,000.

Required:
a. Calculate the contribution margin for each product.
b. Calculate breakeven point in units of both X and Y if the sales mix is 3 units of X for every unit of Y.
c. Calculate breakeven volume in total dollars if the sales mix is 2 units of X for every 3 units of Y.
Answer:
a. X: Contribution margin $40 – $25 = $15
Y: Contribution margin $25 – $15 = $10

b. Contribution margin (3 × $15) + (1 × $10) = $55
Breakeven point in units $275,000 / $55 = 5,000 units
X: 5,000 × 3 = 15,000 units
Y: 5,000 × 1 = 5,000 units

c. Contribution margin (2 × $15) + (3 × $10) = $60
Breakeven point in units $275,000 / $60 = 4,583.33 units
X: Dollar sales = 4,583.33 × 2 = 9,167 × $40 = $366,680 (rounded)
Y: Dollar sales = 4,583 × 3 = 13,750 × $25 = $343,750
Total dollar sales = $710,430
Diff: 3
Objective: 7
AACSB: Application of knowledge

20) Ballpark Concessions currently sells hot dogs. During a typical month, the stand reports a profit of $9,000 with sales of $50,000, fixed costs of $21,000, and variable costs of $0.64 per hot dog.

Next year, the company plans to start selling nachos for $3 per unit. Nachos will have a variable cost of $0.72 and new equipment and personnel to produce nachos will increase monthly fixed costs by $8,808. Initial sales of nachos should total 5,000 units. Most of the nacho sales are anticipated to come from current hot dog purchasers, therefore, monthly sales of hot dogs are expected to decline to $20,000.

After the first year of nacho sales, the company president believes that hot dog sales will increase to $33,750 a month and nacho sales will increase to 7,500 units a month.
Required:
a. Determine the monthly breakeven sales in dollars before adding nachos.
b. Determine the monthly breakeven sales during the first year of nachos sales, assuming a constant sales mix of 1 hotdog and 2 units of nachos.

Answer:

a. Contribution margin = Fixed costs + Profit
= $21,000 + $9,000 = $30,000

Variable costs = Sales - Contribution margin
= $50,000 - $30,000
= $20,000

Units sold = $20,000/$0.64 = 31,250 units
Selling price = $50,000/31,250 = $1.60 per unit
Unit Variable costs = $20,000/31,250= $0.64
N = Breakeven units

$1.60N - $0.64N - $21,000 = 0
$0.96N - $21,000 = 0
N = $21,000/$0.96 = 21,875 units

b. Ratio equal to 1 hot dog to 2 units of nachos.
N = Breakeven number of units of hot dogs
2N = Breakeven number of units of nachos

$3(2)N + $1.60N - $0.72(2N) - $0.64N - $29,808 = 0
$7.60N - $2.08N - $29,808 = 0
N = $29,808/$5.52 = 5,400 hot dogs

Therefore, 5,400 hot dogs and 10,800 units of nachos need to be sold to break even.

Diff: 3
Objective: 7
AACSB: Application of knowledge

21) Fine Suiting Company sells shirts for men and boys. The average selling price and variable cost for each product are as follows:

	Men's		Boys'
Selling Price	$25.00	Selling Price	$24.00
Variable Cost	$15.40	Variable Cost	$16.00

Fixed costs are $35,200.

Required:

a. What is the breakeven point in units for each type of shirt, assuming the sales mix is 1:1?

b. What is the operating leverage, assuming the sales mix is 2:1 in favor of men's shirts, and sales total 5,000 shirts?

Answer:

a. N = breakeven in boys' shirts N = breakeven in men's shirts

Contribution for men = $25 - $15.40 = $9.60
Contribution for boys = $24 - $16.00 = $8.00.
Total = $9.60 + $8.00 = $17.60
B.E.P = $35,200 / $17.60 = 2,000 units.

b. Total sales = 6,000 units in 2:1 ratio gives $4,000 units for men and 2,000 units for boys. $148,000
Contribution for men = 4,000 × $9.60 = $38,400; Contribution for boys = 2,000 × $8.00 = $16,000.
Total contribution = $54,400
Operating leverage = 454,400 / $148,000 = 0.368
Diff: 3
Objective: 7
AACSB: Application of knowledge

22) Mount Carmel Company sells only two products, Product A and Product B.

	Product A	Product B	Total
Selling price	$40	$50	
Variable cost per unit	$24	$40	
Total fixed costs			$840,000

Mount Carmel sells two units of Product A for each unit it sells of Product B. Mount Carmel faces a tax rate of 30%.

Required:
a. What is the breakeven point in units for each product assuming the sales mix is 2 units of Product A for each unit of Product B?
b. What is the breakeven point if Mount Carmel's tax rate is reduced to 25%, assuming the sales mix is 2 units of Product A for each unit of Product B?
c. How many units of each product would be sold if Mount Carmel desired an after-tax net income of $73,500, facing a tax rate of 30%?

Answer:
a. N = breakeven in product B 2N = breakeven in product A

($40 × 2N) + ($50 × N) - ($24 × 2N) - ($40 × N) - $840,000 = 0
($130 × N) - ($88 × N) - $840,000 = 0
$42N - $840,000 = 0
N = $840,000 / $42 = 20,000

Therefore, to break even, 40,000 units of Product A and 20,000 units of Product B need to be sold.

b. The breakeven point would be the same. At the breakeven point there is no pre-tax income, so the tax rate change is irrelevant in this situation.

c. N = number of units of product B 2N = number of units of product A

($40 × 2N) + ($50 × N) - ($24 × 2N) - ($40 × N) - $840,000 =
$73,500 / (1 - .3)
($130 × N) - ($88 × N) - $840,000 = $105,000
$42N - $945,000 = 0
N = $945,000 / $42 =22,500

Therefore, to meet the profit goal, 2 × N = 45,000 units of Product A and N = 22,500 units of Product B need to be sold.
Diff: 3
Objective: 7
AACSB: Application of knowledge

23) Atlanta Radio Supply sells only two products, Product X and Product Y.

	Product X	Product Y	Total
Selling price	$25	$45	
Variable cost per unit	$20	$35	
Total fixed costs			$350,000

Atlanta Radio Supply sells three units of Product X for each two units it sells of Product Y. Atlanta Radio Supply has a tax rate of 25%.

Required:
a. What is the breakeven point in units for each product, assuming the sales mix is 3 units of Product X for each two units of Product Y?
b. How many units of each product would be sold if Atlanta Radio Supply desired an after-tax net income of $210,000, using its tax rate of 25%?
Answer:
a. 3N = breakeven in product X 2N = breakeven in product Y

($25 - $20) × 3N + ($45 - $35) × 2N - $350,000 = 0
$15N + $20N- $350,000 = 0
$35N - $350,000 = 0
N = $350,000 / $35 = 10,000

Therefore, to break even, 30,000 (10,000 × 3) units of Product X and 20,000 (10,000 × 2) units of Product Y need to be sold.

b. 3N = number of units of product X 2N = number of units of product Y

($25 - $20) × 3N + ($45 - $35) × 2N - $350,000 = $210,000 / (1 - .25)
$15N + $20N- $350,000 = $280,000
$35N- $350,000 = $280,000
$35N - $630,000 = 0
N = $630000 / $35 = 18,000

Therefore, to meet the profit goal, 3 × N = 54,000 units of Product X and 2 × N = 36,000 units of Product Y need to be sold.
Diff: 3
Objective: 7
AACSB: Application of knowledge

24) What is sales mix? How do companies choose their sales mix?
Answer: Sales mix is the quantities or proportion of various products or services that constitute a company's total unit sales. Managers adjust their mix to respond to demand changes. Assume there are two Products A and B. If there is a shift in production to Product A due to high demand, then this increases the breakeven point because the sales mix has shifted toward a lower-contribution-margin product and under no circumstances the manager should change the sales mix to lower the breakeven point without taking into account customer preferences and demand.
Diff: 2
Objective: 7
AACSB: Analytical thinking

25) Stella Company sells only two products, Product A and Product B.

	Product A	Product B	Total
Selling price	$50	$30	
Variable cost per unit	$20	$10	
Total fixed costs			$2,110,000

Stella sells two units of Product A for each unit it sells of Product B. Stella faces a tax rate of 40%. Stella desires a net after-tax income of $54,000. The breakeven point in units would be ________.
A) 25,250 units of Product A and 50,500 units of Product B
B) 27,500 units of Product A and 55,000 units of product B
C) 50,500 units of Product A and 25,250 units of Product B
D) 55,000 units of Product A and 27,500 units of Product B
Answer: D
Explanation: Desired pre-tax net income $54,000 / (1.0 - 0.4) = $90,000
Weighted contribution margin [2 × ($50 - $20)] + [1 × ($30 - $10)] = $80
Breakeven point in composite units is ($90,000 + $2,110,000) / $80 = 27,500
27,500 composite units is (2 × 27,500) = 55,000 units of A and
(1 × 27,500) = 27,500 units of B
Diff: 3
Objective: 7
AACSB: Application of knowledge

3.8 Objective 3.8

1) Service companies and not-for-profit organizations ________.
A) cannot use CVP because they don't manufacture a product
B) cannout use CVP because there is no way to distinguish fixed and variable costs
C) can use CVP by focusing on measuring the organization's output
D) can use CVP by treating all costs as variable
Answer: C
Diff: 2
Objective: 8
AACSB: Analytical thinking

2) While-You-Train is a not-for-profit organization that aids the unemployed by supplementing their incomes by $7,000 annually, while they seek new employment skills. The organization has fixed costs of $200,000 and the budgeted appropriation for the year totals $750,000. How many individuals can receive financial assistance this year?
A) 29 people
B) 108 people
C) 79 people
D) 136 people
Answer: C
Explanation: $750,000 – $7,000N – $200,000 = 0; $550,000 = $7,000N; N = 79 people
Diff: 2
Objective: 8
AACSB: Application of knowledge

3) Helping Hands is a nonprofit organization that supplies electric fans during summer for individuals in need. Fixed costs are $290,000. The fans cost $26 each. The organization has a budgeted appropriation of $675,000. How many people can receive a fan during summer?
A) 11,154 people
B) 14,808 people
C) 25,962 people
D) 37,116 people
Answer: B
Explanation: $675,000 – $26N – $290,000 = 0; $385,000 = $26N; N = 14,808 people
Diff: 2
Objective: 8
AACSB: Application of knowledge

4) To apply CVP analysis in a not-for profit organization ________.
A) managers need to focus on the customer base rather than the cost drivers
B) managers need to focus on measuring their output, which is the same as tangible units sold by manufacturing and merchandising companies
C) managers need to focus on measuring their input, which is different from the tangible units consumed by manufacturing and merchandising companies
D) managers need to focus on measuring their output, which is different from the tangible units sold by manufacturing and merchandising companies
Answer: D
Diff: 2
Objective: 8
AACSB: Analytical thinking

5) Which of the following is an output measure for a hospital?
A) number of doctors needed to cater to patients
B) number of patients admitted every day in a hospital
C) number of days spent by a patient in a hospital
D) charges applicable on the number of days spent by a patient in a hospital
Answer: C
Diff: 2
Objective: 8
AACSB: Analytical thinking

3.9 Objective 3.9

1) Gross margin is ________.
A) sales revenue less variable costs
B) sales revenue less cost of goods sold
C) contribution margin less fixed costs
D) contribution margin less variable costs
Answer: B
Diff: 1
Objective: 9
AACSB: Analytical thinking

2) In the merchandising sector ________.
A) only variable costs are subtracted to determine gross margin
B) fixed overhead costs are subtracted to determine gross margin
C) fixed overhead costs are subtracted to determine contribution margin
D) all operating costs are subtracted to determine contribution margin
Answer: A
Diff: 1
Objective: 9
AACSB: Analytical thinking

3) In the manufacturing sector, ________.
A) only variable costs are subtracted to determine gross margin
B) fixed overhead costs are subtracted to determine gross margin
C) fixed overhead costs are subtracted to determine contribution margin
D) all operating costs are subtracted to determine contribution margin
Answer: B
Diff: 2
Objective: 9
AACSB: Analytical thinking

4) Contribution margin and gross margin are terms that can be used interchangeably.
Answer: FALSE
Explanation: Contribution margin and gross margin refer to different amounts.
Revenues - all variable costs = contribution margin; Revenues - COGS = gross margin
Diff: 1
Objective: 9
AACSB: Analytical thinking

5) Gross Margin will always be greater than contribution margin.
Answer: FALSE
Explanation: If variable costs are low and/or manufacturing fixed costs are high, then contribution margin can easily be greater than gross margin.
Revenues - all variable costs = contribution margin; Revenues - COGS = gross margin
Diff: 1
Objective: 9
AACSB: Analytical thinking

6) Jacob's Manufacturing sales is equal to production.If Jacob's Manufacturing presented a Financial Accounting Income Statement emphasizing gross margin showing operating income of $180,000. A Contribution Income Statement emphasizing contribution margin would show a different operating income.
Answer: FALSE
Explanation: If Jacob's Manufacturing presented a Financial Accounting Income Statement emphasizing gross margin showing operating income of $180,000, a Contribution Income Statement emphasizing contribution margin would show the same operating income.
Diff: 2
Objective: 9
AACSB: Analytical thinking

7) Beta Corp reported the following:

Revenues	$2,500
Variable manufacturing costs	$ 300
Variable nonmanufacturing costs	$ 480
Fixed manufacturing costs	$ 350
Fixed nonmanufacturing costs	$ 270

Required:

a. Compute contribution margin.
b. Compute gross margin.
c. Compute operating income.

Answer:

a. Contribution margin $2,500 – $300 – $480 = $1,720
b. Gross margin $2,500 – $300 – $350 = $1,850
c. Operating income $2,500 – $300 – $480 – $350 – $270 = $1,100

Diff: 3
Objective: 9
AACSB: Application of knowledge

3.10 Objective 3.A

1) What would be the expected monetary value for Avalia Corp using the probability method?

Probability	Cash Inflows
0.20	$260,000
0.30	$200,000
0.15	$160,000
0.35	$60,000

A) $680,000
B) $170,000
C) $157,000
D) $52,000
Answer: C
Explanation: Monetary value = 0.20 ($260,000) + 0.30 ($200,000) + 0.15 ($160,000) + 0.35 ($60,000) = $157,000
Diff: 2
Objective: Appendix
AACSB: Analytical thinking

2) Lobster Liquidators will make $550,000 if the fishing season weather is good, $240,000 if the weather is fair, and would actually lose $40,000 if the weather is poor during the season. If the weather service gives a 45% probability of good weather, a 25% probability of fair weather, and a 30% probability of poor weather, what is the expected monetary value for Lobster Liquidators?
A) $247,500
B) $295,500
C) $750,000
D) $250,000
Answer: B
Explanation: 0.45 ($550,000) + 0.25 ($240,000) + 0.3 (-$40,000) = $295,500
Diff: 2
Objective: Appendix
AACSB: Application of knowledge

Answer the following questions using the information below:

Patrick Ross has three booth rental options at the county fair where he plans to sell his new product. The booth rental options are:

Option 1: $1,000 fixed fee, or
Option 2: $750 fixed fee + 5% of all revenues generated at the fair, or
Option 3: 20% of all revenues generated at the fair.

The product sells for $37.50 per unit. He is able to purchase the units for $12.50 each.

3) How many actions and events will a decision table contain?
A) 1 action and 3 events
B) 1 action and 6 events
C) 2 actions and 3 events
D) 3 actions and 6 events
Answer: D
Diff: 2
Objective: Appendix
AACSB: Application of knowledge

4) Which option should Patrick choose to maximize income assuming there is a 40% probability that 70 units will be sold and a 60% probability that 40 units will be sold?
A) Option 1
B) Option 2
C) Option 3
D) All options maximize income equally.
Answer: C
Explanation: Expected revenues = 0.4(70 × $37.50) + 0.6(40 × $37.50) = $1,950
Expected CM before options = 0.4(70 × $25) + 0.6(40 × $25) = $1,300

Option 1: $1,300 - $1,000 = $300
Option 2: $1,300 - $750 - 0.05($1,950) = $452.50
Option 3: $1,300 - 0.2($1,950) = $910*

* = maximization of income
Diff: 3
Objective: Appendix
AACSB: Application of knowledge

5) When there are multiple cost drivers the simple CVP formula of Q = (FC + OI)/CMU can still be used.
Answer: FALSE
Explanation: When there are multiple cost drivers the simple CVP formula no longer applies.
Diff: 1
Objective: Appendix
AACSB: Analytical thinking

6) There is a difference between a good decision and a good outcome and one can exist without the other.
Answer: TRUE
Diff: 1
Objective: Appendix
AACSB: Analytical thinking

7) A decision table is a summary of the alternative actions, events, outcomes, and probabilities of events.
Answer: TRUE
Diff: 1
Objective: Appendix
AACSB: Analytical thinking

8) Maria makes tortillas and sells them from her house. She is concerned about purchasing too many ingredients and having to throw away unsold tortillas at the end of the day. It costs her $5.00 to make 100 tortillas and she sells them for $20.00 per 100. She has kept track of sales and discovered that she can sell 1,500 tortillas about 25% of the time, 1,000 tortillas about 50% of the time and only 500 tortillas the rest of the time. What is the minimum number of tortillas should she make daily to maximize profit? Round to the nearest 100 tortillas.
Answer: 1,000 tortillas.
She cannot sell more than she makes, so if she makes 500 she has a 100% probability of selling them all for a profit of $75.
If she makes 600, she is likely to sell 575 (500 x 25% + 600 x 50% + 600 x 25%) and so her revenue is $115 (575 x 20/100) and costs are $30 (600 x 5/100) yielding a profit of $85.
Following this logic, at 1,000 tortillas, she is likely to sell 875 with revenue of $175 and costs of $50. This is the minimum number of tortillas she can make to earn $125 profit. At any level above this, up to 1,500 tortillas, her profit will remain $125. Above 1,500 tortillas, her profit will decline do to production exceeding maximum likely sales.
Diff: 3
Objective: Appendix
AACSB: Application of knowledge

9) Lauren had been a manager of a major hotel chain for 15 years. Due to a hotel owner's illness, Lauren was offered the opportunity to purchase a hotel near a vacation area she had often visited. It was a great place surrounded by mountains and known for its scenic beauty. After obtaining a lawyer and an accountant to assist her, Lauren did an analysis of the business and evaluated several contingencies relating to various scenarios. Since the expected monetary value of the various scenarios was much higher than the price of the hotel, she decided to purchase the hotel. She resigned her position, obtained a loan, and purchased the hotel. The following year, there was a severe economic downturn and also a very bad weather season that reduced the number of guests and also caused a resulting mold situation in the hotel building that required expensive repair work. Lauren ran short of cash, became emotionally distraught, and eventually had to sell the hotel at a significant loss. Was it a bad decision for her to purchase the hotel instead of keeping her other managerial position? Explain.
Answer: A decision made has its own ups and downs. Decisions were made based on information that was available at the time of evaluating and making the decision. Since she used to visit the place often for her vacation, she should have known about the occupancy level of the hotel and should have known on the area's climatic conditions and its implications. However, a downturn in the market is unpredictable. She should have made an alternative plan in the event of an economic downturn. Thus, it is a case of misfortune and carelessness in evaluating the project completely.
Diff: 3
Objective: Appendix
AACSB: Application of knowledge

Cost Accounting: A Managerial Emphasis, 16e, Global Edition (Horngren)
Chapter 6   Master Budget and Responsibility Accounting

6.1   Objective 6.1

1) Which of the following is true of a budget?
A) Budgets are used to express only the operational plans and not the strategic plans of a company.
B) Budgets do not account for nonfinancial aspects of the upcoming period.
C) Budgets are most useful when they are planned independent of the company's strategic plans.
D) Budgets help managers to revise their plans and strategies.
Answer: D
Diff: 1
Objective: 1
AACSB: Analytical thinking

2) Which of the following is a financial budget?
A) budgeted balance sheet
B) cash receivables budget
C) production budget
D) cost of goods sold budget
Answer: A
Diff: 1
Objective: 1
AACSB: Analytical thinking

3) Budgets incorporate managements goals and
A) are a strategic long range plan
B) are both a short range and long range profit plan
C) includes only financial aspects of an operation as those are the only items that can be quantified in a profit plan
D) express management's operating and financial plan for a specified period - usually a fiscal year
Answer: D
Diff: 2
Objective: 1
AACSB: Analytical thinking

4) Which of the following is true of master budgets?
A) They include only financial aspects of a plan and exclude nonfinancial aspects.
B) Includes both financial and nonfinancial aspects of management's plans.
C) They aid in quantifying the expectations of all stakeholders.
D) They must be administered rigidly after they are committed to.
Answer: B
Diff: 2
Objective: 1
AACSB: Analytical thinking

5) Operating decisions primarily deal with ________.
A) the best use of scarce resources
B) how to obtain funds to acquire resources
C) acquiring equipment and buildings
D) satisfying stockholders
Answer: A
Diff: 2
Objective: 1
AACSB: Analytical thinking

6) Financing decisions primarily deal with ________.
A) the use of scarce resources
B) how to obtain funds to acquire resources
C) acquiring equipment and buildings
D) preparing financial statements for stockholders
Answer: B
Diff: 2
Objective: 1
AACSB: Analytical thinking

7) A master budget ________.
A) is the initial plan of what the company intends to accomplish in the period and evolves from both the operating and financing decisions
B) is only prepared for manufacturers as they are the only type of company with material purchases and work-in-process accounts.
C) improves companies' market capitalization and evolves from both the investing and financing decisions
D) is another name given to the financial budget
Answer: A
Diff: 2
Objective: 1
AACSB: Analytical thinking

8) Which of the following is not true of a properly executed budgetary cycle?
A) deviations from plan are only investigated at the conclusion of the fiscal year as actual data can be finally compiled
B) past performance and market feedback are considered in setting budget amounts
C) specific financial and nonfinancial expectations are set
D) during the fiscal year, managers investigate deviations from plans
Answer: A
Diff: 2
Objective: 1
AACSB: Analytical thinking

9) Which of the following statements is true of budgets?
A) Master budgets express management's operating and financial plans.
B) Financial budgets are prepared before the master budget is prepared.
C) Operating budgets are prepared independently of the master budget.
D) The budgeted balance sheet is the first budget prepared as management is very much concerned with projected financial position
Answer: A
Diff: 2
Objective: 1
AACSB: Analytical thinking

10) The preparation of all the budgets in the master budget forces managers to think about their business operations and to formulate plans, while:
A) detecting inaccurate historical records to avoid errors in budgets
B) setting expectations against which actual results can be compared
C) completing the budgeting tasks with minimal cross functional feedback
D) ignoring financial risks and opportunities
Answer: B
Diff: 2
Objective: 1
AACSB: Analytical thinking

11) A budget is the quantitative expression of a proposed plan of action by management for a specified period.
Answer: TRUE
Diff: 1
Objective: 1
AACSB: Analytical thinking

12) A budget generally includes only the financial aspects of management's plan.
Answer: FALSE
Explanation: The budget includes financial and nonfinancial aspects of the plan including such nonfinancial aspects as units that need to be ordered, manpower requirements, quantities of materials that need to be ordered and used, hours worked etc.
Diff: 1
Objective: 1
AACSB: Analytical thinking

13) The benefit of engaging lower level management in the budget preparation process is that it helps to streamline the budget process.
Answer: FALSE
Explanation: Involvement of lower level management is actually more time consuming however, there are many benefits of bottom-up/participative budgeting and those benefits outweigh the additional cost of engaging more people in the process.
Diff: 1
Objective: 1
AACSB: Analytical thinking

14) Budgeting includes only the financial aspects of the plan and NOT any nonfinancial aspects such as the number of physical units manufactured or the hours that the direct laborers are expected to work.
Answer: FALSE
Explanation: Budgeting includes both financial and nonfinancial aspects of the plan.
Diff: 2
Objective: 1
AACSB: Analytical thinking

15) Operating plans are generally expressed through long-run budgets.
Answer: FALSE
Explanation: Operating plans are generally expressed through short-run budgets. Strategic plans are expressed through long-run budgets.
Diff: 1
Objective: 1
AACSB: Analytical thinking

16) A budget is a communication aid, informing staff of expectations and providing information that is essential to coordinating what needs to be done to implement the proposed plan.
Answer: TRUE
Diff: 1
Objective: 1
AACSB: Analytical thinking

17) Budgets are sometimes called targets or commitments by some companies and as such are "set in stone" to provide effective benchmarks for management.
Answer: FALSE
Explanation: Budgets are guides for companies to follow but should not be "set in stone". That type of rigidity does not allow for the operational flexibility need to adjust for new information or opportunities that may arise during the budget period.
Diff: 2
Objective: 1
AACSB: Analytical thinking

18) Financing decisions deal with how to best use the limited resources of an organization.
Answer: FALSE
Explanation: Financing decisions deal with how to obtain funds to acquire resources needed for the organization.
Diff: 2
Objective: 1
AACSB: Analytical thinking

19) A budgeting process can facilitate learning in that feedback from budgets can lead to changes in plans and strategies.
Answer: TRUE
Diff: 2
Objective: 1
AACSB: Analytical thinking

20) Budgeted financial statements are called pro forma statements.
Answer: TRUE
Diff: 2
Objective: 1
AACSB: Analytical thinking

21) Describe the benefits of preparing an operating budget to an organization.
Answer: A well-prepared operating budget should serve as a guide for a company to follow during the budgeted period. It is not "set in stone." If new information or opportunities arise, the budget should be adjusted.

A well-prepared operating budget assists management with the allocation of scarce resources. It can help management see trouble spots in advance, and then management can decide where to allocate its limited resources.

A well-prepared operating budget fosters communication and coordination among various segments of the company. The process of preparing a budget requires managers from different functional areas to work together and communicate performance levels they both want and can attain.

A well-prepared operating budget can become the performance standard against which firms can compare the actual results.
Diff: 2
Objective: 1
AACSB: Analytical thinking

22) Bob and Dale have just purchased a small honey manufacturing company that was having financial difficulties. After a brief operating period, they decided that the company's main problem was an improper budgeting function. The company made a good product and market potential was great.

Required:
Describe the usual budgeting cycle that well-managed companies adopt?
Answer: The usual budgeting cycle that well-managed companies adopt consists of the following three steps:
1. Before the start of the period, managers and management accountants work together to develop plans for the company as a whole and the performance of its subunits, taking into account the company's past performance, market feedback, and anticipated future changes.
2. At the beginning of the period, managers are provided with a framework that outlines specific financial or nonfinancial expectations against which actual results will be compared.
3. During the course of the year, management accountants and managers investigate any deviations from plans and take corrective action, if necessary.
Diff: 2
Objective: 1
AACSB: Analytical thinking

6.2 Objective 6.2

1) Which of the following is true of budgets when they are administered thoughtfully?
A) They eliminate subjectivity in performance evaluation.
B) They can eliminate the uncertainty faced by a company.
C) They promote coordination within the subunits of a company.
D) They are a substitute the planning and coordination functions of management.
Answer: C
Diff: 2
Objective: 2
AACSB: Analytical thinking

2) A budget is an end product of negotiations among senior and subordinate mangers because ________.
A) budgeting is their mutual responsibility
B) senior managers alone cannot spare the time required for the budgeting process
C) senior managers are responsible for providing information on competitors performance and subordinate managers are responsible for information on external market conditions
D) senior managers want very challenging targets, while subordinates may want targets that are relatively easier to achieve.
Answer: D
Diff: 2
Objective: 2
AACSB: Analytical thinking

3) Which of the following is a limitation of using past performance as a basis for judging actual results?
A) It does not account for productivity increases over the periods.
B) It increases the incentive for managers to introduce budgetary slack.
C) It assumes inefficiencies of previous periods without considering possible efficiencies of the budget period.
D) It increases the tendency of senior managers exaggerating changes in future conditions as opposed to changes in current conditions.
Answer: C
Diff: 2
Objective: 2
AACSB: Analytical thinking

4) The practice of developing reasonably challenging budgets tend to help:
A) discourage out-of-the-box and creative thinking as there is very little room for error
B) set unrealistic expectations and are perceived as overly ambitious and unachievable
C) increase anxiety without motivation not meeting them is viewed as a failure
D) motivate improved performance as employees work more intensely to avoid failure
Answer: D
Diff: 2
Objective: 2
AACSB: Analytical thinking

5) A limitation of using past performance as a basis for judging actual results is that ________.
A) future conditions can be different from the past
B) any undervaluation of profits in the past period is likely to continue
C) any subsequent change in accounting treatment will distort performance evaluation
D) they tend to distort results when current and past conditions are similar
Answer: A
Diff: 2
Objective: 2
AACSB: Analytical thinking

6) A company's actual performance should be compared against budgeted amounts for the same accounting period so that ________.
A) adjustments for future conditions can be included
B) to avoid any feedback from the budgets due to past miscues
C) inefficiencies of the past year can be included
D) a rolling budget can be implemented
Answer: A
Diff: 2
Objective: 2
AACSB: Analytical thinking

7) Which of the following is a reason why top managers want lower-level managers to participate in the budgeting process?
A) To benefit from their experience with the day-to-day aspects of running the business.
B) To reduce the time and cost expended in the budgeting process.
C) To ensure that they do not introduce any budgetary slack.
D) To ensure that the budgets are administered rigidly given the changing market conditions.
Answer: A
Diff: 2
Objective: 2
AACSB: Analytical thinking

8) The major objectives of a budgeting process should include all of the following EXCEPT:
A) providing coordination among the subunits
B) providing communication among the subunits
C) providing unyielding commitment to targets as a means to achieve a target profit
D) providing a framework for judging performance and facilitating learning
Answer: C
Diff: 2
Objective: 2
AACSB: Analytical thinking

9) Which of the following is referred to as the bottom-up aspect of the budgeting process?
A) lower-level managers setting their individual targets that aggregate to be the company-wide target
B) senior managers consulting middle- and lower-level managers to investigate any deviations from the budget
C) lower-level managers implementing the budgets with senior managers monitoring progress and investigating deviations
D) lower-level managers providing inputs to the budgeting process based on their specialized knowledge and familiarity of the operation
Answer: D
Diff: 3
Objective: 2
AACSB: Analytical thinking

10) Participation of employees in the budgeting process helps ________.
A) create greater commitment towards the budget
B) create demanding but achievable budget
C) decrease deviations from the budget
D) secure communication of sensitive information
Answer: A
Diff: 1
Objective: 2
AACSB: Analytical thinking

11) Managers who feel that top management does not believe in the budget are most likely to ________.
A) pick up the slack and participate in the budgeting process
B) to face little interference in the day-to-day aspects of running the business
C) be less engaged participants in the budgeting process and less committed to achieving budgeted targets
D) convert the budget to a shorter more reasonable time period that will help with real time reporting
Answer: C
Diff: 2
Objective: 2
AACSB: Analytical thinking

12) One of the benefits of a well implemented and executed budget is communication. Which of the following best describes communication within the budgetary cycle?
A) meshing and balancing of all aspects of production or service
B) making each manager aware of the plan and allowing each manager to understand the importance of the plan
C) allocation of scarce resources across all functional areas of the company
D) the calculation of deviations from plan
Answer: B
Diff: 2
Objective: 2
AACSB: Analytical thinking

13) Budgets should ________.
A) not be so rigid that if conditions change, adjustments in spending can be made
B) be administered rigidly
C) only be developed for short periods of time such as quarters
D) include only variable costs
Answer: A
Diff: 1
Objective: 2
AACSB: Analytical thinking

14) After a budget is agreed upon and finalized by the management team, the amounts should NOT be changed for any reason.
Answer: FALSE
Explanation: Budgets should not be administered rigidly, but rather should be adjusted for changing conditions.
Diff: 2
Objective: 2
AACSB: Analytical thinking

15) Even in the face of changing conditions, attaining the original budget is critical and is the only true measure of success.
Answer: FALSE
Explanation: Changing conditions usually call for a change in plans. Attaining the budget should not be an end in itself and is not the final determinant of success.
Diff: 2
Objective: 2
AACSB: Analytical thinking

16) Research shows that the performance of employees falls when they are asked to adhere to challenging budgets.
Answer: FALSE
Explanation: Research shows just the opposite. The performance of employees improves when they receive a challenging budget. Most employees are motivated to work more intensely to avoid failure than to achieve success (loss-averse).
Diff: 2
Objective: 2
AACSB: Analytical thinking

17) Creating a little anxiety among managers and staff with challenging budgets helps employee work harder to achieve goals.
Answer: TRUE
Diff: 2
Objective: 2
AACSB: Analytical thinking

18) Bottom-up budgets entrusts senior managers to prepare budgets and lower-level managers to execute them.
Answer: FALSE
Explanation: Bottom-up budgets encourage lower-level managers to participate in the budgeting process and hence it is not limited to senior managers alone.
Diff: 2
Objective: 2
AACSB: Analytical thinking

19) It is best to compare this year's performance with last year's actual performance rather than this year's budget.
Answer: FALSE
Explanation: It is best to compare this year's performance with this year's budget because inefficiencies and different conditions may be reflected in last year's actual performance amounts.
Diff: 2
Objective: 2
AACSB: Analytical thinking

20) When administered wisely, budgets promote communication and coordination among the various subunits of the organization.
Answer: TRUE
Diff: 2
Objective: 2
AACSB: Analytical thinking

6.3   Objective 6.3

1) Which of the following is the most frequently used budget periods used in business?
A) a basic budget period of 1 year often subdivided into semi-annual periods
B) a basic budget period of 2 years often subdivided into quarters and semi-annual periods
C) A basic budget period of 2 years subdivided into monthly periods
D) a basic budget period of 1 year often subdivided into quarters and months
Answer: D
Diff: 2
Objective: 3
AACSB: Analytical thinking

2) Which of the following is a component of operating budgets?
A) production budget
B) budgeted statement of cash flows
C) capital expenditures budget
D) budgeted balance sheet
Answer: A
Diff: 1
Objective: 3
AACSB: Analytical thinking

3) The operating budget process generally concludes with the preparation of the ________.
A) production budget
B) cash flow statement
C) balance sheet
D) budgeted income statement
Answer: D
Diff: 1
Objective: 3
AACSB: Analytical thinking

4) Which of the following best describes a rolling budget?
A) It is a budget that continually outlines the amount required to roll over debt in a future period.
B) It is created continually by adding a month, quarter, or year to the period just ended
C) It is a budget that outlines budgeted expenses while utilizing a moving average
D) It is a budget that is submitted to a bank at the beginning of every month as per a loan covenant.
Answer: B
Diff: 2
Objective: 3
AACSB: Analytical thinking

5) The ________ is a component of financial budgets.
A) cost of goods sold budget
B) budgeted income statement
C) direct materials budget
D) budgeted statement of cash flows
Answer: D
Diff: 2
Objective: 3
AACSB: Analytical thinking

6) ________ include a budgeted statement of cash flows and a budgeted balance sheet.
A) Revenue budgets
B) Financial budgets
C) Operating budgets
D) Production budgets
Answer: B
Diff: 1
Objective: 3
AACSB: Analytical thinking

7) The order to follow when preparing the operating budget is ________.
A) revenues budget, production budget, direct manufacturing labor costs budget , and cost of goods sold
B) revenues costs of goods sold budget, production budget, and cash budget
C) revenues budget, manufacturing overhead costs budget, and production budget
D) cash expenditures budget, revenues budget, and production budget
Answer: A
Diff: 2
Objective: 3
AACSB: Analytical thinking

8) In which order are the following developed? First to last:

A = Production budget
B = Direct materials costs budget
C = Budgeted income statement
D = Revenues budget

A) ABDC
B) DABC
C) DCAB
D) CABD
Answer: B
Diff: 2
Objective: 3
AACSB: Analytical thinking

9) The budgeting process is most strongly influenced by ________.
A) the capital budget
B) the budgeted statement of cash flows
C) the sales forecast
D) the production budget
Answer: C
Diff: 2
Objective: 3
AACSB: Analytical thinking

10) ________ is the usual starting point for budgeting.
A) The revenues budget
B) The estimated net income
C) The production budget
D) The cash budget
Answer: A
Diff: 1
Objective: 3
AACSB: Analytical thinking

11) The sales forecast should be primarily based on ________.
A) statistical analysis
B) input from sales managers and sales representatives
C) production capacity
D) input from the board of directors
Answer: B
Diff: 2
Objective: 3
AACSB: Analytical thinking

12) Costs such as supervision, plant and equipment (production) depreciation, maintenance, supplies, and power. are included in the ________.
A) capital expenditures budget
B) distribution costs budget
C) revenues budget
D) manufacturing overhead budget
Answer: D
Diff: 2
Objective: 3
AACSB: Analytical thinking

13) In general, which of the following budgets is prepared first?
A) sales budget
B) production budget
C) direct labor budget
D) overhead budget
Answer: A
Diff: 2
Objective: 3
AACSB: Analytical thinking

14) The revenues budget reveals
A) expected cash flows for each product
B) actual unit sales from last year multiplied by the budget period's expected selling prices for each product
C) the expected level of unit sales multiplied by expected unit selling prices for company products
D) the variance of sales from actual for each product
Answer: C
Diff: 1
Objective: 3
AACSB: Analytical thinking

15) The number of units in the sales budget and the production budget may differ because of a change in ________.
A) ending finished goods inventory levels
B) total overhead charges for the year
C) beginning direct material inventory levels
D) sales returns and allowances
Answer: A
Diff: 3
Objective: 3
AACSB: Analytical thinking

16) Which of the following is the basic formula of the direct materials usage budget?
A) Ending inventory of direct materials + direct materials purchased and used during the period = direct materials to be used this period
B) Beginning inventory of direct materials + direct materials purchased and used during the period = direct materials to be used this period
C) units used in production + target ending inventory - beginning inventory = purchases to be made for the budget period
D) units used in production + target beginning inventory - ending inventory = purchases to be made for the budget period
Answer: B
Diff: 2
Objective: 3
AACSB: Analytical thinking

17) Budgeted production equals ________.
A) beginning finished goods inventory + budgeted unit sales - targeted ending finished goods inventory
B) targeted ending finished goods inventory + beginning finished goods inventory - budgeted unit sales
C) budgeted unit sales + targeted ending finished goods inventory - beginning finished goods inventory
D) budgeted unit sales + targeted ending finished goods inventory + beginning finished goods inventory
Answer: C
Diff: 2
Objective: 3
AACSB: Analytical thinking

18) Best products, an Atlanta based company, is in the midst of its budgeting process. It has already prepared its direct materials usage budget and is now in the process of preparing its direct material purchase budget. In addition to the details gathered to prepare the direct materials usage budget, Best also must know ________.
A) the target direct materials ending inventory
B) the ratio of direct materials to cost of goods sold
C) the beginning direct materials inventory level
D) the quantity of direct materials to be purchased
Answer: A
Diff: 2
Objective: 3
AACSB: Analytical thinking

19) To prepare the direct materials labor costs budget, which of the following budget must be prepared first?
A) direct material purchase budget
B) production budget
C) direct material usage budget
D) budgeted manufacturing overhead
Answer: B
Diff: 1
Objective: 3
AACSB: Analytical thinking

20) Which of the following is most likely to be a cost driver for the variable portion of marketing costs?
A) percentage of markup on cost
B) number of units produced
C) increase in revenues attributable to such marketing
D) number of units units sold
Answer: D
Diff: 2
Objective: 3
AACSB: Analytical thinking

21) Which of the following is required to arrive at the budgeted units to be produced in a year?
A) estimated direct materials inventory required at the end of the year
B) estimated finished goods inventory required at the end of the year
C) amount of direct materials to be used during the year
D) amount of manufacturing overhead to be incurred
Answer: B
Diff: 2
Objective: 3
AACSB: Analytical thinking

22) Which of the following best describes a *bill of materials*?
A) It is a document that is prepared by a vendor to invoice a manufacturer for a purchase of materials
B) It is a document that is used to order materials
C) It is a document that requests materials be removed from the warehouse and put into production
D) It is a document that identifies how each product is manufactured, specifying materials and components and the quantities of materials in each finished good
Answer: D
Diff: 2
Objective: 3
AACSB: Analytical thinking

23) Which of the following information is required by a company's manager while preparing a manufacturing overhead costs budget?
A) estimated incentives to be paid to marketing personnel
B) estimated expense for office supplies
C) estimated expense for maintenance of factory building
D) rent expense for lease of office building
Answer: C
Diff: 2
Objective: 3
AACSB: Analytical thinking

24) Mary's Baskets Company expects to manufacture and sell 30,000 baskets in 2019 for $5 each. There are 4,000 baskets in beginning finished goods inventory with target ending inventory of 9,000 baskets. The company keeps no work-in-process inventory. What amount of sales revenue will be reported on the 2019 budgeted income statement?
A) $175,000
B) $150,000
C) $125,000
D) $85,000
Answer: B
Explanation: Sales revenue = 30,000 baskets × $5 = $150,000
Diff: 2
Objective: 3
AACSB: Application of knowledge

25) Orange Corporation has budgeted sales of 23,000 units, targeted ending finished goods inventory of 9,000 units, and beginning finished goods inventory of 6,000 units. How many units should be produced next year?
A) 38,000 units
B) 32,000 units
C) 26,000 units
D) 23,000 units
Answer: C
Explanation: Number of units to be produced next year = 23,000 units (estimated sales) + 9,000 units (budgeted ending inventory) - 6,000 units (opening inventory) = 26,000 units.
Diff: 2
Objective: 3
AACSB: Application of knowledge

26) For next year, Roberts, Inc., has budgeted sales of 20,000 units, targeted ending finished goods inventory of 1,650 units, and beginning finished goods inventory of 750 units. All other inventories are zero. How many units should be produced next year?
A) 19,100 units
B) 20,000 units
C) 20,900 units
D) 22,400 units
Answer: C
Explanation: Units to be produced next year = 20,000 units (estimated sales) + 1,650 units (budgeted ending inventory) – 750 units (opening inventory) = 20,900 units
Diff: 2
Objective: 3
AACSB: Application of knowledge

27) Antique Brass Company has budgeted sales volume of 122,000 units and budgeted production of 114,000 units, while 24,000 units are in beginning finished goods inventory. How many units are targeted for ending finished goods inventory?
A) 24,000 units
B) 32,000 units
C) 8,000 units
D) 16,000 units
Answer: D
Explanation: 114,000 units (Budgeted production) + 24,000 units (Beginning finished goods inventory) - 122,000 units (Budgeted sales) = 16,000 units (Budgeted ending finished goods inventory)
Diff: 2
Objective: 3
AACSB: Application of knowledge

28) First Class, Inc., expects to sell 22,000 pool cues for $12 each. Direct materials costs are $3, direct manufacturing labor is $4, and manufacturing overhead is $0.84 per pool cue. The following inventory levels apply to 2019:

	Beginning inventory	Ending inventory
Direct materials	33,000 units	33,000 units
Work-in-process inventory	0 units	0 units
Finished goods inventory	1,400 units	2,500 units

On the 2019 budgeted income statement, what amount will be reported for sales?
A) $277,200
B) $264,000
C) $396,000
D) $409,200
Answer: B
Explanation: 22,000 units sold × $12 per pool cue = $264,000
Diff: 2
Objective: 3
AACSB: Analytical thinking

29) First Class, Inc., expects to sell 28,000 pool cues for $14 each. Direct materials costs are $3, direct manufacturing labor is $5, and manufacturing overhead is $0.82 per pool cue. The following inventory levels apply to 2019:

	Beginning inventory	Ending inventory
Direct materials	26,000 units	26,000 units
Work-in-process inventory	0 units	0 units
Finished goods inventory	1,300 units	2,800 units

How many pool cues need to be produced in 2019?
A) 30,800 cues
B) 29,300 cues
C) 29,500 cues
D) 26,500 cues
Answer: C
Explanation: 28,000 units (Budgeted sales) + 2,800 (Budgeted ending inventory) - 1,300 (Beginning inventory) = 29,500 cues
Diff: 2
Objective: 3
AACSB: Application of knowledge

30) First Class, Inc., expects to sell 26,000 pool cues for $14 each. Direct materials costs are $2, direct manufacturing labor is $4, and manufacturing overhead is $0.89 per pool cue. The following inventory levels apply to 2019:

	Beginning inventory	Ending inventory
Direct materials	31,000 units	31,000 units
Work-in-process inventory	0 units	0 units
Finished goods inventory	1,800 units	3,300 units

On the 2019 budgeted income statement, what amount will be reported for cost of goods sold?
A) $189,475
B) $179,140
C) $168,805
D) $201,877
Answer: B
Explanation: The cost per unit is $6.89 ($2 + $4 + $0.89). Therefore, the total cost of goods sold is $179,140 ($6.89 × 26,000).
Diff: 3
Objective: 3
AACSB: Application of knowledge

31) First Class, Inc., expects to sell 29,000 pool cues for $13 each. Direct materials costs are $3, direct manufacturing labor is $5, and manufacturing overhead is $0.83 per pool cue. The following inventory levels apply to 2019:

	Beginning inventory	**Ending inventory**
Direct materials	24,000 units	24,000 units
Work-in-process inventory	0 units	0 units
Finished goods inventory	1,200 units	2,800 units

What are the 2019 budgeted costs for direct materials, direct manufacturing labor, and manufacturing overhead, respectively?
A) $72,000; $120,000; $19,920
B) $90,600; $151,000; $25,066
C) $91,800; $153,000; $25,398
D) $87,000; $145,000; $24,070
Answer: C
Explanation: Direct materials = 30,600 × $3 = $91,800; Direct manufacturing labor = 30,600 × $5 = $153,000; Manufacturing overhead = 30,600 × $0.83 = $25,398
Diff: 3
Objective: 3
AACSB: Application of knowledge

32) Bradford, Inc., expects to sell 11,000 ceramic vases for $21 each. Direct materials costs are $3, direct manufacturing labor is $11, and manufacturing overhead is $5 per vase. The following inventory levels apply to 2019:

	Beginning inventory	**Ending inventory**
Direct materials	1,000 units	1,000 units
Work-in-process inventory	0 units	0 units
Finished goods inventory	100 units	600 units

On the 2019 budgeted income statement, what amount will be reported for sales?
A) $241,500
B) $220,500
C) $252,000
D) $231,000
Answer: D
Explanation: Total sales = 11,000 units × $21 = $231,000.
Diff: 3
Objective: 3
AACSB: Application of knowledge

33) Bradford, Inc., expects to sell 6,000 ceramic vases for $21 each. Direct materials costs are $3, direct manufacturing labor is $10, and manufacturing overhead is $3 per vase. The following inventory levels apply to 2019:

	Beginning inventory	Ending inventory
Direct materials	5,000 units	5,000 units
Work-in-process inventory	0 units	0 units
Finished goods inventory	400 units	600 units

How many ceramic vases should be produced in 2019?
A) 5,800 vases
B) 6,200 vases
C) 11,000 vases
D) 6,000 vases
Answer: B
Explanation: Number of vases to be produced = 6,000 units (Estimated sales) + 600 units (Budgeted ending inventory) – 400 units (Opening inventory) = 6,200 units.
Diff: 3
Objective: 3
AACSB: Application of knowledge

34) Bradford, Inc., expects to sell 8,000 ceramic vases for $21 each. Direct materials costs are $4, direct manufacturing labor is $10, and manufacturing overhead is $4 per vase. The following inventory levels apply to 2019:

	Beginning inventory	Ending inventory
Direct materials	3,000 units	3,000 units
Work-in-process inventory	0 units	0 units
Finished goods inventory	400 units	800 units

On the 2019 budgeted income statement, what amount will be reported for cost of goods sold?
A) $198,000
B) $151,200
C) $144,000
D) $136,800
Answer: C
Explanation: Cost of goods sold is $144,000 [8,000 × ($4 + $10 + $4)].
Diff: 3
Objective: 3
AACSB: Application of knowledge

35) Bradford, Inc., expects to sell 9,000 ceramic vases for $21 each. Direct materials costs are $3, direct manufacturing labor is $12, and manufacturing overhead is $3 per vase. The following inventory levels apply to 2019:

	Beginning inventory	**Ending inventory**
Direct materials	3,000 units	3,000 units
Work-in-process inventory	0 units	0 units
Finished goods inventory	300 units	500 units

What are the 2019 budgeted production costs for direct materials, direct manufacturing labor, and manufacturing overhead, respectively?
A) $27,600; $110,400; $27,600
B) $27,000; $108,000; $27,000
C) $9,000; $36,000; $9,000
D) $9,000; $0; $10,500
Answer: A
Explanation: Budgeted cost for direct materials = $27,600 [9,200 units × $3].
Budgeted cost for direct manufacturing labor = $110,400 [9,200 units × $12].
Budgeted manufacturing overhead = $27,600 [9,200 × $3].
Diff: 3
Objective: 3
AACSB: Application of knowledge

36) The following information pertains to the January operating budget for Murphy Corporation, a retailer:

Budgeted sales are $208,000 for January
Collections of sales are 60% in the month of sale and 40% the next month
Cost of goods sold averages 64% of sales
Merchandise purchases total $154,000 in January
Marketing costs are $3,600 each month
Distribution costs are $5,000 each month
Administrative costs are $10,500 each month

For January, budgeted gross margin is ________.
A) $124,800
B) $133,120
C) $74,880
D) $54,000
Answer: C
Explanation: $208,000 - (0.64 × $208,000) = $74,880
Diff: 3
Objective: 3
AACSB: Application of knowledge

37) The following information pertains to the January operating budget for Murphy Corporation, a retailer:

Budgeted sales are $210,000 for January
Collections of sales are 40% in the month of sale and 60% the next month
Cost of goods sold averages 66% of sales
Merchandise purchases total $159,000 in January
Marketing costs are $3,600 each month
Distribution costs are $5,300 each month
Administrative costs are $10,100 each month

For January, the amount budgeted for the nonmanufacturing costs budget is ________.
A) $90,400
B) $10,100
C) $178,000
D) $19,000
Answer: D
Explanation: $3,600 + $5,300 + $10,100 = $19,000
Diff: 2
Objective: 3
AACSB: Application of knowledge

38) Tiger Pride produces two product lines: T-shirts and Sweatshirts. Product profitability is analyzed as follows:

	T-SHIRTS	**SWEATSHIRTS**
Production and sales volume	67,000 units	20,000 units
Selling price	$16.00	$29.00
Direct material	$2.00	$ 5.00
Direct labor	$ 4.50	$8.20
Manufacturing overhead	$ 2.00	$ 3.00
Gross profit	$7.50	$12.80
Selling and administrative	$ 4.00	$ 7.00
Operating profit	$3.50	$5.80

What is the projected decline in operating income if the direct materials costs of T-Shirts increase to $3.50 per unit and direct labor costs of Sweatshirts increase to $14.00 per unit?
A) $216,500
B) $100,500
C) $116,000
D) $514,500
Answer: A
Explanation: (67,000 × $1.50) + (20,000 × $5.80) = $216,500
Diff: 1
Objective: 3
AACSB: Application of knowledge

39) Nantucket Industries manufactures and sells two models of watches, Prime and Luxuria. It expects to sell 3,200 units of Prime and 1,300 units of Luxuria in 2019.The following estimates are given for 2019:

	Prime	**Luxuria**
Selling price	$200	$500
Direct materials	60	80
Direct labor	90	180
Manufacturing overhead	40	110

Nantucket had an inventory of 230 units of Prime and 85 units of Luxuria at the end of 2018. It has decided that as a measure to counter stock outages it will maintain ending inventory of 370 units of Prime and 200 units of Luxuria.

Each Luxuria watch requires one unit of Crimpson and has to be imported at a cost of $11. There were 140 units of Crimpson in stock at the end of 2018.The management does not want to have any stock of Crimpson at the end of 2019.

How many units of Prime watches must be produced in 2019?
A) 3,570 units
B) 3,340 units
C) 3,200 units
D) 2,970 units
Answer: B
Explanation: Number of units of Prime to be produced = [3,200 units (Estimated sales) + 370 units (Budgeted ending inventory) - 230 units (Opening inventory)] = 3,340 units.
Diff: 3
Objective: 3
AACSB: Application of knowledge

40) Nantucket Industries manufactures and sells two models of watches, Prime and Luxuria. It expects to sell 4,000 units of Prime and 1,100 units of Luxuria in 2019.The following estimates are given for 2019:

	Prime	**Luxuria**
Selling price	$200	$500
Direct materials	20	50
Direct labor	70	160
Manufacturing overhead	90	100

Nantucket had an inventory of 230 units of Prime and 125 units of Luxuria at the end of 2018. It has decided that as a measure to counter stock outages it will maintain ending inventory of 360 units of Prime and 210 units of Luxuria.

Each Luxuria watch requires one unit of Crimpson and has to be imported at a cost of $15. There were 100 units of Crimpson in stock at the end of 2018.The management does not want to have any stock of Crimpson at the end of 2019.

What is the amount budgeted for purchase of Crimpson in 2019?
A) $61,950
B) $16,275
C) $17,775
D) $16,500
Answer: B
Explanation: Budgeted amount for purchase of Crimpson = [$15 × (1,185 units (Luxuria units produced) – 100 units (Units in hand)] = $16,275; Number of units of Luxuria to be produced = [1,100 units (Estimated sales) + 210 units (Budgeted ending inventory) – 125 units (Opening inventory)] = 1,185 units.
Diff: 3
Objective: 3
AACSB: Application of knowledge

41) Nantucket Industries manufactures and sells two models of watches, Prime and Luxuria. It expects to sell 3,500 units of Prime and 1,500 units of Luxuria in 2019.The following estimates are given for 2019:

	Prime	**Luxuria**
Selling price	$200	$500
Direct materials	70	100
Direct labor	60	180
Manufacturing overhead	90	150

Nantucket had an inventory of 200 units of Prime and 105 units of Luxuria at the end of 2018. It has decided that as a measure to counter stock outages it will maintain ending inventory of 400 units of Prime and 230 units of Luxuria.

Each Luxuria watch requires one unit of Crimpson and has to be imported at a cost of $12. There were 120 units of Crimpson in stock at the end of 2018. The management does not want to have any stock of Crimpson at the end of 2019.

What is the total budgeted cost of goods sold for Nantucket Industries in 2019?
A) $1,325,000
B) $1,415,000
C) $1,433,000
D) $1,625,000
Answer: B
Explanation: Budgeted cost of goods sold for Prime = [3,500 units (Estimated sales) × $220 (Cost per unit)] = $770,000. Budgeted cost of goods sold for Luxuria = [1,500 units (Estimated sales) × $430 (Cost per unit)] = $645,000. Total cost of goods sold = $770,000 + $645,000 =$1,415,000.
Diff: 3
Objective: 3
AACSB: Application of knowledge

42) Nantucket Industries manufactures and sells two models of watches, Prime and Luxuria. It expects to sell 3,800 units of Prime and 1,300 units of Luxuria in 2019.The following estimates are given for 2019:

	Prime	**Luxuria**
Selling price	$200	$500
Direct materials	60	90
Direct labor	70	150
Manufacturing overhead	40	150

Nantucket had an inventory of 240 units of Prime and 125 units of Luxuria at the end of 2018. It has decided that as a measure to counter stock outages it will maintain ending inventory of 350 units of Prime and 230 units of Luxuria.

Each Luxuria watch requires one unit of Crimpson and has to be imported at a cost of $13. There were 140 units of Crimpson in stock at the end of 2018. The management does not want to have any stock of Crimpson at the end of 2019.

What is the total budgeted cost of goods manufactured in 2019?
A) $1,153,000
B) $1,093,350
C) $1,212,650
D) $1,272,750
Answer: C
Explanation: Budgeted cost of goods manufactured for Prime = [3,910 units (Estimated units to be manufactured) × $170 (Cost per unit)] = $664,700. Budgeted cost of goods manufactured for Luxuria = [1,405 units (Estimated units to be manufactured) × $390 (Cost per unit)] = $547,950. Total cost of goods sold = $664,700 + $547,950 = $1,212,650
Diff: 3
Objective: 3
AACSB: Application of knowledge

43) Furniture, Inc., estimates the following number of mattress sales for the first four months of 2019:

Month	**Sales**
January	29,000
February	40,800
March	34,600
April	36,200

Finished goods inventory at the end of December is 7,000 units. Target ending finished goods inventory is 20% of the next month's sales.

How many mattresses need to be produced in January 2019?
A) 27,800 mattresses
B) 30,160 mattresses
C) 41,800 mattresses
D) 44,160 mattresses
Answer: B
Explanation: Number of mattresses to be produced in January = [29,000 units (Estimated sales) + 8,160 units (Budgeted ending inventory for January × 20%) – 7,000 units (Beginning inventory)] = 30,160 mattresses.
Diff: 2
Objective: 3
AACSB: Application of knowledge

44) Furniture, Inc., estimates the following number of mattress sales for the first four months of 2019:

Month	**Sales**
January	32,000
February	36,800
March	29,600
April	43,200

Finished goods inventory at the end of December is 7,100 units. Target ending finished goods inventory is 20% of the next month's sales.

How many mattresses should be produced in the first quarter of 2019?
A) 108,580 mattresses
B) 99,940 mattresses
C) 67,680 mattresses
D) 67,620 mattresses
Answer: B
Explanation:

	January	**February**	**March**	**Total (For the quarter)**
Estimated sales	32,000	36,800	29,600	98,400
Less: Opening inventory	7,100	7,360	5,920	7,100
	24,900	29,440	23,680	91,300
Add: Closing inventory (20% of next month's sales)	7,360	5,920	8,640	8,640
Budgeted production	32,260	35,360	32,320	99,940

Diff: 3
Objective: 3
AACSB: Application of knowledge

45) Wallace Company provides the following data for next year:

Month	Budgeted Sales
January	$120,000
February	108,000
March	140,000
April	147,000

The gross profit rate is 35% of sales. Inventory at the end of December is $29,600 and target ending inventory levels are 10% of next month's sales, stated at cost.

What is the amount of purchases budgeted for January?
A) $70,980
B) $55,420
C) $78,000
D) $85,020
Answer: B
Explanation: Budgeted purchases for January = $55,420 ($78,000* − $29,600 + $7,020**)
*$120,000 × (100% − 35%) = $78,000
**$108,000 × (100% − 35%) × 10% = $7,020
Diff: 3
Objective: 3
AACSB: Application of knowledge

46) Wallace Company provides the following data for next year:

Month	Budgeted Sales
January	$126,000
February	111,000
March	134,000
April	147,000

The gross profit rate is 30% of sales. Inventory at the end of December is $30,600 and target ending inventory levels are 10% of next month's sales, stated at cost.

What is the amount of purchases budgeted for February?
A) $36,180
B) $77,700
C) $79,310
D) $97,580
Answer: C
Explanation: Budgeted purchases for February = $79,310 ($77,700* −$7,770 + $9,380**)
*$111,000 × (100% − 30%) = $77,700
**$134,000 × (100% − 30%) × 10% = $9,380
Diff: 3
Objective: 3
AACSB: Application of knowledge

47) Three Bears Manufacturing produces an auto-quartz watch movement called OM362. Three Bears expects to sell 20,000 units of OM362 and to have an ending finished inventory of 5,000 units. Currently, it has a beginning finished inventory of 1,100 units. Each unit of OM362 requires two labor operations, two labor hour(s) of assembling and three labor hour(s) of polishing. The direct labor rate for assembling is $11 per assembling hour and the direct labor rate for polishing is $14.50 per polishing hour.

The expected number of hours of direct labor for OM362 is ________.
A) 32,200 hours of assembling; 48,300 hours of polishing
B) 47,800 hours of assembling; 71,700 hours of polishing
C) 48,300 hours of assembling; 32,200 hours of polishing
D) 71,700 hours of assembling; 47,800 hours of polishing
Answer: B
Explanation: 20,000 + 5,000 - 1,100 = 23,900
(23,900 × 2) = 47,800 hours of assembling; (23,900 × 3) = 71,700 hours of polishing
Diff: 3
Objective: 3
AACSB: Application of knowledge

48) Three Bears Manufacturing produces an auto-quartz watch movement called OM362. Three Bears expects to sell 20,000 units of OM362 and to have an ending finished inventory of 7,000 units. Currently, it has a beginning finished inventory of 1,200 units. Each unit of OM362 requires two labor operations, three labor hour(s) of assembling and three labor hour(s) of polishing. The direct labor rate for assembling is $14 per assembling hour and the direct labor rate for polishing is $17.50 per polishing hour.

The expected cost of direct labor for OM362 is ________.
A) $1,890,000
B) $2,003,400
C) $2,438,100
D) $2,551,500
Answer: C
Explanation: Expected cost of direct labor for OM362 = 25,800 units (Estimated units to be manufactured) × [($14 × 3 (assembling) + ($17.50 × 3) (polishing)] = $2,438,100.
Diff: 2
Objective: 3
AACSB: Application of knowledge

49) J & S Manufacturing expects to produce and sell 13,000 units of Big, its only product, for $20 each. Direct material cost is $3 per unit, direct labor cost is $14 per unit, and variable manufacturing overhead is $10 per unit. Fixed manufacturing overhead is $26,000 in total. Variable selling and administrative expenses are $3 per unit, and fixed selling and administrative costs are $3,000 in total. According to generally accepted accounting principles, inventoriable cost per unit of Big would be ________.
A) $17.00 per unit
B) $20.00 per unit
C) $29.00 per unit
D) $27.00 per unit
Answer: C
Explanation: The inventoriable cost as per GAAP is $29.00 ($3 + $14 + $10 + ($26,000 / 13,000 units)). As per GAAP, variable and fixed selling and administrative overhead costs are not inventoriable.
Diff: 2
Objective: 3
AACSB: Application of knowledge

50) The use of activity-based budgeting is growing because of ________.
A) the increased use of activity-based costing
B) the increased use of kaizen costing
C) increases in work-in-process inventory
D) increases in direct materials inventory
Answer: A
Diff: 1
Objective: 3
AACSB: Analytical thinking

51) Activity-based budgeting would separately estimate ________.
A) the cost of overhead for a department
B) a plant-wide cost-driver rate
C) the cost of a setup activity
D) All of these answers are correct.
Answer: C
Diff: 2
Objective: 3
AACSB: Analytical thinking

52) Activity-based-costing analysis makes no distinction between ________.
A) direct-materials inventory and work-in-process inventory
B) short-run variable costs and short-run fixed costs
C) parts of the supply chain
D) components of the value chain
Answer: B
Diff: 3
Objective: 3
AACSB: Analytical thinking

53) Activity-based budgeting makes it easier to ________.
A) determine a rolling budget
B) prepare pro forma financial statements
C) determine how to reduce costs
D) execute a financial budget
Answer: C
Diff: 3
Objective: 3
AACSB: Analytical thinking

54) Which of the following statements is true about activity-based budgeting?
A) activity-based budgeting estimates total costs more accurately than cost-based budgeting
B) activity-based budgeting provides more detailed information than cost-based budgeting
C) activity-based budgeting is cheaper than cost-based budgeting
D) activity-based budgeting is simpler to implement than cost-based budgeting
Answer: B
Diff: 3
Objective: 3
AACSB: Analytical thinking

55) Activity-based budgeting ________.
A) uses one cost driver such as direct labor-hours
B) uses only output-based cost drivers such as units sold
C) focuses on activities necessary to produce and sell products and services
D) classifies costs by functional area within the value chain
Answer: C
Diff: 1
Objective: 3
AACSB: Analytical thinking

56) Which one of the following budgets would be prepared using activity based budgeting techniques?
A) direct materials purchase budget
B) revenues budget
C) manufacturing overhead cost budget
D) production budget
Answer: C
Diff: 2
Objective: 3
AACSB: Analytical thinking

57) A rolling budget is the same as a continuous budget.
Answer: TRUE
Diff: 2
Objective: 3
AACSB: Analytical thinking

58) Cost of goods sold budget is calculated as follows: beginning finished-goods inventory +cost of goods manufactured - ending finished-goods inventory
Answer: TRUE
Explanation: C
Diff: 2
Objective: 3
AACSB: Analytical thinking

59) Preparation of the budgeted balance sheet is the final step in preparing the operating budget.
Answer: FALSE
Explanation: Preparation of the budgeted income statement is the final step in preparing the operating budget.
Diff: 1
Objective: 3
AACSB: Analytical thinking

60) A company usually prepares a budget for nonmanufacturing costs after preparing all operating budgets.
Answer: FALSE
Explanation: A company usually prepares a budget for nonmanufacturing costs along with operating budgets.
Diff: 2
Objective: 3
AACSB: Analytical thinking

61) The cost of goods sold budget is calculated by deducting beginning finished-goods from cost of goods available for sale.
Answer: FALSE
Explanation: The cost of goods sold budget is calculated by deducting ending finished-goods from cost of goods available for sale.
Diff: 2
Objective: 3
AACSB: Analytical thinking

62) Data from the revenues budget is utilized in the production budget.
Answer: TRUE
Diff: 2
Objective: 3
AACSB: Analytical thinking

63) Cost-based budgeting is a budgeting method that focuses on the budgeted cost of the activities necessary to produce and sell products and services.
Answer: FALSE
Explanation: Activity-based budgeting is a budgeting method that focuses on the budgeted cost of the activities necessary to produce and sell products and services.
Diff: 2
Objective: 3
AACSB: Analytical thinking

64) The production cost budget identifies how each product is manufactured and specifies all the materials, the quantity of materials in each finished product, and the work centers where the operations will be performed.
Answer: FALSE
Explanation: The bill of materials identifies how each product is manufactured, specifying all materials, the sequence in which the materials are used, the quantity of materials in each finished unit, and the work centers where the operations are performed.
Diff: 2
Objective: 3
AACSB: Analytical thinking

65) The manufacturing labor budget depends on wage rates, production methods, and hiring plans.
Answer: TRUE
Diff: 2
Objective: 3
AACSB: Analytical thinking

66) The revenues budget is prepared after all other operating budgets are prepared as it is at that point that the amount of projected expenses are known and so a target revenue can be calculated to cover those expenses and provide a target profit.
Answer: FALSE
Explanation: The revenues budget is generally the starting point for preparing operating budgets and is generally the first operating budget to be prepared.
Diff: 3
Objective: 3
AACSB: Analytical thinking

67) Activity-based budgeting, with its focus on cost drivers and the cost of activities, provides better decision-making information than budgeting based solely on output-based cost drivers (units produced, units sold, or revenues).
Answer: TRUE
Diff: 2
Objective: 3
AACSB: Analytical thinking

68) Activity-based costing analysis takes a long-run perspective and treats all activity costs as variable costs.
Answer: TRUE
Diff: 3
Objective: 3
AACSB: Analytical thinking

69) As budgeting is not a cross-functional activity, it tends to be accurate and reliable with regard to forecasts.
Answer: FALSE
Explanation: Budgeting is a cross-functional activity involving inputs from different business functions of the value chain.
Diff: 1
Objective: 3
AACSB: Analytical thinking

70) Activity-based budgeting would permit the use of multiple drivers and multiple cost pools in the budgeting process.
Answer: TRUE
Diff: 2
Objective: 3
AACSB: Analytical thinking

71) Listed below are elements of the master budget. Determine whether each budget is an operating budget or a financial budget. Place an O for operating budget or F for a financial budget.

1. Capital expenditures budget
2. Cost of goods sold budget
3. Revenues budget
4. Budgeted statement of cash flows
5. Distribution costs budget
6. Marketing costs budget
7. Cash budget
8. Direct materials cost budget
9. Budgeted balance sheet
10. Budgeted income statement

Answer:

1. F	6. O
2. O	7. F
3. O	8. O
4. F	9. F
5. O	10. O

Diff: 3
Objective: 3
AACSB: Analytical thinking

72) Prescher Company sells three products with the following seasonal sales pattern:

	Products		
Quarter	**A**	**B**	**C**
1	40%	30%	10%
2	30%	20%	30%
3	20%	20%	50%
4	10%	30%	10%

The annual sales budget shows forecasts for the different products and their expected selling price per unit to be as follows:

Product	**Units**	**Selling Price**
A	50,000	$ 16
B	125,000	40
C	62,500	24

Required:
Prepare a sales budget, in units and dollars, by quarters for the company for the coming year.

Answer:	**First Quarter**	**Second Quarter**	**Third Quarter**	**Fourth Quarter**	**Total**
Product A					
Sales (in units)	20,000	15,000	10,000	5,000	50,000
× Price per unit	$16	$16	$16	$16	$16
Sales (in dollars)	$320,000	$240,000	$160,000	$80,000	$800,000
Product B					
Sales (in units)	37,500	25,000	25,000	37,500	125,000
× Price per unit	$40	$40	$40	$40	$40
Sales (in dollars)	$1,500,000	$1,000,000	$1,000,000	$1,500,000	$5,000,000
Product C					
Sales (in units)	6,250	18,750	31,250	6,250	62,500
× Price per unit	$24	$24	$24	$24	$24
Sales (in dollars)	$150,000	$450,000	$750,000	$150,000	$1,500,000
Total sales	$1,970,000	$1,690,000	$1,910,000	$1,730,000	$7,300,000

Diff: 2
Objective: 3
AACSB: Application of knowledge

73) Lubriderm Corporation has the following budgeted unit sales for the next six-month period:

Month	Unit Sales
June	90,000
July	120,000
August	210,000
September	150,000
October	180,000
November	120,000

There were 30,000 units of finished goods in inventory at the beginning of June. Plans are to have an inventory of finished products that equal 20% of the unit sales for the next month.

Five pounds of materials are required for each unit produced. Each pound of material costs $8. Inventory levels for materials are equal to 30% of the needs for the next month. Materials inventory on June 1 was 15,000 pounds.

Required:

a. Prepare production budgets in units for July, August, and September.

b. Prepare a purchases budget in pounds for July, August, and September, and give total purchases in both pounds and dollars for each month.

Answer:

a.

	July	August	September
Budgeted sales	120,000	210,000	150,000
Add: Required ending inventory	42,000	30,000	36,000
Total inventory requirements	162,000	240,000	186,000
Less: Beginning inventory	24,000	42,000	30,000
Budgeted production	138,000	198,000	156,000

b.

	July	August	September
Production in units	138,000	198,000	156,000
Targeted ending inventory in lbs.*	297,000	234,000	**252,000
Production needs in lbs.***	690,000	990,000	780,000
Total requirements in lbs.	987,000	1,224,000	1,032,000
Less: Beginning inventory in lbs.	****207,000	297,000	234,000
Purchases needed in lbs.	780,000	927,000	798,000
Cost ($8 per lb.)	× $8	× $8	× $8
Total material purchases	$6,240,000	$7,416,000	$6,384,000

* 0.3 times next month's needs
** (180,000 + 24,000 - 36,000) times 5 lbs. × 0.3
*** 5 lbs. times units to be produced, across row
**** (690,000 × .3) = 207,000 lbs., etc. row across
Diff: 3
Objective: 3
AACSB: Application of knowledge

74) Perry Company has provided the following information:

Month	**Budgeted Sales**
March	$200,000
April	212,000
May	204,000
June	218,000
July	210,000

In addition, the gross profit rate is 40% and the desired inventory level is 30% of next month's cost of sales.

Required:
Prepare a purchases budget for April through June.

Answer:	**April**	**May**	**June**	**Total**
Desired ending inventory	$36,720	$39,240	$37,800	$113,760
Add: Cost of goods sold	127,200	122,400	130,800	380,400
Total needed	163,920	161,640	168,600	494,160
Less: Opening inventory	38,160	36,720	39,240	114,120
Total purchases budget	$125,760	$124,920	$129,360	$380,040

Explanation: Desired ending inventory is for example for April: $204,000 × .60 × .30=$36,720.
Cost of goods sold is for example for April: $212,000 × .60 = $127,200
Opening inventory for example for April: $212,000 × .60 × .30 = $38,160
Diff: 2
Objective: 3
AACSB: Application of knowledge

75) Favata Company has the following information:

Month	Budgeted Sales
June	$60,000
July	51,000
August	40,000
September	70,000
October	72,000

In addition, the cost of goods sold rate is 70% and the desired inventory level is 30% of next month's cost of sales.

Required:
Prepare a purchases budget for July through September.

Answer:	July	Aug	Sept	Total
Desired ending inventory	$ 8,400	$14,700	$15,120	$15,120
Plus COGS	35,700	28,000	49,000	112,700
Total needed	44,100	42,700	64,120	127,820
Less beginning inventory	10,710	8,400	14,700	10,710
Total purchases	$33,390	$34,300	$49,420	$117,110

Diff: 2
Objective: 3
AACSB: Application of knowledge

76) Picture Pretty manufactures picture frames. Sales for August are expected to be 10,000 units of various sizes. Historically, the average frame requires four feet of framing, one square foot of glass, and two square feet of backing. Beginning inventory includes 1,500 feet of framing, 500 square feet of glass, and 500 square feet of backing. Current prices are $0.90 per foot of framing, $8.00 per square foot of glass, and $4 per square foot of backing. Ending inventory of materials should be 150% of beginning inventory. Purchases are paid for in the month acquired.

Required:

a. Determine the quantity of framing, glass, and backing that is to be purchased during August.

b. Determine the total costs of direct materials for August purchases.

Answer:

a.	Framing	Glass	Backing
Desired ending inventory*	2,250	750	750
Production needs (10,000 units)**	40,000	10,000	20,000
Total needs	42,250	10,750	20,750
Less: Beginning inventory	1,500	500	500
Purchases planned	40,750	10,250	20,250

b. Cost of direct materials:

Framing (40,750 × $0.90)	$36,675.00
Glass (10,250 × $8.00)	82,000.00
Backing (20,250 × $4)	81,000.00
Total	$199,675.00

* 1,500 × 1.5 = 2,250 framing
500 × 1.5 = 750 glass
500 × 1.5 = 750 backing

** 10,000 × 4 feet of framing = 40,000 feet of framing
10,000 × 1 square foot of glass = 10,000 square feet of glass
10,000 × 2 square feet of backing = 20,000 square feet of backing

Diff: 2
Objective: 3
AACSB: Application of knowledge

77) Christy Enterprises reports the year-end information from 2018 as follows:

Sales (100,000 units)	$500,000
Less: Cost of goods sold	300,000
Gross profit	200,000
Operating expenses (includes $20,000 of Depreciation)	120,000
Net income	$ 80,000

Christy is developing the 2019 budget. In 2019 the company would like to increase selling prices by 10%, and as a result expects a decrease in sales volume of 5%. Cost of goods sold as a percentage of sales is expected to increase to 62%. Other than depreciation, all operating costs are variable.

Required:
Prepare a budgeted income statement for 2019.
Answer: Christy Enterprises
Budgeted Income Statement
For the Year 2019

Sales (95,000 × $5.50)	$522,500
Cost of goods sold (2019 sales × 62%)	323,950
Gross profit	198,550
Less: Operating expenses [($1.00 × 95,000] + $20,000)	115,000
Net income	$ 83,550

Diff: 2
Objective: 3
AACSB: Application of knowledge

78) Describe operating and financial budgets and give at least two examples of each discussed in the textbook.
Answer: Operating budgets specify the expected outcomes of any selling, manufacturing, purchasing, labor management, R&D, marketing, distribution, customer service, and administrative activities during the planning period. Operations personnel use these plans to guide and coordinate activities during the planning period.

Examples of operating budgets include the revenues budget, production budget, direct materials costs budget, direct manufacturing labor costs budget, manufacturing overhead budget, and budgets for R&D, marketing, distribution, customer service, and administrative activities.

Financial budgets are used to evaluate the financial consequences of a proposed decision.

Examples of financial budgets include the capital expenditures budget, cash budget, budgeted balance sheet, and the budgeted statement of cash flows.
Diff: 2
Objective: 3
AACSB: Analytical thinking

79) Discuss the importance of the sales forecast and items that influence its accuracy.
Answer: All other budgets are based on information from the sales forecast.

The sales forecast is a challenge to predict because its accuracy depends on the ability to forecast the state of the general economy, changes in the industry, actions of the competition, and developments in technology. Each of these items affects individual products or product lines and are quantified and aggregated to obtain the sales forecast.
Diff: 2
Objective: 3
AACSB: Analytical thinking

80) Rolling budgets help management to ________.
A) better review the past calendar year
B) deal with a 5-year time frame
C) focus on the upcoming budget period
D) rigidly administer the budget
Answer: C
Diff: 2
Objective: 3
AACSB: Analytical thinking

6.4 Objective 6.4

1) Financial planning models:
A) are primarily used to evaluate the differences between actual and planned volume
B) are not part of sensitivity analysis
C) are mathematical representations of the relationships among factors such as operating and financing activities that affect the budget
D) allow for analysis of changes in predicted data but not the other underlying assumptions of the budget
Answer: C
Diff: 2
Objective: 4
AACSB: Analytical thinking

2) Financial planning software packages assist management with ________.
A) assigning responsibility to various levels of management
B) identifying the target customer
C) sensitivity analysis in their planning and budgeting activities
D) achieving greater commitment from lower management
Answer: C
Diff: 2
Objective: 4
AACSB: Analytical thinking

3) ERP systems store vast quantities of information about the materials, machines and equipment, labor, power, maintenance, and setups needed to manufacture different products. This helps simplify the budgeting process as ERP systems ________.
A) can quickly calculate the manufacturing and nonmanufacturing costs based on a given sales quantity
B) automatically identify and record changes in processes involved in producing products
C) identify which underlying assumptions are likely to change
D) always use a rolling budget ensuring that a budget is always available for a specified future period
Answer: A
Diff: 1
Objective: 4
AACSB: Analytical thinking

4) When performing a sensitivity analysis, if the selling price per unit is increased, then the ________.
A) per unit fixed administrative costs will increase
B) per unit direct materials purchase price will increase
C) total volume of sales will increase
D) total costs for sales commissions and other nonmanufacturing variable costs will increase
Answer: D
Diff: 3
Objective: 4
AACSB: Analytical thinking

5) Sensitivity analysis helps managers evaluate risks ________.
A) by showing the effects of changes to the original data or an underlying assumption
B) by identifying inconsistencies in underlying assumptions and actual conditions
C) by removing the effects of foreign currency exposure and other uncontrollable factors
D) by identifying gaps in the production process using information on setups needed to manufacture products
Answer: A
Diff: 3
Objective: 4
AACSB: Analytical thinking

6) Advanced Enterprises reports year-end information from 2018 as follows:

Sales (161,000 units)	$961,000
Cost of goods sold	644,000
Gross margin	317,000
Operating expenses	264,000
Operating income	$53,000

Advanced is developing the 2019 budget. In 2019 the company would like to increase selling prices by 13.5%, and as a result expects a decrease in sales volume of 9%. All other operating expenses are expected to remain constant. Assume that cost of goods sold is a variable cost and that operating expenses are a fixed cost.

What is budgeted sales for 2019?
A) $1,090,735
B) $961,000
C) $992,569
D) $874,510
Answer: C
Explanation: Budgeted sales = $961,000 × 1.135 × 0.91 = $992,569
Diff: 3
Objective: 4
AACSB: Application of knowledge

7) Advanced Enterprises reports year-end information from 2018 as follows:

Sales (160,750 units)	$965,000
Cost of goods sold	643,000
Gross margin	322,000
Operating expenses	267,000
Operating income	$55,000

Advanced is developing the 2019 budget. In 2019 the company would like to increase selling prices by 12.5%, and as a result expects a decrease in sales volume of 9%. All other operating expenses are expected to remain constant. Assume that cost of goods sold is a variable cost and that operating expenses are a fixed cost.

What is budgeted cost of goods sold for 2019?
A) $723,375
B) $585,130
C) $700,870
D) $643,000
Answer: B
Explanation: Cost of goods sold in 2018 per unit: $643,000/160,750 units = $4 per unit
Number of units sold in 2019 = 160,750 × 0.91 = 146,282.5 units × $4 per unit = $585,130.
Diff: 3
Objective: 4
AACSB: Application of knowledge

8) Advanced Enterprises reports year-end information from 2018 as follows:

Sales (160,250 units)	$968,000
Cost of goods sold	641,000
Gross margin	327,000
Operating expenses	263,000

Operating income $\underline{\$64,000}$

Advanced is developing the 2019 budget. In 2019 the company would like to increase selling prices by 14.5%, and as a result expects a decrease in sales volume of 9%. All other operating expenses are expected to remain constant. Assume that cost of goods sold is a variable cost and that operating expenses are a fixed cost.

Should Advanced increase the selling price in 2019?
A) Yes, because operating income increases for 2019.
B) Yes, because sales revenue increases for 2019.
C) No, because sales volume decreases for 2019.
D) No, because gross margin decreases for 2019.
Answer: A
Explanation: Yes, because it would result in an increase in operating income compared to 2018. The 2019 operating income would be: $1,008,608 -$583,310 (COGS)-$263,000 (operating expenses, which are fixed) = $162,298 compared to $64,000 in 2018.
Diff: 3
Objective: 4
AACSB: Application of knowledge

9) Violet Sales Corp, reports the year-end information from 2019 as follows:

Sales (35,500 units)	$284,000
Cost of goods sold	105,000
Gross margin	179,000
Operating expenses	152,000
Operating income	$27,000

Violet is developing the 2019 budget. In 2019 the company would like to increase selling prices by 3.5%, and as a result expects a decrease in sales volume of 14%. All other operating expenses are expected to remain constant. Assume that cost of goods sold is a variable cost and that operating expenses are a fixed cost.

What is budgeted sales for 2019? (Round interim calculations to the nearest cent and the final answer to the nearest dollar.)
A) $293,940
B) $252,788
C) $335,092
D) $284,001
Answer: B
Explanation: Budgeted sales in 2019: Selling prices in 2018 were $8 per unit ($284,000/35,500 units); increase selling price by 3.5% in 2019 means new selling price per unit in 2019 is $8.28 per unit; 2019 sales volume will be 35,500 units × 0.86 = 30,530 units times $8.28 per unit = $252,788
Diff: 3
Objective: 4
AACSB: Application of knowledge

10) Violet Sales Corp, reports the year-end information from 2019 as follows:

Sales ($35,625 units)	285,000
Cost of goods sold	106,000
Gross margin	179,000
Operating expenses	158,000
Operating income	21,000

Violet is developing the 2019 budget. In 2019 the company would like to increase selling prices by 3.5%, and as a result expects a decrease in sales volume of 14%. All other operating expenses are expected to remain constant. Assume that cost of goods sold is a variable cost and that operating expenses are a fixed cost.

What is budgeted cost of goods sold for 2019?
A) $91,160
B) $109,710
C) $14,840
D) $253,679
Answer: A
Explanation: Budgeted cost of goods sold = $106,000 × 0.86 = $91,160
Diff: 3
Objective: 4
AACSB: Application of knowledge

11) Violet Sales Corp, reports the year-end information from 2018 as follows:

Sales (35,625 units)	$285,000
Cost of goods sold	116,000
Gross margin	169,000
Operating expenses	154,000
Operating income	$15,000

Violet is developing the 2019 budget. In 2019 the company would like to increase selling prices by 3.5%, and as a result expects a decrease in sales volume of 14%. All other operating expenses are expected to remain constant. Assume that cost of goods sold is a variable cost and that operating expenses are a fixed cost.

Should Violet increase the selling price in 2019?
A) Yes, because sales revenue increases for 2019.
B) Yes, because gross margin increases for 2019.
C) No, because sales volume decreases for 2019.
D) No, because operating income decreases for 2019.
Answer: D
Explanation: $253,678.50 – $99,760.00 = $153,918.50 (Gross margin); $153,918.50 – $154,000 = -$81.50 (Operating income). No, because there would be a decrease in operating income compared to 2019.
Diff: 3
Objective: 4
AACSB: Application of knowledge

12) Computer-based systems, like ERP, help managers budget for all manufacturing costs but lack the ability to help managers budget for non-manufacturing costs.
Answer: FALSE
Explanation: Computer-based systems, like ERP, not only help managers budget for manufacturing costs but also for non-manufacturing costs.
Diff: 2

Objective: 4
AACSB: Analytical thinking

13) Rolling budgets are constantly updated to reflect the latest cost and revenue information.
Answer: TRUE
Diff: 1
Objective: 4
AACSB: Analytical thinking

14) Most computer-based financial planning models have difficulty incorporating sensitivity (what-if) analysis.
Answer: FALSE
Explanation: Computer-based financial planning models easily assist management with sensitivity (what-if) analysis.
Diff: 2
Objective: 4
AACSB: Analytical thinking

15) Sensitivity analysis is a useful tool that helps managers evaluate risks.
Answer: TRUE
Diff: 2
Objective: 4
AACSB: Analytical thinking

16) Computer-based systems, such as ERP systems, cannot perform calculations for financial planning models.
Answer: FALSE
Explanation: Managers can use computer-based systems, such as enterprise resource planning (ERP) systems, to perform calculations for financial planning models.
Diff: 2
Objective: 4
AACSB: Analytical thinking

17) To determine the predicted results, such as the change in budgeted operating income if there was a decrease in the selling price of a product by 5% and an increase in material costs of 3%.
Answer: TRUE
Diff: 2
Objective: 4
AACSB: Analytical thinking

18) Explain what is meant by sensitivity analysis in budgeting, and discuss how managers might use sensitivity analysis in practice.
Answer: Sensitivity analysis is a "what-if" technique that examines how results will change if the original predicted data are not achieved or if an underlying assumption changes. Managers often use financial planning models, which are mathematical representations of relationships among the factors that influence the master budget.

It is possible, using these models, to examine the financial impact of one or more parameters that influence a master budget, for example selling price and material cost. Management could consider three levels of each of these two parameters, resulting in nine scenarios of different selling prices and material costs. The financial model could then present a master budget based on each of these changes, and demonstrate the financial impact on the original data given changes in selling prices and/or material costs. Management could use these predictions to make contingency plans, change their strategies, or simply update the budgets as environmental conditions change.
Diff: 2
Objective: 4
AACSB: Analytical thinking

6.5 Objective 6.5

1) Which of the following is true of responsibility accounting?
A) It is a system that measures the plans, budgets, actions, and actual results of a responsibility center.
B) It is an arrangement of lines of responsibility and authority within a responsibility center.
C) It explicitly incorporates continuous improvement and changes due to learning curve.
D) It examines how a result will change if the original plan is not achieved.
Answer: A
Diff: 2
Objective: 5
AACSB: Analytical thinking

2) Which of the following departments is most likely to be a cost center?
A) sales department of a company selling industrial tools
B) call center of a company that serves customers and cross-sells other products
C) maintenance department of a luxury resort
D) research department of a company providing consultancy services
Answer: C
Diff: 2
Objective: 5
AACSB: Analytical thinking

3) Which of the following departments is most likely to be a profit center?
A) the accounting department of a company that also assists in budgeting process
B) the research and development department of a company
C) the sales department of a company whose objective is to maximize the revenues
D) the consulting department of a law firm
Answer: D
Diff: 2
Objective: 5
AACSB: Analytical thinking

4) A quality control manager of a golf ball maker is most likely to be responsible for a(n) ________.
A) revenue center
B) investment center
C) cost center
D) profit center
Answer: C

Diff: 1
Objective: 5
AACSB: Analytical thinking

5) The district director of 5 mortgage origination offices staffed by bank associates who cold call potential customers in an attempt to gain home mortgage and home equity loan business is most likely responsible for a(n) ________.
A) revenue center
B) investment center
C) cost center
D) profit center
Answer: A
Diff: 1
Objective: 5
AACSB: Analytical thinking

6) A regional manager of a restaurant chain in charge of finding additional locations for expansion is most likely responsible for a(n) ________.
A) revenue center
B) investment center
C) cost center
D) profit center
Answer: B
Diff: 1
Objective: 5
AACSB: Analytical thinking

7) Annette has been recently promoted to head of her department. She is responsible for activities that influence revenues and is responsible for controlling the expenses of her department. She is held responsible for maximizing the profits of the department and to ensure that the earnings are ploughed back into the business. Annette is most likely to head a (n) ________.
A) revenue center
B) investment center
C) cost center
D) profit center
Answer: B
Diff: 1
Objective: 5
AACSB: Analytical thinking

8) A manager of a revenue center is responsible ________.
A) for only the profits of his center
B) for investments, revenues, and costs
C) for only the sales and fees generated by his center
D) for the revenues,costs, and profits of his center
Answer: C
Diff: 2
Objective: 5
AACSB: Analytical thinking

9) A controllable cost is any cost that can be ________ by a responsibility center manager for a period of time.
A) controlled
B) influenced
C) segregated
D) excluded
Answer: B
Diff: 2
Objective: 5
AACSB: Analytical thinking

10) Which of the following statements is true about responsibility accounting statements?
A) Responsibility accounting excludes controllable costs.
B) Responsibility accounting segregates fixed costs and variable costs.
C) Responsibility accounting excludes fixed costs and variable costs.
D) Responsibility accounting segregates uncontrollable costs from controllable costs.
Answer: D
Diff: 2
Objective: 5
AACSB: Analytical thinking

11) Which of the following is the fundamental purpose of responsibility accounting?
A) to penalize managers for inefficiency
B) to gather information that will enable future improvement
C) to create an efficient and centralized organization
D) to evaluate the performance of managers
Answer: B
Diff: 2
Objective: 5
AACSB: Analytical thinking

12) A company using responsibility accounting system decides to exclude all uncontrollable costs from a manager's performance report. Jenson is the machine supervisor. Which of the following costs will impact Jenson's performance report?
A) rent and taxes paid on by the company
B) cost of materials used in manufacture
C) direct labor cost
D) cost of power consumed by the plant
Answer: C
Diff: 2
Objective: 5
AACSB: Analytical thinking

13) Responsibility accounting ________.
A) emphasizes controllability
B) focuses on who should be asked about the information
C) attempts to assign blame for problems to a specific manager
D) attempts to create a decentralized organization
Answer: B
Diff: 3
Objective: 5
AACSB: Analytical thinking

14) A primary consideration in assigning a cost to a responsibility center is ________.
A) whether the cost is fixed or variable
B) whether the cost is direct or indirect
C) who can best control the change in that cost
D) where in the organizational structure the cost was incurred
Answer: C
Diff: 3
Objective: 5
AACSB: Analytical thinking

15) A responsibility center is a part, segment, or subunit of an organization, whose manager is accountable for a specified set of activities that impact revenues, costs, or profits and in the case of an investment center, profits.
Answer: TRUE
Diff: 1
Objective: 5
AACSB: Analytical thinking

16) Decentralized operations organized by brand or product line might result in some inefficiencies as support functions may be duplicated.
Answer: TRUE
Diff: 2
Objective: 5
AACSB: Analytical thinking

17) In a revenue center, a manager is responsible for investments, revenues, and costs.
Answer: FALSE
Explanation: In a revenue center, a manager is responsible for only revenues.

Diff: 1
Objective: 5
AACSB: Analytical thinking

18) A packaging department is most likely a profit center.
Answer: FALSE
Explanation: A packaging department is most likely a *cost* center.
Diff: 2
Objective: 5
AACSB: Analytical thinking

19) Variances between actual and budgeted amounts inform management about performance relative to the budget.
Answer: TRUE
Diff: 1
Objective: 5
AACSB: Analytical thinking

20) Variances that are calculated frequently and in a timely manner can provide early warnings to management so corrective action can be taken.
Answer: TRUE
Diff: 1
Objective: 5
AACSB: Analytical thinking

21) A responsibility center is a part, segment, or subunit of an organization whose manager is accountable for a specified set of activities.
Answer: TRUE
Diff: 2
Objective: 5
AACSB: Analytical thinking

22) Management will most likely behave the same way if a department is structured as a cost center or if the same department is structured as a profit center.
Answer: FALSE
Explanation: Management will most likely behave differently if a department is structured as a cost center than if the same department is structured as a profit center due to the incentives to control costs as well as revenues in a profit center.
Diff: 2
Objective: 5
AACSB: Analytical thinking

23) Responsibility accounting focuses on control, NOT on information and knowledge.
Answer: FALSE
Explanation: Responsibility accounting focuses on information and knowledge, not on control.
Diff: 2
Objective: 5
AACSB: Analytical thinking

24) The sales department in any organization is usually a profit center.
Answer: FALSE
Explanation: The sales department is a revenue center because the sales manager is responsible primarily for revenues, and the department's budget is primarily based on revenues.
Diff: 2
Objective: 5
AACSB: Analytical thinking

25) Distinguish between controllable and uncontrollable aspects of revenue and costs. Can a manager totally control all revenue and costs? Why or why not?
Answer: Although no revenue or cost can be totally controlled, a cost or revenue is a controllable item when a manager has significant influence over the amount of a cost or revenue. It is uncontrollable if this is not the case. A manager's ability to influence costs and revenues depends on two factors: (1) the manager's level of authority, and (2) the time period involved. Costs and revenue contracts, the economic costs of disposing of fixed assets, and the economy are three conditions that are likely to affect the period of time during which an item is not controllable.
Diff: 2
Objective: 5
AACSB: Analytical thinking

6.6 Objective 6.6

1) The Japanese use the term kaizen when referring to________.
A) scarce resources
B) pro forma financial statements
C) continuous improvement
D) the sales forecast
Answer: C
Diff: 1
Objective: 6
AACSB: Analytical thinking

2) Kaizen refers to incorporating cost reductions ________.
A) in each successive budgeting period
B) in each successive sales forecast
C) in all customer service centers
D) in all areas of the organization
Answer: A
Diff: 2
Objective: 6
AACSB: Analytical thinking

3) Tom Magic Company manufactures various kinds of toys for different age groups. The company's flagship product is Rx. The company currently requires 8.50 labor hours to manufacture per unit of Rx. The company believes that because of numerous small improvements in the process, it will require 0.10 labor-hours less and hence will only 8.40 labor-hours in the next quarter. It will require 8.35 and 8.25 labor-hours in third and fourth quarter. The company has adopted ________.
A) activity based budgeting
B) kaizen budgeting
C) zero-based budgeting
D) cost-based budgeting
Answer: B
Diff: 3
Objective: 6
AACSB: Analytical thinking

4) Kaizen budgeting involves ________.
A) large cost reductions
B) management directed improvements
C) continual small cost reductions
D) continual small revenue increases
Answer: C
Diff: 3
Objective: 6
AACSB: Analytical thinking

5) Kaizen budgeting is driven by ________.
A) management
B) employees
C) stockholders
D) creditors
Answer: B
Diff: 3
Objective: 6
AACSB: Analytical thinking

6) Sherry and John Enterprises are using the kaizen approach to budgeting for 2018. The budgeted income statement for January 2018 is as follows:

Sales (168,000 units)	$1,080,000
Less: Cost of goods sold	650,000
Gross margin	430,000
Operating expenses	330,000
(includes $60,000 of fixed costs)	
Operating income	$100,000

Under the kaizen approach, cost of goods sold and variable operating expenses are budgeted to decline by 1% per month.

What is budgeted cost of goods sold for March 2018?
A) $637,065
B) $656,500
C) $650,000
D) $643,500
Answer: A
Explanation: Cost of goods sold in February is $643,500 ($650,000 × 0.99) and March = $637,065 ($643,500 × 0.99).
Diff: 3
Objective: 6
AACSB: Application of knowledge

7) Sherry and John Enterprises are using the kaizen approach to budgeting for 2018. The budgeted income statement for January 2018 is as follows:

Sales (168,000 units)	$1,060,000
Less: Cost of goods sold	620,000
Gross margin	440,000
Operating expenses	390,000
(includes $60,000 of fixed costs)	
Operating income	$50,000

Under the kaizen approach, cost of goods sold and variable operating expenses are budgeted to decline by 3% per month.

What is budgeted gross margin for March 2018?
A) $413,996
B) $426,800
C) $466,796
D) $476,642
Answer: D
Explanation: Sales = $1,060,000. The cost of goods sold for the month of March = $583,358 ($620,000 × 0.97 × 0.97). Therefore, the budgeted gross margin for March is $476,642.
Diff: 3
Objective: 6
AACSB: Application of knowledge

8) Sherry and John Enterprises are using the kaizen approach to budgeting for 2018. The budgeted income statement for January 2018 is as follows:

Sales (168,000 units)	$1,010,000
Less: Cost of goods sold	690,000

Gross margin	320,000
Operating expenses	400,000
(includes $55,000 of fixed costs)	
Operating income	-$80,000

Under the kaizen approach, cost of goods sold and variable operating expenses are budgeted to decline by 1% per month.

What is the budgeted operating income for March 2018?
A) -$18,100
B) $396,550
C) -$59,403
D) $683,100
Answer: C
Explanation: Sales = $1,010,000. The cost of goods sold = $676,269 ($690,000 × 0.99 × 0.99). Budgeted gross margin for March = $333,731. Budgeted operating expenses = $393,135 (($345,000 × 0.99 × 0.99) + $55,000). Budgeted operating income = -$59,403.
Diff: 2
Objective: 6
AACSB: Application of knowledge

9) To reduce budgetary slack management may ________.
A) incorporate stretch or challenge targets
B) use external benchmark performance measures
C) award bonuses for achieving budgeted amounts
D) reduce projected cost targets by 10% across all areas
Answer: B
Diff: 3
Objective: 6
AACSB: Analytical thinking

10) A stretch budget is a budget that ________.
A) crosses more than one responsibility center
B) represents a challenging, but achievable level of performance
C) is impossible to implement in a cost center
D) is designed to include the effects of exchange rate fluctuations
Answer: B
Diff: 2
Objective: 6
AACSB: Analytical thinking

11) Rolling budgets help in reducing budgetary slack.
Answer: TRUE
Diff: 2
Objective: 6
AACSB: Analytical thinking

12) Budgetary slack is the practice of underestimating costs so as to project an optimistic future outlook.
Answer: FALSE
Explanation: Budgetary slack is the practice of underestimating budgeted revenues or overestimating budgeted costs to make budgeted targets easier to achieve.
Diff: 1
Objective: 6
AACSB: Analytical thinking

13) Companies implementing kaizen budgeting believe that employees who actually do the job have the best knowledge of how the job can be done better.
Answer: TRUE
Diff: 1
Objective: 6
AACSB: Analytical thinking

14) The Japanese use kaizen to mean financing alternatives.
Answer: FALSE
Explanation: The Japanese use kaizen to mean *continuous improvement*.
Diff: 1
Objective: 6
AACSB: Analytical thinking

15) Kaizen budgeting does NOT make sense for cost centers.
Answer: FALSE
Explanation: Kaizen budgeting can be used in any type of responsibility center.
Diff: 2
Objective: 6
AACSB: Analytical thinking

16) Kaizen budgeting encourages dramatic improvements and substantial reduction in costs.
Answer: FALSE
Explanation: Kaizen budgeting encourages small incremental changes rather than major improvements.
Diff: 1
Objective: 6
AACSB: Analytical thinking

17) Kaizen budgeting allows for budgeting of small incremental increases in costs each budgeting period to allow for the effects of normal inflation.
Answer: FALSE
Explanation: Kaizen budgeting allows for budgeting of small incremental decreases in costs each budgeting period.
Diff: 2
Objective: 6
AACSB: Analytical thinking

18) Budgeting is a mechanical tool because the budgeting techniques are free of emotions.
Answer: TRUE
Diff: 2
Objective: 6
AACSB: Analytical thinking

19) Budgetary slack results because management sets challenging but achievable levels of expected performance.
Answer: FALSE
Explanation: Budgetary slack provides management with a hedge against unexpected adverse circumstances.
Diff: 2
Objective: 6
AACSB: Analytical thinking

20) Most ethical issues related to budgetary decisions are clear cut because at no point should pressure for performance influence budgetary decisions.
Answer: FALSE
Explanation: Some ethical issues are subtle and not clear-cut.
Diff: 2
Objective: 6
AACSB: Ethical understanding and reasoning

21) Kaizen budgeting can be applied to activities such as setups with the goal of reducing setup time and setup costs.
Answer: TRUE
Diff: 2
Objective: 6
AACSB: Analytical thinking

22) When the operating budget is used as a control device, managers are less likely to be motivated to budget higher sales than actually anticipated.
Answer: TRUE
Diff: 3
Objective: 6
AACSB: Analytical thinking

23) Budgeting based on cost for specific activities is a key building block of the master budget for companies that use the Kaizen approach.
Answer: FALSE
Explanation: Kaizen budgeting for specific activities is a key building block of the master budget for companies that use the Kaizen approach.
Diff: 3
Objective: 6
AACSB: Analytical thinking

24) Administration of budgets is free of emotions as budgets are mechanical tools.
Answer: FALSE
Explanation: Administration of budgeting requires education, persuasion, and intelligent interpretation.
Diff: 2
Objective: 6
AACSB: Analytical thinking

25) Omitting basic maintenance expenditures out of a budget could be considered unethical if the risks of a breakdown and loss are substantial.
Answer: TRUE
Diff: 2
Objective: 6
AACSB: Ethical understanding and reasoning

26) Allscott Company is developing its budgets for 2019 and, for the first time, will use the kaizen approach. The initial 2019 income statement, based on static data from 2018, is as follows:

Sales (140,000 units)	$420,000
Less: Cost of goods sold	280,000
Gross margin	140,000
Operating expenses (includes $28,000 of depreciation)	112,000
Net income	$28,000

Selling prices for 2019 are expected to increase by 8%, and sales volume in units will decrease by 10%. The cost of goods sold as estimated by the kaizen approach will decline by 10% per unit. Other than depreciation, all other operating costs are expected to decline by 5%.

Required:
Prepare a kaizen-based budgeted income statement for 2019.

Answer: Sales (126,000 × $3.24)	$408,240
Less: COGS (126,000 × $1.80)	226,800
Gross margin	181,440
Operating expenses ($28,000 + $79,800)	107,800
Net income	$ 73,640

Diff: 2
Objective: 6
AACSB: Application of knowledge

27) Steve Corporation is using the kaizen approach to budgeting for 2018. The budgeted income statement for January 2018 is as follows:

Sales (240,000 units)	$360,000
Less: Cost of goods sold	240,000
Gross margin	120,000
Operating expenses (includes $32,000 of fixed costs)	96,000
Net income	$ 24,000

Under the kaizen approach, cost of goods sold and variable operating expenses are budgeted to decline by 1% per month.

Required:
Prepare a kaizen-based budgeted income statement for March of 2018.

Answer: Sales	$360,000
Less: Cost of goods sold ($240,000 × 0.99 × 0.99)	235,224
Gross margin	124,776
Operating expenses [($64,000 × 0.99 × 0.99) + $32,000]	94,726
Net income	$ 30,050

Diff: 2
Objective: 6
AACSB: Analytical thinking

28) Describe the concept of kaizen budgeting.
Answer: Kaizen budgeting explicitly incorporates continuous improvement in cost reduction anticipated during the budget period. Much of the cost reduction arises from many small improvements rather than large one time improvements. Most of the improvements come from employee suggestions. Companies that employ kaizen budgeting create a culture where employee suggestions are valued, recognized, and rewarded.
Diff: 2
Objective: 6
AACSB: Analytical thinking

29) Describe some of the drawbacks of using the operating budget as a control device.
Answer: When the operating budget is used as a control device it can lead to behavior that is actually detrimental to the organization.

The major problem with the budget performance report is not the report itself, but rather the way it is used. In general, managers are rewarded for favorable variances, and disciplined for unfavorable variances. This encourages managers to set lax standards for both sales and costs so favorable variances result. It can also lead to "budget games."

Another drawback is that once the budget is established, if there is any variance between budget and actual, it is assumed to be because of actual. However, as we know, the budget will never be totally accurate due to the uncertainties of predicting the future.

If used properly, however, the operating budget can be a tremendous benefit to any company.
Diff: 2
Objective: 6
AACSB: Analytical thinking

30) What is budgetary slack? What are the pros and cons of building slack into the budget from the point of view of (a) an employee and (b) a senior manager?
Answer: Budgetary slack occurs when subordinates (a) ask for excess resources above and beyond what they need to accomplish budget objectives and (b) distort information by claiming they are not as efficient or effective at what they do, thus lowering management's performance expectations of them.

Employee's point of view: There are two benefits from this point of view. First, the subordinate may be able to obtain excess resources to achieve desired goals. This may take a lot of pressure off the subordinate and reduce job anxiety. Second, the subordinate may be able to convince senior management to lower their work expectations of him or her. This may also lead to lower pressure on the subordinate to perform. Both of these types of slack building are designed to reduce job stress for the subordinate. However, if incentives are graduated in such a way that achieving higher and higher goals provides the subordinate with more and more compensation in the form of bonuses, then the subordinate may lose income by selecting lower goals.

Senior management's point of view: When subordinates build in slack, they are either using unnecessary resources to achieve a goal that they should have been able to achieve with fewer resources, or they are understating their performance capabilities. Thus, the organization is either not running as efficiently as it can, or is losing potential productivity from employees who are not working as hard as they can. In some cases, senior management may believe that subordinates build in slack to relieve job pressure. If burnout of employees has been happening in the organization, then perhaps senior management may be more forgiving and view some slack building as necessary to keep their employees from quitting.
Diff: 2
Objective: 6
AACSB: Analytical thinking

31) How is budgeting for a multinational corporation different than budgeting for a corporation that is strictly domestic?
Answer: Budgeting for a multinational corporation is made far more complex than budgeting for a domestic corporation because the multinational corporation often has subunits operating in many different countries, resulting in less familiar business environments and many different currencies.

Multinational corporations need to understand many different business environments with significant political, legal, and economic environments.

Multinational companies earn their revenues and incur their expenses in many different currencies, and must report their results a single currency. Additionally, management accountants in different countries need to budget for foreign exchange rates and anticipate changes that might take place during the year in the face of constantly fluctuating exchange rates.
Diff: 2
Objective: 6
AACSB: Analytical thinking

6.7 Objective 6.7

1) Which of the following is a reason why budgets in multinational companies are not used to evaluate the firm's performance relative to its budgets?
A) Evaluations based on budgets can be meaningless due to factors such as exchange rate risk and other volatility.
B) Evaluations based on budgets are not possible because of cultural differences in the budgeting approach.
C) Evaluations based on relative regional performance are considered more meaningful as compared to evaluations against budgets.
D) Evaluations based on budgets are harder when managers use sophisticated techniques to minimize foreign currency exposure.
Answer: A
Diff: 1
Objective: 7
AACSB: Analytical thinking

2) Which of the following statements is true in the case of budgeting for multinational companies?
A) While budgeting for multinational companies, managers consider difference in tax statutes as an uncontrollable factor.
B) While budgeting for multinational companies, managers do not account for foreign exchange fluctuations as the operating profits are reported in different currencies.
C) While budgeting for multinational companies, managers must be aware that budgets will not be used for evaluating performance.
D) While budgeting for multinational companies, managers are not concerned about the domestic factors of the different countries in which they operate.
Answer: C
Diff: 2
Objective: 7
AACSB: Analytical thinking

3) Some companies are budgeting annual carbon emissions of their operations after considering an annual global emissions budget, a share for individual sectors of the economy, and what a reasonable annual allocation would be for the company.
Answer: TRUE
Diff: 2
Objective: 7
AACSB: Analytical thinking

4) The possibility of exchange rate fluctuations does NOT influence the budgeting procedures in a multinational corporation.
Answer: FALSE
Explanation: The possibility of exchange rate fluctuations influences the budgeting procedures in a multinational corporation.
Diff: 2
Objective: 7
AACSB: Analytical thinking

5) In a multinational company, budgeting is primarily done to evaluate the firm's performance relative to its budgets.
Answer: FALSE
Explanation: In case of a multinational company, budgeting is not done so much to evaluate the firm's performance relative to its budgets as it is to help managers adapt their plans and coordinate the actions a company needs to take.
Diff: 2
Objective: 7
AACSB: Analytical thinking

6.8 Objective 6.A

1) The ________ is required to prepare the cash budget of an organization.
A) statement of shareholders' equity
B) budgeted balance sheet
C) capital expenditures budget
D) budgeted statement of cash flow
Answer: C
Diff: 2
Objective: A
AACSB: Analytical thinking

2) In the cash budget, the total cash available for needs is calculated using which of the following formulas?
A) ending cash + receipts
B) beginning cash + receipts
C) beginning cash + receipts - disbursements
D) beginning cash + projected depreciation expense
Answer: B
Diff: 2
Objective: A
AACSB: Analytical thinking

3) In the cash budget, the cash excess (surplus) or deficiency (deficit) is calculated using which of the following formulas?
A) beginning cash + receipts - disbursements
B) beginning cash + receipts - disbursements - minimum cash balance + loan proceeds
C) beginning cash + receipts - disbursements - minimum cash balance
D) total cash needed - cash disbursements

Answer: C
Diff: 2
Objective: A
AACSB: Analytical thinking

4) The cash budget is a schedule of expected cash receipts and disbursements that ________.
A) requires an aging of accounts receivable and accounts payable
B) is a self-liquidating cycle
C) is prepared immediately after the sales forecast
D) predicts the effect on the cash position at given levels of operations
Answer: D
Diff: 1
Objective: A
AACSB: Analytical thinking

5) The following information pertains to Monroe Company:

Month	Sales	Purchases
January	$67,000	$32,000
February	$88,000	$45,000
March	$100,000	$58,000

· Cash is collected from customers in the following manner:
Month of sale 30%
Month following the sale 70%
· 40% of purchases are paid for in cash in the month of purchase, and the balance is paid the following month.
· Labor costs are 20% of sales. Other operating costs are $37,000 per month (including $8,000 of depreciation). Both of these are paid in the month incurred.
· The cash balance on March 1 is $10,000. A minimum cash balance of $6,000 is required at the end of the month. Money can be borrowed in multiples of $1,000.

How much cash will be collected from customers in March?
A) $96,400
B) $91,600
C) $100,000
D) $118,000
Answer: B
Explanation: ($88,000 × 70%) + ($100,000 × 30%) = $91,600
Diff: 2
Objective: A
AACSB: Analytical thinking

6) The following information pertains to Monroe Company:

Month	Sales	Purchases
January	$63,000	$40,000
February	$86,000	$40,000
March	$102,000	$56,000

· Cash is collected from customers in the following manner:
Month of sale 35%
Month following the sale 65%
· 40% of purchases are paid for in cash in the month of purchase, and the balance is paid the following month.
· Labor costs are 30% of sales. Other operating costs are $38,000 per month (including

$8,000 of depreciation). Both of these are paid in the month incurred.

· The cash balance on March 1 is $8,000. A minimum cash balance of $6,000 is required at the end of the month. Money can be borrowed in multiples of $1,000.

How much cash will be paid to suppliers in March?
A) $46,400
B) $56,000
C) $96,000
D) $102,400
Answer: A
Explanation: ($40,000 × 60%) + ($56,000 × 40%) = $46,400
Diff: 2
Objective: A
AACSB: Analytical thinking

7) The following information pertains to Monroe Company:

Month	Sales	Purchases
January	$62,000	$33,000
February	$84,000	$42,000
March	$101,000	$61,000

· Cash is collected from customers in the following manner:
Month of sale 40%
Month following the sale 60%

· 45% of purchases are paid for in cash in the month of purchase, and the balance is paid the following month.

· Labor costs are 30% of sales. Other operating costs are $38,000 per month (including $10,000 of depreciation). Both of these are paid in the month incurred.

· The cash balance on March 1 is $8,000. A minimum cash balance of $6,000 is required at the end of the month. Money can be borrowed in multiples of $1,000.

How much cash will be disbursed in total in March?
A) $58,300
B) $68,300
C) $108,850
D) $118,850
Answer: C
Explanation: ($42,000 × 55%) + ($61,000 × 45%) + ($101,000 × 30%) + ($38,000 - $10,000) = $108,850
Diff: 2
Objective: A
AACSB: Analytical thinking

8) The following information pertains to Monroe Company:

Month	Sales	Purchases
January	$68,000	$35,000
February	$87,000	$46,000
March	$106,000	$58,000

· Cash is collected from customers in the following manner:

Month of sale	30%
Month following the sale	70%

· 45% of purchases are paid for in cash in the month of purchase, and the balance is paid the following month.

· Labor costs are 20% of sales. Other operating costs are $32,000 per month (including $8,000 of depreciation). Both of these are paid in the month incurred.

· The cash balance on March 1 is $8,900. A minimum cash balance of $6,000 is required at the end of the month. Money can be borrowed in multiples of $1,000.

What is the ending cash balance for March?
A) $8,900
B) $5,200
C) $5,000
D) $6,000
Answer: D
Explanation: $8,900 + $92,700 - $96,600 + $1,000 = $6,000
Diff: 2
Objective: A
AACSB: Analytical thinking

9) Freemore Company has the following sales budget for the last six months of 2018:

July	$206,000	October	$181,000
August	168,000	November	203,000
September	209,000	December	185,000

Sales are immediately due, however the cash collection of sales, historically, has been as follows:
55% of sales collected in the month of sale,
35% of sales collected in the month following the sale,
7% of sales collected in the second month following the sale, and
3% of sales are uncollectible.

Cash collections for September are ________.
A) $126,710
B) $173,750
C) $188,170
D) $199,930
Answer: C
Explanation: September sales ($209,000 × 0.55) + August sales ($168,000 × 0.35) + July sales ($206,000 × 0.07) = $188,170
Diff: 2
Objective: A
AACSB: Application of knowledge

10) Freemore Company has the following sales budget for the last six months of 2018:

July	$204,000	October	$180,000
August	170,000	November	201,000
September	205,000	December	180,000

Sales are immediately due, however the cash collection of sales, historically, has been as follows:
55% of sales collected in the month of sale,
35% of sales collected in the month following the sale,
7% of sales collected in the second month following the sale, and
3% of sales are uncollectible.

What is the ending balance of accounts receivable for the end of September, assuming uncollectible balances are written off at the end of the second month following the sale?
A) $260,550
B) $134,070
C) $113,375
D) $109,250
Answer: D
Explanation: September ($205,000 × 0.45) + August ($170,000 × 0.1) =$109,250
Diff: 2
Objective: A
AACSB: Application of knowledge

11) Freemore Company has the following sales budget for the last six months of 2018:

July	$205,000	October	$187,000
August	168,000	November	200,000
September	205,000	December	182,000

Sales are immediately due, however the cash collection of sales, historically, has been as follows:
55% of sales collected in the month of sale,
35% of sales collected in the month following the sale,
7% of sales collected in the second month following the sale, and
3% of sales are uncollectible.

Cash collections for October are ________.
A) $102,850
B) $186,360
C) $199,450
D) $181,390
Answer: B
Explanation: October sales ($187,000 × 0.55) + September sales ($205,000 × 0.35) + August sales ($168,000 × 0.07) = $186,360
Diff: 2
Objective: A
AACSB: Application of knowledge

12) Estate Corp., has the following information:

Month	**Budgeted Purchases**
January	$27,600
February	29,100
March	28,500
April	29,980
May	26,780

Purchases are paid for in the following manner:
10% of the purchase amount in the month of purchase
50% of the purchase amount in the month after purchase
40% of the purchase amount in the second month after purchase

What is the expected balance in Accounts Payable as of March 31?
A) $37,290
B) $14,250
C) $2,910
D) $25,650
Answer: A
Explanation: March ($28,500 × 0.9) + February ($29,100 × 0.4) = $37,290
Diff: 2
Objective: A
AACSB: Application of knowledge

13) Estate Corp., has the following information:

Month	**Budgeted Purchases**
January	$27,100
February	29,400
March	29,400

April	30,480
May	27,580

Purchases are paid for in the following manner:
10% of the purchase amount in the month of purchase
50% of the purchase amount in the month after purchase
40% of the purchase amount in the second month after purchase

What is the expected balance in Accounts Payable as of April 30?
A) $38,220
B) $39,192
C) $29,400
D) $18,288
Answer: B
Explanation: April ($30,480 × 0.9) + March ($29,400 × 0.4) = $39,192
Diff: 2
Objective: A
AACSB: Application of knowledge

14) Estate Corp., has the following information:

Month	**Budgeted Purchases**
January	$27,600
February	29,400
March	28,500
April	30,480
May	27,680

Purchases are paid for in the following manner:
15% of the purchase amount in the month of purchase
35% of the purchase amount in the month after purchase
50% of the purchase amount in the second month after purchase

What is the expected Accounts Payable balance as of May 31?
A) $34,196
B) $33,503
C) $38,768
D) $4,572
Answer: C
Explanation: May ($27,680 × 0.85) + April ($30,480 × 0.5) = $38,768
Diff: 2
Objective: A
AACSB: Application of knowledge

15) The following information pertains to the January operating budget for Casey Corporation.

- Budgeted sales for January $201,000 and February $101,000.
- Collections for sales are 40% in the month of sale and 60% the next month.
- Gross margin is 25% of sales.
- Administrative costs are $13,000 each month.
- Beginning accounts receivable is $25,000.
- Beginning inventory is $17,000.
- Beginning accounts payable is $73,000. (All from inventory purchases.)
- Purchases are paid in full the following month.
- Desired ending inventory is 25% of next month's cost of goods sold (COGS).

For January, budgeted cash collections are ________.
A) $201,000
B) $105,400
C) $80,400
D) $25,000
Answer: B
Explanation: Budgeted cash collections = $25,000 + ($201,000 × 40%) = $105,400
Diff: 3
Objective: A
AACSB: Application of knowledge

16) The following information pertains to the January operating budget for Casey Corporation.

- Budgeted sales for January $209,000 and February $109,000.
- Collections for sales are 60% in the month of sale and 40% the next month.
- Gross margin is 35% of sales.
- Administrative costs are $10,000 each month.
- Beginning accounts receivable is $25,000.
- Beginning inventory is $23,000.
- Beginning accounts payable is $72,000. (All from inventory purchases.)
- Purchases are paid in full the following month.
- Desired ending inventory is 20% of next month's cost of goods sold (COGS).

At the end of January, budgeted accounts receivable is ________.
A) $43,600
B) $83,600
C) $125,400
D) $165,800
Answer: B
Explanation: Budgeted accounts receivable at the end of January = $209,000 × 40% = $83,600
Diff: 2
Objective: A
AACSB: Application of knowledge

17) The following information pertains to the January operating budget for Casey Corporation.

- Budgeted sales for January \$200,000 and February \$107,000.
- Collections for sales are 40% in the month of sale and 60% the next month.
- Gross margin is 25% of sales.
- Administrative costs are \$11,000 each month.
- Beginning accounts receivable is \$26,000.
- Beginning inventory is \$15,000.
- Beginning accounts payable is \$68,000. (All from inventory purchases.)
- Purchases are paid in full the following month.
- Desired ending inventory is 25% of next month's cost of goods sold (COGS).

For January, budgeted cost of goods sold is ________.
A) \$200,000
B) \$150,000
C) \$135,000
D) \$72,600
Answer: B
Explanation: Budgeted cost of goods sold = \$200,000 × 75% = \$150,000
Diff: 3
Objective: A
AACSB: Application of knowledge

18) The following information pertains to the January operating budget for Casey Corporation.

- Budgeted sales for January \$203,000 and February \$101,000.
- Collections for sales are 60% in the month of sale and 40% the next month.
- Gross margin is 25% of sales.
- Administrative costs are \$20,000 each month.
- Beginning accounts receivable is \$28,000.
- Beginning inventory is \$19,000.
- Beginning accounts payable is \$75,000. (All from inventory purchases.)
- Purchases are paid in full the following month.
- Desired ending inventory is 20% of next month's cost of goods sold (COGS).

For January, budgeted net income is ________.
A) \$50,750
B) \$30,750
C) \$101,800
D) \$61,200
Answer: B
Diff: 3
Objective: A
AACSB: Application of knowledge

19) The following information pertains to the January operating budget for Casey Corporation.

- Budgeted sales for January $209,000 and February $108,000.
- Collections for sales are 50% in the month of sale and 50% the next month.
- Gross margin is 30% of sales.
- Administrative costs are $13,000 each month.
- Beginning accounts receivable is $28,000.
- Beginning inventory is $16,000.
- Beginning accounts payable is $70,000. (All from inventory purchases.)
- Purchases are paid in full the following month.
- Desired ending inventory is 20% of next month's cost of goods sold (COGS).

For January, budgeted cash payments for purchases are ________.
A) $108,000
B) $75,600
C) $70,000
D) $49,700
Answer: C
Explanation: Accounts payable, $70,000 as stated
Diff: 2
Objective: A
AACSB: Application of knowledge

20) The following information pertains to the January operating budget for Casey Corporation.

- Budgeted sales for January $206,000 and February $109,000.
- Collections for sales are 50% in the month of sale and 50% the next month.
- Gross margin is 25% of sales.
- Administrative costs are $19,000 each month.
- Beginning accounts receivable is $29,000.
- Beginning inventory is $14,000.
- Beginning accounts payable is $74,000. (All from inventory purchases.)
- Purchases are paid in full the following month.
- Desired ending inventory is 20% of next month's cost of goods sold (COGS).

At the end of January, budgeted ending inventory is ________.
A) $5,450
B) $16,350
C) $21,800
D) $30,350
Answer: B
Explanation: Budgeted ending inventory at the end of January = $109,000 × 75% × 20% = $16,350
Diff: 3
Objective: A
AACSB: Application of knowledge

21) The cash budget is a schedule of expected cash receipts ,disbursements, and financing.
Answer: TRUE
Diff: 1
Objective: A
AACSB: Analytical thinking

22) A key type of sensitivity analysis for managers is to play "what-if" with the cash budget so as to anticipate outcomes and take steps to minimize the effects of shortfalls in cash balances.
Answer: TRUE
Diff: 1
Objective: A
AACSB: Analytical thinking

23) Russell Company has the following projected account balances for June 30, 2018:

Accounts payable	$80,000	Sales	$1,600,000
Accounts receivable	200,000	Capital stock	800,000
Depreciation, factory	48,000	Retained earnings	?
Inventories (5/31 & 6/30)	360,000	Cash	112,000
Direct materials used	400,000	Equipment, net	480,000
Office salaries	160,000	Buildings, net	800,000
Insurance, factory	8,000	Utilities, factory	32,000
Plant wages	280,000	Selling expenses	120,000
Bonds payable	320,000	Maintenance, factory	56,000

Required:

a. Prepare a budgeted income statement for June 2018

b. Prepare a budgeted balance sheet as of June 30, 2018.

Answer:

a.

Russell Company
Budgeted Income Statement
For the Month of June 2018

Sales		$1,600,000
Cost of goods sold:		
Materials used	$400,000	
Wages	280,000	
Depreciation	48,000	
Insurance	8,000	
Maintenance	56,000	
Utilities	32,000	824,000
Gross profit		776,000
Operating expenses:		
Selling expenses	$120,000	
Office salaries	160,000	280,000
Net income		$496,000

b. Russell Company
Budgeted Balance Sheet
June 30, 2018

Assets:		Liabilities and Owners' Equity:	
Cash	$ 112,000	Accounts payable	$ 80,000
Accounts receivable	200,000	Bonds payable	320,000
Inventories	360,000	Capital stock	800,000
Equipment, net	480,000	Retained earnings*	752,000
Buildings, net	800,000		
Total	$1,952,000	Total	$1,952,000

*$1,952,000 - ($80,000 + $320,000 + $800,000) = $752,000
Diff: 2
Objective: A
AACSB: Application of knowledge

24) Duffy Corporation has prepared the following sales budget:

Month	Cash Sales	Credit Sales
May	$16,000	$68,000
June	20,000	80,000
July	18,000	74,000
August	24,000	92,000
September	22,000	76,000

Collections are 40% in the month of sale, 45% in the month following the sale, and 10% two months following the sale. The remaining 5% is expected to be uncollectible.

Required:
Prepare a schedule of cash collections for July through September.

Answer:	July	August	September	Total
Cash sales	$18,000	$24,000	$22,000	$64,000
Collections of credit sales from:				
Current month	29,600	36,800	30,400	96,800
Previous month	36,000	33,300	41,400	110,700
Two months ago	6,800	8,000	7,400	22,200
Total collections	$90,400	$102,100	$101,200	$293,700

Diff: 2
Objective: A
AACSB: Application of knowledge

25) The following information pertains to Amigo Corporation:

Month	Sales	Purchases
July	$30,000	$10,000
August	34,000	12,000
September	38,000	14,000
October	42,000	16,000
November	48,000	18,000
December	60,000	20,000

· Cash is collected from customers in the following manner:

Month of sale (2% cash discount)	30%
Month following sale	50%
Two months following sale	15%
Amount uncollectible	5%

· 40% of purchases are paid for in cash in the month of purchase, and the balance is paid the following month.

Required:

a. Prepare a summary of cash collections for the 4th quarter.

b. Prepare a summary of cash disbursements for the 4th quarter.

Answer:

a. Cash collections Oct $36,448 + Nov $40,812 + Dec $47,940 = $125,200

	October	November	December
August	$ 5,100		
September	19,000	5,700	
October	12,348	21,000	6,300
November		14,112	24,000
December			17,640
	--------	---------	--------
	$36,448	$40,812	$47,940

b. Cash disbursements Oct $14,800 + Nov $16,800 + Dec $18,800 = $50,400

	October	November	December
September	8,400		
October	6,400	9,600	
November		7,200	10,800
December			8,000
	--------	---------	--------
	$14,800	$16,800	$18,800

Diff: 2
Objective: A
AACSB: Application of knowledge

***Cost Accounting: A Managerial Emphasis, 16e, Global Edition* (Horngren)**
Chapter 11 Decision Making and Relevant Information

11.1 Objective 11.1

1) A decision model involves a(n) ________.
A) informal method of making a choice at the lower level management using sensitivity analysis
B) formal method of making a choice that often involves both quantitative and qualitative analyses
C) informal method of making a choice which is discussed in detailed in the financial reports
D) formal method of making a choice at the lower level management using advanced management techniques such as balance scorecard
Answer: B
Diff: 1
Objective: 1
AACSB: Analytical thinking

2) Feedback regarding previous actions may affect ________.
A) future predictions
B) implementation of the decision
C) the decision model
D) All of these answers are correct.
Answer: D
Diff: 2
Objective: 1
AACSB: Analytical thinking

3) Place the following steps from the five-step decision process in order:

A = Obtain information including historical costs
B = Evaluate performance to provide feedback
C = Make decisions choosing among alternatives
D = Make predictions about the future
E = Identify the problem and uncertainties

A) A, E, D, B, C
B) E, A, D, B, C
C) E, A, D, C, B
D) D, C, B, A, E
Answer: C
Diff: 2
Objective: 1
AACSB: Analytical thinking

4) The formal process of choosing between alternatives is known as a(n) ________.
A) relevant model
B) decision model
C) alternative model
D) prediction model
Answer: B
Diff: 1
Objective: 1
AACSB: Analytical thinking

5) Flash City Inc. manufactures small flash drives and is considering raising the price by 75 cents a unit for the coming year. With a 75-cent price increase, demand is expected to fall by 7,000 units.

	Current	Projected
Demand	79,000 units	72,000 units
Selling price	$8.50	$9.25
Incremental cost per unit	$5.80	$5.80

If the price increase is implemented, operating profit is projected to ________.
A) increase by $35,100
B) decrease by $5,250
C) increase by $5,250
D) decrease by $7,000
Answer: A
Explanation: Change in operating income = [72,000 × ($9.25 - $5.80)] - [79,000 × ($8.50 - $5.80)] = Increase of $35,100
Diff: 2
Objective: 1
AACSB: Application of knowledge

6) Flash City Inc. manufactures small flash drives and is considering raising the price by 75 cents a unit for the coming year. With a 75-cent price increase, demand is expected to fall by 7,000 units.

	Current	Projected
Demand	78,000 units	71,000 units
Selling price	$9.00	$9.75
Incremental cost per unit	$6.80	$6.80

Would you recommend the 75-cent price increase?
A) No, because demand decreased.
B) No, because the selling price increases.
C) Yes, because contribution margin per unit increases.
D) Yes, because operating profits increase.
Answer: D
Diff: 2
Objective: 1
AACSB: Application of knowledge

7) When using the five-step decision process, which one of the following steps should be done last?
A) obtain information
B) choose an alternative
C) evaluation and feedback
D) implementing the decision
Answer: C
Diff: 2
Objective: 1
AACSB: Analytical thinking

8) When using the five-step decision process, which one of the following steps should be done first?
A) obtain information
B) choose an alternative
C) evaluation and feedback
D) implementing the decision
Answer: A
Diff: 2
Objective: 1
AACSB: Analytical thinking

9) A decision model is an informal method for making a choice, using simpler methods like surveying.
Answer: FALSE
Explanation: A decision model is a formal method of making a choice that often involves both quantitative and qualitative analyses.
Diff: 1
Objective: 1
AACSB: Analytical thinking

10) Feedback from previous decisions uses historical information and, therefore, is irrelevant for making future predictions.
Answer: FALSE
Explanation: Historical costs may be helpful in making future predictions, but are not relevant costs for decision making.
Diff: 1
Objective: 1
AACSB: Analytical thinking

11) Explain the five-step decision process that managers can use to make decisions.
Answer: The five step decision process is (a) Identify the problem and uncertainties, (b) Obtain information, (c) Make predictions, (d) Make decisions by choosing among alternatives, and (e) Implement the decision, evaluate performance to provide feedback.

Identifying the problem and uncertainties involves finding risks, uncertainties, or other failures associated with a business which will affect the internal and external prospects of the firm.

Obtaining information involves collecting all data pertinent to the decision situation, both quantitative and qualitative, and determining which information is relevant to the decision, and determining which alternatives are being considered.

Making predictions involves using the information obtained above and attempting to predict what the future costs and benefits will be for each of the various alternatives.

Choosing an alternative involves comparing the predicted benefits of each alternative with each of the predicted costs (as well as other non-quantitative factors), and selecting an alternative that maximizes the difference between the expected benefits and the expected costs.

Implementing the decision involves actually doing the alternative selected above and making all the necessary changes in operations to support the decision. Evaluating the performance of the decision involves learning from the results of the decision and seeing which predictions were accurate and determining how to avoid any difficulties encountered in either the decision-process or the implementation.
Diff: 2
Objective: 1
AACSB: Analytical thinking

11.2 Objective 11.2

1) Which of the following is not true with regards to relevant costs and relevant revenues?
A) They are sunk costs and historical revenues
B) They are expected costs and expected revenues
C) They occur in the future
D) The differ among alternative courses of action
Answer: A
Diff: 2
Objective: 2
AACSB: Analytical thinking

2) Sunk costs ________.
A) are future costs for decision making
B) are avoidable costs
C) are irrelevant for decision making
D) are foregone contribution by not using a limited resource in its next-best alternative use
Answer: C
Diff: 2
Objective: 2
AACSB: Analytical thinking

3) Sunk costs ________.
A) are relevant
B) are differential
C) have future implications
D) are ignored when evaluating alternatives

Answer: D
Diff: 1
Objective: 2
AACSB: Analytical thinking

4) Which of the following is an example of sunk costs?
A) wages to security staffs
B) cost of purchasing raw materials
C) cost of an alternative investment
D) wages payable to skilled laborers to make a product
Answer: A
Diff: 1
Objective: 2
AACSB: Application of knowledge

5) Sunk costs are ________.
A) costs incurred as a result of an investment position
B) costs that is the sum of all costs in a particular business function of the value chain
C) the contributions to operating income that is forgone by not using a limited resource in its next-best alternative use
D) costs that are unavoidable and cannot be changed no matter what action is taken
Answer: D
Diff: 1
Objective: 2
AACSB: Analytical thinking

6) In evaluating different alternatives, it is useful to concentrate on ________.
A) variable costs
B) fixed costs
C) total costs
D) relevant costs
Answer: D
Diff: 1
Objective: 2
AACSB: Analytical thinking

7) Which of the following costs always differ among future alternatives?
A) fixed costs
B) historical costs
C) relevant costs
D) variable costs
Answer: C
Diff: 1
Objective: 2
AACSB: Analytical thinking

8) Management is considering two alternatives. Alternative A has projected revenue per year of $100,000 and costs of $70,000 while Alternative B has revenue of $100,000 and costs of $60,000. Both projects require an initial investment of $250,000 of which $75,000 has already been set aside and will be used as a down payment on the project that is chosen. There are also other qualitative factors that management must consider before making a final choice. Which of the following statements is correct about relevant costs and relevant revenues.
A) The sunk cost of $75,000 is relevant
B) The projected revenues are relevant to the decision
C) The initial investment of $250,000, the projected revenues, and the projected costs are all relevant
D) The only relevant item are the costs as they differ between alternatives

Answer: D
Diff: 1
Objective: 2
AACSB: Analytical thinking

9) John's 8-year-old Chevrolet Trail Blazer requires repairs estimated at $10,000 to make it road worthy again. His wife, Sherry, suggested that he should buy a 5-year-old used Jeep Grand Cherokee instead for $10,000 cash. Sherry estimated the following costs for the two cars:

	Trail Blazer	**Grand Cherokee**
Acquisition cost	$25,000	$10,000
Repairs	$10,000	—
Annual operating costs (Gas, maintenance, insurance)	$2,780	$1,800

The cost NOT relevant for this decision is the ________.
A) acquisition cost of the Trail Blazer
B) acquisition cost of the Grand Cherokee
C) repairs to the Trail Blazer
D) annual operating costs of the Grand Cherokee
Answer: A
Diff: 2
Objective: 2
AACSB: Analytical thinking

10) John's 8-year-old Chevrolet Trail Blazer requires repairs estimated at $7,000 to make it road worthy again. His wife, Sherry, suggested that he should buy a 5-year-old used Jeep Grand Cherokee instead for $7,000 cash. Sherry estimated the following costs for the two cars:

	Trail Blazer	**Grand Cherokee**
Acquisition cost	$30,000	$7,000
Repairs	$7,000	—
Annual operating costs (Gas, maintenance, insurance)	$2,580	$1,700

What should John do? What are his savings in the first year?
A) Buy the Grand Cherokee; $8,700
B) Fix the Trail Blazer; $4,380
C) Buy the Grand Cherokee; $880
D) Fix the Trail Blazer; $7,247
Answer: C
Explanation: Trail Blazer ($7,000 + $2,580) - Grand Cherokee ($7,000 + $1,700) = $880 cost savings when choosing the Grand Cherokee option
Diff: 2
Objective: 2
AACSB: Application of knowledge

11) A relevant revenue is revenue that is a(n) ________.
A) past revenue and differs among alternative courses of action
B) future revenue and differs among alternative courses of action
C) in-hand revenue
D) earned revenue
Answer: B
Diff: 2
Objective: 2
AACSB: Analytical thinking

12) A relevant cost is a cost that is a(n) ________.
A) future cost
B) past cost
C) sunk cost
D) non-cash expense
Answer: A
Diff: 2
Objective: 2
AACSB: Analytical thinking

13) Which of the following is true of relevant information?
A) All fixed costs are relevant.
B) All Future revenues and expenses are relevant.
C) Future
D) All fixed costs are not relevant.
Answer: C
Diff: 2
Objective: 2
AACSB: Analytical thinking

14) Quantitative factors ________.
A) include financial information, but not nonfinancial information
B) include both financial and nonfinancial information
C) are always relevant when making decisions
D) include employee morale
Answer: B
Diff: 2
Objective: 2
AACSB: Analytical thinking

15) All of the following are examples of quantitative factors except:
A) cost of direct materials
B) budget for marketing activities
C) product development time
D) employee morale
Answer: D
Diff: 2
Objective: 2
AACSB: Analytical thinking

16) Which of the following is true of historical costs?
A) They are useful for making future predictions.
B) They are relevant for decision making.
C) They are always accounted as opportunity costs.
D) They cannot be fixed costs.
Answer: A
Diff: 2
Objective: 2
AACSB: Analytical thinking

17) When making decisions ________.
A) qualitative factors are not relevant as they can't be quantified
B) more weight should be given to quantitative factors
C) appropriate weight must be given to both quantitative and qualitative factors
D) quantitative factors are relevant but qualitative factors are rarely relevant
Answer: C
Diff: 2
Objective: 2
AACSB: Analytical thinking

18) Employee morale at Dos Santos, Inc., is very high. This type of information is an example of ________.
A) qualitative factors
B) quantitative factors
C) irrelevant factors
D) financial factors
Answer: A

Diff: 1
Objective: 2
AACSB: Analytical thinking

19) Each of the following are true of relevant information except:
A) Past costs are helpful when making predictions but not relevant when making decisions
B) Different alternatives can be compared by examining differences in expected future revenues and expected total future costs
C) significant past investment amounts are relevant to decision making
D) Not all future revenues and expenses are relevant
Answer: C
Diff: 1
Objective: 2
AACSB: Analytical thinking

20) One-time-only special orders should only be accepted if ________.
A) incremental revenues exceed incremental costs
B) differential revenues exceed variable costs
C) incremental revenues exceed fixed costs
D) total revenues exceed total costs
Answer: A
Diff: 3
Objective: 2
AACSB: Analytical thinking

21) When deciding to accept a one-time-only special order from a wholesaler, management should ________.
A) consider the sunk costs and opportunity costs
B) not consider the special order's impact on future prices of their products
C) determine whether excess capacity is available
D) verify past design costs for the product
Answer: C
Diff: 3
Objective: 2
AACSB: Analytical thinking

22) When there is an excess capacity, it makes sense to accept a one-time-only special order for less than the current selling price if ________.
A) incremental revenues exceed incremental costs
B) additional fixed costs is incurred to accommodate the order
C) the company placing the order is in the same market segment as your current customers
D) incremental revenue equals incremental operating income
Answer: A
Diff: 3
Objective: 2
AACSB: Analytical thinking

23) A product cost is composed of the following:

Direct materials	$11
Direct labor	$3
Manufacturing overhead	$8

The product sells for $40 and a 15% commission is paid to a salesperson for every unit sold. Management accountants also estimate that storage cost per unit averages $0.75 per unit. What is the full cost of the product?
A) $14
B) $22
C) $28.75
D) $28.00
Answer: C
Explanation: $11 + $3 + $8 + ($40 x 15%) + $0.75 = $28.75
Diff: 2
Objective: 2
AACSB: Analytical thinking

24) Crandle Manufacturers Inc. is approached by a potential customer to fulfill a one-time-only special order for a product similar to one offered to domestic customers. The company has excess capacity. The following per unit data apply for sales to regular customers:

Variable costs:	
Direct materials	$130
Direct labor	110
Manufacturing support	125
Marketing costs	65
Fixed costs:	
Manufacturing support	175
Marketing costs	85
Total costs	690
Markup (50%)	345
Targeted selling price	$1,035

What is the full cost of the product per unit?
A) $430
B) $1,035
C) $690
D) $345
Answer: C
Explanation: Full cost = $130 + $110 + $125 + $65 + $175 + $85 = $690
Diff: 3
Objective: 2
AACSB: Application of knowledge

25) Crandle Manufacturers Inc. is approached by a potential new customer to fulfill a one-time-only special order for a product similar to one offered to domestic customers. The company has excess capacity. The following per unit data apply for sales to regular customers:

Variable costs:	
Direct materials	$170
Direct labor	90
Manufacturing support	135
Marketing costs	85
Fixed costs:	
Manufacturing support	145
Marketing costs	75
Total costs	700
Markup (40%)	280
Targeted selling price	$980

What is the contribution margin per unit?
A) $220
B) $280
C) $500
D) $700
Answer: C
Explanation: Contribution margin per unit = $980 - ($170 + $90 + $135 + $85) = $500
Diff: 3
Objective: 2
AACSB: Application of knowledge

26) Crandle Manufacturers Inc. is approached by a potential customer to fulfill a one-time-only special order for a product similar to one offered to domestic customers. The company has excess capacity. The following per unit data apply for sales to regular customers:

Variable costs:	
Direct materials	$140
Direct labor	100
Manufacturing support	105
Marketing costs	55
Fixed costs:	
Manufacturing support	175
Marketing costs	65
Total costs	640
Markup (50%)	320
Targeted selling price	$960

For Crandle Manufacturers Inc., what is the minimum acceptable price of this special order?
A) $400
B) $320
C) $480
D) $640
Answer: A
Explanation: Minimum acceptable price = $140 + $100 + $105 + $55 = $400
Diff: 3
Objective: 2
AACSB: Analytical thinking

27) Crandle Manufacturers Inc. is approached by a potential customer to fulfill a one-time-only special order for a product similar to one offered to domestic customers. The company has excess capacity. The following per unit data apply for sales to regular customers:

Variable costs:	
Direct materials	$130
Direct labor	60
Manufacturing support	105
Marketing costs	95
Fixed costs:	
Manufacturing support	175
Marketing costs	65
Total costs	630
Markup (50%)	315
Targeted selling price	$945

What is the change in operating profits if the one-time-only special order for 1,030 units is accepted for $550 a unit by Crandle?
A) $164,800 increase in operating profits
B) $164,170 increase in operating profits
C) $164,170 decrease in operating profits
D) $164,800 decrease in operating profits
Answer: A
Explanation: Contribution margin per unit = $550 - ($130 + $60 + $105 + $95) = $160
Change in operating profit = 1,030 × $160 = $164,800 increase
Diff: 3
Objective: 2
AACSB: Analytical thinking

28) Excellent Manufacturers Inc. has a current production level of 20,000 units per month. Unit costs at this level are:

Direct materials	$0.26
Direct labor	0.40
Variable overhead	0.16
Fixed overhead	0.21
Marketing - fixed	0.25
Marketing/distribution - variable	0.42

Current monthly sales are 18,000 units. Jax Company has contacted Excellent about purchasing 1,550 units at $2.00 each. Current sales would NOT be affected by the one-time-only special order, and variable marketing/distribution costs would NOT be incurred on the special order. What is Ratzlaff Company's change in operating profits if the special order is accepted?
A) $4,929.00 increase in operating profits
B) $4,929.00 decrease in operating profits
C) $1,829.00 increase in operating profits
D) $1,829.00 decrease in operating profits
Answer: C
Explanation: Manufacturing cost per unit = $0.26 + $0.40 + $0.16 = $0.82 Increase in operating profits = 1,550 × ($2.00 - $0.82)
= $1,829.00 increase
Diff: 3
Objective: 2
AACSB: Application of knowledge

29) Snapper Tool Company has plenty of excess capacity to accept a special order. Shown below is an "what-if" analysis of the special order. Which of the following is the correct decision and reason?

	Status Quo	With Special Order
Sales	$128,000	$133,000
variable costs:		
Manufacturing	51,200	54,400
Selling and administrative	25,600	26,600
Contribution margin	$51,200	$52,000
Fixed cost	19,200	19,200
Operating profit	$32,000	$32,800

A) Yes, since the goal is to fill capacity as much as possible to keep fixed overhead variances as low as possible.
B) No, the company will only break even.
C) No, since only the employees will benefit from this in that they will earn more overtime.
D) Yes, since operating profits will most likely increase.
Answer: D
Diff: 3
Objective: 2
AACSB: Application of knowledge

30) Kitchens Sales Inc. is approached by Mr. Louis Cifer, a new customer, to fulfill a large one-time-only special order for a product similar to one offered to regular customers. The following per unit data apply for sales to regular customers:

Direct materials	$556
Direct labor	362
Variable manufacturing support	60
Fixed manufacturing support	126
Total manufacturing costs	1,104
Markup (50%)	552
Targeted selling price	$1,656

Kitchens Sales Inc. has excess capacity. Mr. Cifer wants the cabinets in cherry rather than oak, so direct material costs will increase by $70 per unit. The average marketing cost of Kitchens Sales product is $173 per order. For Kitchens, what is the full cost of the one-time-only special order?
A) $1,034
B) $1,174
C) $1,104
D) $1,347
Answer: B
Explanation: Full cost = $556 + $362 + $60 + $126 + $70 = $1,174
Diff: 2
Objective: 2
AACSB: Application of knowledge

31) Kitchens Sales Inc. is approached by Mr. Louis Cifer, a new customer, to fulfill a large one-time-only special order for a product similar to one offered to regular customers. The following per unit data apply for sales to regular customers:

Direct materials	$554
Direct labor	364
Variable manufacturing support	56
Fixed manufacturing support	120
Total manufacturing costs	1,094
Markup (50%)	547
Targeted selling price	$1,641

Kitchens Sales inc. has excess capacity. Mr. Cifer wants the cabinets in cherry rather than oak, so direct material costs will increase by $66 per unit. The average marketing cost of Kitchens Sales product is $173 per order. Other than price, what other items should Kitchens Sales consider before accepting this one-time-only special order?
A) reaction of shareholders
B) reaction of existing customers to the lower price offered to Mr. Louis Cifer
C) demand for cherry cabinets
D) price is the only consideration
Answer: B
Diff: 2
Objective: 2
AACSB: Analytical thinking

32) Kitchens Sales Inc. is approached by Mr. Louis Cifer, a new customer, to fulfill a large one-time-only special order for a product similar to one offered to regular customers. The following per unit data apply for sales to regular customers:

Direct materials	$546

Direct labor	360
Variable manufacturing support	64
Fixed manufacturing support	122
Total manufacturing costs	1,092
Markup (50%)	546
Targeted selling price	$1,638

Kitchens Sales inc. has excess capacity. Mr. Cifer wants the cabinets in cherry rather than oak, so direct material costs will increase by $65 per unit. The average marketing cost of Kitchens Sales product is $175 per order. Which of the following costs is NOT considered to calculate the minimum acceptable price of a one-time-only special order?
A) marketing costs
B) direct material costs
C) indirect material costs
D) special design costs
Answer: A
Diff: 2
Objective: 2
AACSB: Analytical thinking

33) An example of a qualitative factor for the decision-making process is ________
A) customer satisfaction as determined by written responses given by customers to survey questions
B) employee wages paid this week
C) number of clicks on a web site during a month
D) manufacturing overhead allocated to WIP
Answer: A
Diff: 1
Objective: 2
AACSB: Analytical thinking

34) Dantley's Furniture manufactures rustic furniture. The cost accounting system estimates manufacturing costs to be $190 per table, consisting of 80% variable costs and 20% fixed costs. The company has surplus capacity available. It is Back Forrest's policy to add a 45% markup to full costs. Dantley's Furniture is invited to bid on a one-time-only special order to supply 180 rustic tables. What is the lowest price Dantley's Furniture should bid on this special order?
A) $22,230
B) $27,360
C) $34,200
D) $42,750
Answer: B
Explanation: $190 × 80% × 180 tables = $27,360
Diff: 2
Objective: 2
AACSB: Application of knowledge

35) Dantley's Furniture manufactures rustic furniture. The cost accounting system estimates manufacturing costs to be $240 per table, consisting of 75% variable costs and 25% fixed costs. The company has surplus capacity available. It is Back Forrest's policy to add a 45% markup to full costs. A large hotel chain is currently expanding and has decided to decorate all new hotels using the rustic style. Dantley's Furniture Incorporated is invited to submit a bid to the hotel chain. What is the lowest price per unit Dantley's Furniture should bid on this long-term order?
A) $168
B) $180
C) $240
D) $348
Answer: D

Explanation: $240 + ($240 × 45%) = $348
Diff: 2
Objective: 2
AACSB: Application of knowledge

36) Zephram Corporation has a plant capacity of 200,000 units per month. Unit costs at capacity are:

Direct materials	$6.00
Direct labor	5.00
Variable overhead	4.00
Fixed overhead	2.00
Marketing—fixed	6.00
Marketing/distribution—variable	4.60

Current monthly sales are 190,000 units at $30.00 each. Q, Inc., has contacted Zephram Corporation about purchasing 2,500 units at $24.00 each. Current sales would not be affected by the one-time-only special order. What is Zephram's change in operating profits if the one-time-only special order is accepted?
A) $11,000 increase
B) $31,500 increase
C) $22,500 increase
D) $49,000 increase
Answer: A
Explanation: ($6.00 + $5.00 + $4.00 + $4.60) = $19.60
($24.00 - $19.60) × 2,500 = $11,000 increase
Diff: 3
Objective: 2
AACSB: Application of knowledge

37) Which of the following is not true about one-time-only special orders?
A) special orders would be accepted if they result in an increase in the contribution margin regardless of capacity and long-term implications
B) along with other criteria, there must be excess capacity to accept an order
C) along with other criteria, there must not be significant long-term negative implications of accepting a special order
D) the impact on operating income of the acceptance of a special-order must be analyzed by management before making a final decision
Answer: A
Diff: 1
Objective: 2
AACSB: Analytical thinking

38) Which of the following are potential problems managers face in relevant-cost analysis?
A) Including only relevant costs and relevant revenues in an analysis
B) incorrect assumptions such as all variable costs are relevant and all fixed costs are not
C) considering past historical costs when making predictions about future costs
D) examining differences in expected total future revenues and expected total future costs among alternatives
Answer: B
Diff: 1
Objective: 2
AACSB: Analytical thinking

39) Which of the following costs is irrelevant in the decision making of a special order when there is idle production capacity - enough excess capacity to accept the order?
A) fixed manufacturing costs
B) units sold
C) material cost
D) labor hours incurred
Answer: A
Diff: 2
Objective: 2
AACSB: Analytical thinking

40) Which of the following is an appropriate step when identifying relevant costs to make a business decision?
A) assuming all variable costs are relevant
B) assuming all fixed costs are irrelevant
C) separating total costs into business function costs and full costs
D) separating total costs into variable and fixed components
Answer: D
Diff: 2
Objective: 2
AACSB: Analytical thinking

41) The best way to avoid misidentification of relevant costs is to focus on ________.
A) expected future costs that differ among the alternatives
B) historical costs
C) unit fixed costs
D) total unit costs
Answer: A
Diff: 2
Objective: 2
AACSB: Analytical thinking

42) Relevant costs are ________.
A) sunk costs
B) expected future costs
C) actual present costs
D) historical costs
Answer: B
Diff: 2
Objective: 2
AACSB: Analytical thinking

43) Direct materials are $600, direct labor is $450, variable overhead costs are $650, and fixed overhead costs are $400. The cost of one unit is ________.
A) $850
B) $1,050
C) $1,700
D) $2,100
Answer: D
Diff: 2
Objective: 2
AACSB: Application of knowledge

44) Unit cost data can most mislead decisions by ________.
A) not computing fixed overhead costs
B) computing labor and materials costs only
C) computing administrative costs
D) not computing unit costs at the same output level
Answer: D
Diff: 1
Objective: 2
AACSB: Analytical thinking

45) McMurphy Corporation produces a part that is used in the manufacture of one of its products. The costs associated with the production of 12,000 units of this part are as follows:

Direct materials	$86,000
Direct labor	126,000
Variable factory overhead	58,000
Fixed factory overhead	138,000
Total costs	$408,000

Of the fixed factory overhead costs, $55,000 is avoidable. Conners Company has offered to sell 12,000 units of the same part to McMurphy Corporation for $41 per unit.

Assuming there is no other use for the facilities, Schmidt should ________.
A) make the part, as this would save $16 per unit
B) buy the part, as this would save $16 per unit
C) buy the part, as this would save the company $192,000
D) make the part, as this would save $14 per unit
Answer: D
Explanation: Avoidable costs total $325,000 = $86,000 + $126,000 + $58,000 + $55,000.
$41 - ($325,000 / 12,000) = $14
Diff: 3
Objective: 2
AACSB: Analytical thinking

46) Striker 44 Corporation produces a part that is used in the manufacture of one of its products. The costs associated with the production of 12,000 units of this part are as follows:

Direct materials	$86,000
Direct labor	130,000
Variable factory overhead	57,000
Fixed factory overhead	135,000
Total costs	$408,000

Of the fixed factory overhead costs, $58,000 is avoidable.

Assuming no other use of their facilities, the highest price that McMurphy should be willing to pay for 12,000 units of the part is ________.
A) $408,000
B) $273,000
C) $331,000
D) $351,000
Answer: C
Explanation: $86,000 + $130,000 + $57,000 + $58,000 = $331,000
Diff: 3
Objective: 2
AACSB: Analytical thinking

47) Past costs themselves are always irrelevant when making decisions.
Answer: TRUE
Diff: 2
Objective: 2
AACSB: Analytical thinking

48) Equal weight must be given to qualitative factors and quantitative nonfinancial factors while making decisions.
Answer: FALSE
Explanation: Appropriate, not equal, weight must be given to qualitative factors and quantitative nonfinancial factors while making decisions.
Diff: 1
Objective: 2
AACSB: Analytical thinking

49) The rent paid for an already existing facility is an example of a sunk cost.
Answer: TRUE
Diff: 1
Objective: 2
AACSB: Analytical thinking

50) A cost may be relevant for one decision, but NOT relevant for a different decision.
Answer: TRUE
Diff: 1
Objective: 2
AACSB: Analytical thinking

51) Revenues that remain the same for two alternatives being examined are relevant revenues.
Answer: FALSE
Explanation: Revenues that remain the same between two alternatives are irrelevant for that decision since they do not differ between alternatives.
Diff: 1
Objective: 2
AACSB: Analytical thinking

52) Sunk costs are irrelevant to decision making.
Answer: TRUE
Diff: 1
Objective: 2
AACSB: Analytical thinking

53) Marketing costs will be an irrelevant cost in the decision making of a one-time-only special order.
Answer: TRUE
Diff: 1
Objective: 2
AACSB: Analytical thinking

54) A sunk cost is a relevant cost in a decision making.
Answer: FALSE
Explanation: Sunk costs are irrelevant to decision making because a decision cannot change something that has already happened.
Diff: 1
Objective: 2
AACSB: Analytical thinking

55) Quantitative factors, such as direct material costs, are outcomes that are measured in numerical terms.
Answer: TRUE
Diff: 1
Objective: 2
AACSB: Analytical thinking

56) Qualitative factors are outcomes that can be easily measured in numerical terms, such as the costs of direct labor.
Answer: FALSE
Explanation: Qualitative factors are outcomes that are difficult to measure accurately in numerical terms. Employee morale is an example.
Diff: 1
Objective: 2
AACSB: Analytical thinking

57) Business function costs are the sum of all variable and fixed costs in all business functions of the value chain.
Answer: FALSE
Explanation: Business function costs are the sum of all variable and fixed costs in a particular business function of the value chain.
Diff: 1
Objective: 2
AACSB: Analytical thinking

58) Qualitative factors, as well as relevant revenues and relevant costs need to be considered when selecting among alternatives.
Answer: TRUE
Diff: 1
Objective: 2
AACSB: Analytical thinking

59) Past costs are also called sunk costs because they are unavoidable and cannot be changed no matter what action is taken.
Answer: TRUE
Diff: 1
Objective: 2
AACSB: Analytical thinking

60) Full costs of a product include variable and fixed costs in a particular business function in the value chain.
Answer: FALSE
Explanation: Full costs of a product include variable and fixed costs for all business functions in the value chain.
Diff: 1
Objective: 2
AACSB: Analytical thinking

61) For one-time-only special orders, fixed costs may be relevant but NOT variable costs.
Answer: FALSE
Explanation: For one-time-only special orders, variable costs may be relevant but not fixed costs.
Diff: 1
Objective: 2
AACSB: Analytical thinking

62) In the decision making of a one-time-only special order, it is assumed that accepting the special order is
not expected to affect the selling price to other customers.
Answer: TRUE
Diff: 2
Objective: 2
AACSB: Analytical thinking

63) Bid prices and costs that are relevant for regular orders are the same costs that are relevant for one-time-only special orders.
Answer: FALSE
Explanation: Since long-term costs are relevant for regular orders and short-term costs are relevant for one-time-only special orders, the relevant costs differ.
Diff: 1
Objective: 2
AACSB: Analytical thinking

64) Qualitative factors are important in the decision-making process even though they cannot be measured numerically.
Answer: TRUE
Diff: 1
Objective: 2
AACSB: Analytical thinking

65) In a one-time special order situation, if the price offered by the buyer is less than the absorption cost per unit, the special order may still be profitable since absorption costs include allocated fixed manufacturing overhead.
Answer: TRUE
Diff: 1
Objective: 2
AACSB: Analytical thinking

66) In relevant-cost analysis, managers should not consider all variable as relevant and all fixed costs as irrelevant.
Answer: TRUE
Diff: 1
Objective: 2
AACSB: Analytical thinking

67) An incremental product cost is generally a fixed cost.
Answer: FALSE
Explanation: An incremental product cost is generally a variable cost.
Diff: 1
Objective: 2
AACSB: Analytical thinking

68) If Option 1 costs $120 and Option 2 costs $90, then the differential cost is $30.
Answer: TRUE
Diff: 1
Objective: 2
AACSB: Analytical thinking

69) Variable cost per unit is the best product cost to use for one-time-only special order decisions.
Answer: TRUE
Diff: 1
Objective: 2
AACSB: Analytical thinking

70) Fluty Corporation manufactures a product that has two parts, A and B. It is currently considering two alternative proposals related to these parts.

The first proposal is for buying Part A. This would free up some of the plant space for the manufacture of more of Part B and assembly of the final product. The product vice president believes the additional production of the final product can be sold at the current market price. No other changes in manufacturing would be needed.

The second proposal is for buying new equipment for the production of Part B. The new equipment requires fewer workers and uses less power to operate. The old equipment has a net disposal value of zero.

Required:
Tell whether the following items are relevant or irrelevant for each proposal. Treat each proposal independently.

a. Total variable manufacturing overhead, Part A
b. Total variable manufacturing overhead, Part B
c. Cost of old equipment for manufacturing Part B
d. Cost of new equipment for manufacturing Part B
e. Total variable selling and administrative costs
f. Sales revenue of the product
g. Total variable costs of assembling final products
h. Total direct manufacturing materials, Part A
i. Total direct manufacturing materials, Part B
j. Total direct manufacturing labor, Part A
k. Total direct manufacturing labor, Part B

Answer:

	Proposal 1	*Proposal 2*
a.	R	I
b.	R	R
c.	I	I
d.	I	R
e.	R	I
f.	R	I
g.	R	I
h.	R	I
i.	R	I
j.	R	I
k.	R	R

Diff: 2
Objective: 2
AACSB: Application of knowledge

71) Swan Manufacturing is approached by a customer to fulfill a one-time-only special order for a product similar to one offered to domestic customers. The following per unit data apply for sales to regular customers:

Direct materials	$1,825
Direct labor	900
Variable manufacturing support	1,300
Fixed manufacturing support	3,000
Total manufacturing costs	$7,025.00
Markup (50%)	3,512.50
Targeted selling price	$ 10,537.50

Swan Manufacturing has excess capacity.

Required:

a. What is the full cost of the product per unit if the marketing costs is $3,000?

b. What is the contribution margin per unit?

c. Which costs are relevant for making the decision regarding this one-time-only special order? Why?

d. For Swan Manufacturing, what is the minimum acceptable price of this one-time-only special order?

e. For this one-time-only special order, should Parker and Spitzer Manufacturing consider a price of $5,400 per unit? Why or why not?

Answer:

a. Full cost of the product = $10,025

b. Contribution margin = $6,512.50= Selling price $10,537.50 - Variable costs ($1,800 + $900 + $1,300).

c. Relevant costs for decision making are those costs that differ between alternatives, which in this situation are the incremental costs. The incremental costs total $4,025 = Variable costs ($1,800+ $900 + $1,300).

d. The minimum acceptable price is $4,025 = Variable costs (($1,800 + $900 + $1,300), which are the incremental costs in the short term.

e. Yes, because this price is greater than the minimum acceptable price of this special order determined in (d).

Diff: 3
Objective: 2
AACSB: Application of knowledge

72) Loft Lake Cabinets is approached by Ms. Jenny Zhang, a new customer, to fulfill a large one-time-only special order for a product similar to one offered to regular customers. The following per unit data apply for sales to regular customers:

Direct materials	$50.00
Direct labor	62.50
Variable manufacturing support	30.00
Fixed manufacturing support	37.50
Total manufacturing costs	180.00
Markup (60%)	108.00
Targeted selling price	$288.00

Loft Lake Cabinets has excess capacity. Ms. Zhang wants the cabinets in cherry rather than oak, so direct material costs will increase by $15 per unit.

Required:
a. For Loft Lake Cabinets, what is the minimum acceptable price of this one-time-only special order?
b. Other than price, what other items should Loft Lake Cabinets consider before accepting this one-time-only special order?
c. How would the analysis differ if there was limited capacity?
Answer:
a. $157.70 = Variable costs ($50 + $62.50 + $30) + $15 additional cost for cherry.
b. Loft Lake Cabinets should also consider the impact on current customers when these customers hear that another customer was offered a discounted price, and the impact on the competition and if they might choose to meet the discounted price.
c. Currently, the incremental costs total $157.50. If additional capacity is needed to process this order, these incremental costs will increase by the cost of adding capacity.
Diff: 3
Objective: 2
AACSB: Application of knowledge

73) Fairhaven Company needs 1,000 motors in its manufacture of boats. It can buy the motors from Asian Motors for $1,250 each. Southwestern's plant can manufacture the motors for the following costs per unit:

Direct materials	$ 600
Direct manufacturing labor	250
Variable manufacturing overhead	200
Fixed manufacturing overhead	350
Total	$1,400

If Southwestern buys the motors from Jinx, 70% of the fixed manufacturing overhead applied will not be avoided.

Required:
a. Should the company make or buy the motors?
b. What additional factors should Southwestern consider in deciding whether or NOT to make or buy the motors?

Answer:

a. *Cost to buy the part*: (1,000 × $1,250)		$1,250,000
Relevant costs to make:		
Variable costs:		
Direct materials (1,000 × $600)	$600,000	
Direct manufacturing. labor (1,000 × $250)	250,000	
Variable manufacturing overhead (1,000 × $200)	200,000	
Total	$1,050,000	
Avoidable fixed costs: ($350 × 1,000 × 0.30)	105,000	1,155,000
Savings if part is manufactured		$ 95,000

b. Management should consider several qualitative factors in deciding whether to make or buy the motors.
· *Quality controls* - The company's ability to manufacture quality motors versus that of the supplier.
· *Delivery* - Can they make them when needed versus Jinx delivering them when needed?
· *Reputation* - What is the overall reputation of Jinx?
· *Term* - Is Jinx willing to make long-term commitments for delivery of the motors?
· *Facilities* - What are the opportunity costs of using the space and equipment to manufacture other items?
Diff: 3
Objective: 2
AACSB: Application of knowledge

74) Sarasota Bicycles has been manufacturing its own wheels for its bikes. The company is currently operating at 100% capacity, and variable manufacturing overhead is charged to production at the rate of 30% of direct labor cost. The direct materials and direct labor cost per unit to make the wheels are $3.00 and $3.60 respectively. Normal production is 200,000 wheels per year.

A supplier offers to make the wheels at a price of $8 each. If the bicycle company accepts this offer, all variable manufacturing costs will be eliminated, but the $84,000 of fixed manufacturing overhead currently being charged to the wheels will have to be absorbed by other products.

Required:

a. Prepare an incremental analysis for the decision to make or buy the wheels.

b. Should Sarasota Bicycles buy the wheels from the outside supplier? Justify your answer.

Answer:

a.	Make	Buy
Direct materials (200,000 × $3.00)	$600,000	-0-
Direct labor (200,000 × $3.60)	720,000	-0-
Variable manufacturing costs		
($720,000 × 30%)	216,000	-0-
Purchase price (200,000 × $8)	-0-	1,600,000
Total annual cost	$1,536,000	$1,600,000

b. The wheels should continue to be manufactured by Sarasota Bicycles. The company's net income would decrease $64,000 by purchasing the wheels.

Diff: 3

Objective: 2

AACSB: Application of knowledge

75) Explain what revenues and costs are relevant when choosing among alternatives.

Answer: Future amounts that differ among alternatives are considered relevant. Amounts that remain the same among alternatives do not add useful information for selecting an alternative, and therefore, are not considered relevant for decision making. For example, the prepaid insurance costs paid by a company is not relevant is decision making since the cost has already incurred and cannot be eliminated.

Diff: 2

Objective: 2

AACSB: Analytical thinking

76) Explain why sunk costs are not considered relevant when choosing among alternatives with example.

Answer: Amounts that remain the same among alternatives do not add useful information for selecting an alternative, and therefore, are not considered relevant for decision making. Sunk costs by definition are those costs that have already been committed, cannot be changed, and will never differ among alternatives. Some of the fixed costs such as wages for existing employees and existing rental expenses are irrelevant in decision making since a company cannot recover these costs whether the company accept or reject an alternative.

Diff: 2

Objective: 2

AACSB: Analytical thinking

77) Assume you are a sophomore in college and are committed to earning an undergraduate degree. Your current decision is whether to finish college in four consecutive years or take a year off and work for some extra cash.
a. Identify at least two revenues or costs that are relevant to making this decision. Explain why each is relevant.
b. Identify at least two costs that would be considered sunk costs for this decision.
c. Identify at least two opportunity costs for this decision.
d. Comment on at least one qualitative consideration for this decision.
Answer:
a. Relevant revenues/costs are those that differ between the alternatives of continuing with college or taking a year off from college and working. Relevant costs for continuing your college education without a break include:
 1. Earnings lost next year due to the hours you are not able to work because of classes and homework.
 2. As a result of graduating a year earlier, higher wages will be earned a year earlier as well.
b. Sunk costs for this decision include:
 1. Amounts paid for college tuition and books during the past two years.
 2. Accommodation costs
c. Opportunity costs for this decision:
 1. Earnings from the employment
 2. Return from the investment of tuition fees and other college expenses
d. A qualitative consideration would include having different activities and priorities than your friends who are students, graduating later than students who started college the same time you did, and retaining information over the year off from school.
Diff: 3
Objective: 2
AACSB: Application of knowledge

78) A restaurant is deciding whether it wants to update its image or not. It currently has a cozy appeal with an outdated decor that is still in good condition, menus and carpet that need to be replaced anyway, and loyal customers.
Identify for the restaurant management
a. those costs that are relevant to this decision,
b. those costs that are not differential,
c. and qualitative considerations.
Answer: For the decision of whether to update the restaurant's image:
a. Relevant costs include a one-time cost of the renovation for the updated image, and a change in future sales which includes an increase in sales due to the updated image, decrease in sales due to loss of that cozy appeal, and loss of sales due to being closed or having a limited serving area during renovation.

b. Costs that are not differential include replacing the menus and the carpet since they need to be replaced whether the image is updated or not.

c. Qualitative considerations include whether the restaurant will lose that cozy appeal it currently has, if the restaurant needs to be closed for renovations it may result in loss of customers, and new customers may not be the type of customer they want to attract.
Diff: 3
Objective: 2
AACSB: Application of knowledge

79) Are relevant revenues and relevant costs the only information needed by managers to select among alternatives? Explain using examples.
Answer: No, relevant revenues and costs provide a financial analysis but do not take into consideration qualitative factors. Qualitative factors are outcomes that are difficult to measure accurately in numerical terms. In a make-or-buy decision, examples of qualitative issues include the supplier's ability to meet

expected quality and delivery standards, and the likelihood that suppliers increase prices of the components in the future. While making a decision, appropriate weight must be given to qualitative factors and quantitative nonfinancial factors.
Diff: 2
Objective: 2
AACSB: Analytical thinking

80) Under what conditions might a manufacturing firm sell a product for less than its long-term price? Why?
Answer: The price for a short-term order may be less than the price offered to a long-term customer. If a firm has excess capacity that is idle, it is more profitable for the firm to accept a special order for a price below the long-run price than it is to let the capacity sit idle. In addition, the firm may use this strategy for market penetration and to obtain greater market share. Also, the sale of the product for less than its long-term price should not have an adverse impact on the existing customers.
Diff: 2
Objective: 2
AACSB: Analytical thinking

11.3 Objective 11.3

1) Relevant data in a make-or-buy decision of a part include which of the following?
A) The portion of fixed costs that would be incurred whether the product is made or purchased
B) Some portion of fixed costs that would be saved if the product is outsourced
C) Annual plant insurance costs
D) Management consultant fees to restructure the organization framework of the company and improve overall strategic planning
Answer: B
Diff: 2
Objective: 3
AACSB: Analytical thinking

2) In a make-or-buy decision, which of the following would not be relevant?
A) the quality of the product
B) the portion of fixed costs that could be eliminated by outsourcing
C) a lease that could be discontinued upon accepting the "buy proposal"
D) property taxes on the plant that will still be necessary even if the product is outsourced
Answer: D
Diff: 2
Objective: 3
AACSB: Analytical thinking

3) An incremental cost is
A) an additional total cost for an activity
B) a cost that has already been incurred
C) the difference in total costs between two alternatives
D) always related to fixed costs
Answer: A
Diff: 2
Objective: 3
AACSB: Analytical thinking

4) Which of the following is a relevant cost to be included in a make-or-buy decision?
A) fixed salaries that will not be incurred if the part is outsourced
B) pension costs to the current employees
C) increase in the cost of repairing of all equipment of the firm
D) material-handling costs that cannot be eliminated even if the product is outsourced
Answer: A
Diff: 2
Objective: 3
AACSB: Analytical thinking

5) Which of following is a firm's risk of outsourcing the production of a part?
A) fluctuation in the manufacturing costs
B) leakage of intellectual property
C) increased need of skilled workers
D) scarcity of indirect labor
Answer: B
Diff: 2
Objective: 3
AACSB: Analytical thinking

6) Which of the following minimizes the risks of outsourcing?
A) the use of short-term contracts that specify price
B) shifting the firm's responsibility for on-time delivery to the supplier
C) building close partnerships with the supplier
D) increasing the contract price
Answer: C
Diff: 2
Objective: 3
AACSB: Analytical thinking

7) The cost to produce Part A was $20 per unit in 2013 and in 2014 it has increased to $22 per unit. In 2014, Supplier ABC has offered to supply Part A for $18 per unit. For the make-or-buy decision ________.
A) incremental revenues are $4 per unit
B) incremental costs are $2 per unit
C) net relevant costs are $2 per unit
D) differential costs are $4 per unit
Answer: D
Diff: 2
Objective: 3
AACSB: Application of knowledge

8) When evaluating a make-or-buy decision, which of the following needs to be considered?
A) alternative uses of the production capacity
B) the original cost of the production equipment
C) pension costs to the current employees
D) material-handling costs that cannot be eliminated

Answer: A
Diff: 2
Objective: 3
AACSB: Analytical thinking

9) For make-or-buy decisions, a supplier's ability to maintain secrecy of intellectual property is considered a(n) ________.
A) qualitative factor
B) irrelevant cost
C) differential factor
D) opportunity cost
Answer: A
Diff: 1
Objective: 3
AACSB: Analytical thinking

10) Vien's Fashion Company retains the services of Kennywood Textiles to perform stain control treatments on its women's dresses. This is practice is known as ________.
A) insourcing
B) outsourcing
C) fragmentation
D) in-housing
Answer: B
Diff: 1
Objective: 3
AACSB: Analytical thinking

11) Producing on schedule, quality of supplier products or services, reliability, along with costs are all important considerations when____
A) when deciding to insource
B) making outsourcing decisions
C) when executing right-shoring
D) making decisions based on quantitative factors
Answer: B
Diff: 1
Objective: 3
AACSB: Analytical thinking

12) Which of the following would be considered in a make-or-buy decision?
A) fixed costs that will still be incurred
B) prepaid rent expense for warehousing finished goods and inventories
C) potential rental income from space occupied by the production area
D) unchanged supervisory costs
Answer: C
Diff: 2
Objective: 3
AACSB: Analytical thinking

13) W.T. Ginsburg Engine Company manufactures part ACT30107 used in several of its engine models. Monthly production costs for 1,090 units are as follows:

Direct materials	$46,000
Direct labor	10,500
Variable overhead costs	32,500
Fixed overhead costs	22,000
Total costs	$111,000

It is estimated that 6% of the fixed overhead costs assigned to ACT30107 will no longer be incurred if the company purchases ACT30107 from the outside supplier. W.T Ginsburg Engine Company has the option of purchasing the part from an outside supplier at $94.75 per unit.

If the company accepts the offer from the outside supplier, the monthly avoidable costs (costs that will no longer be incurred) total ________.
A) $90,320
B) $89,000
C) $111,000
D) $112,320
Answer: A
Explanation: Monthly avoidable costs = $46,000 + $10,500 + $32,500 + ($22,000 × 6%) = $90,320
Diff: 2
Objective: 3
AACSB: Analytical thinking

14) W.T. Ginsburg Engine Company manufactures part ACT31107 used in several of its engine models. Monthly production costs for 1,000 units are as follows:

Direct materials	$42,000
Direct labor	10,500
Variable overhead costs	32,500
Fixed overhead costs	18,000
Total costs	$103,000

It is estimated that 6% of the fixed overhead costs assigned to ACT31107 will no longer be incurred if the company purchases ACT31107 from the outside supplier. W.T. Ginsburg Engine Company has the option of purchasing the part from an outside supplier at $94.75 per unit.

If W.T. Ginsburg Engine Company purchases 1,000 ACT31107 parts from the outside supplier per month, then its monthly operating income will ________. (Round any intermediary calculations and your final answer to the nearest cent.)
A) increase by $8,670
B) increase by $21,330
C) decrease by $8,670
D) decrease by $21,330
Answer: C
Explanation: Total avoidable costs = $42,000 + $10,500 + $32,500 + ($18,000 x 6%) = $86,080
Change in monthly operating income = Avoidable costs $86,080 - ($94.75 × 1,000 units) = decrease of $8,670
Diff: 2
Objective: 3
AACSB: Analytical thinking

15) W.T. Ginsburg Engine Company manufactures part ACT31107 used in several of its engine models. Monthly production costs for 1,010 units are as follows:

Direct materials	$41,000
Direct labor	7,500
Variable overhead costs	34,500
Fixed overhead costs	18,000
Total costs	$101,000

It is estimated that 7% of the fixed overhead costs assigned to ACT31107 will no longer be incurred if the company purchases ACT31107 from the outside supplier. W.T. Ginsburg Engine Company has the option of purchasing the part from an outside supplier at $94.75 per unit.

The maximum price that W.T. Ginsburg Engine Company should be willing to pay the outside supplier is ________.
A) $82 per ACT31107 part
B) $83.43 per ACT31107 part
C) $100 per ACT31107 part
D) $101.25 per ACT31107 part
Answer: B
Explanation: Avoidable costs = $84,260 / 1,010 units = $83.43 per part
Diff: 2
Objective: 3
AACSB: Analytical thinking

16) If a company does not use one of its limited resources in the best possible way, the lost contribution to income could be called a(n) ________.
A) business function cost
B) carrying cost
C) opportunity cost
D) sunk cost
Answer: C
Diff: 1
Objective: 3
AACSB: Analytical thinking

17) Opportunity costs is defined as ________.
A) the cost of manufacturing a one-time-only special order when a firm has excess capacity to make more products
B) the contribution to operating income that is forgone by not using a limited resource in its next-best alternative use
C) the sum of variable and fixed costs in a particular business function of the value chain, such as manufacturing costs or marketing costs
D) the sum of variable and fixed costs in all business functions of the value chain, such as manufacturing costs or marketing costs
Answer: B
Diff: 2
Objective: 3
AACSB: Analytical thinking

18) Which of the following is true of an opportunity cost?
A) It is the income foregone by not using a resource in an alternative way.
B) The higher the opportunity costs, the lower is the relevant cost.
C) It is recorded as an expense in the accounting records.
D) It is an unavoidable cost that cannot be changed no matter what action is taken.
Answer: A

Diff: 2
Objective: 3
AACSB: Analytical thinking

19) Which of the following would be a consideration in a make-or-buy decision?
A) excess capacity
B) wages to CEO
C) marketing costs
D) audit expenses
Answer: A
Diff: 2
Objective: 3
AACSB: Analytical thinking

20) If a company has excess capacity, the most it would pay for buying a product that it currently makes would be the ________.
A) total variable cost of producing the product
B) full cost of producing the product
C) total cost of producing the product
D) business function cost of the product
Answer: A
Diff: 2
Objective: 3
AACSB: Analytical thinking

21) For make-or-buy decisions, relevant costs include ________.
A) incremental costs plus sunk costs
B) incremental costs plus opportunity costs
C) differential costs plus fixed costs
D) incremental costs plus differential costs
Answer: B
Diff: 2
Objective: 3
AACSB: Analytical thinking

22) A study by a consultant shows that a company that had $2,000,000 of inventory was holding excess inventory of $320,000 that could be eliminated with a few process improvements. It also has $620,000 in marketable securities that yield 5% per year. What is the estimated annual opportunity cost of holding the excess inventory?
A) $16,000
B) $100,000
C) $31,000
D) $47,000
Answer: A
Explanation: $320,000 x 5% = $16,000
Diff: 2
Objective: 3
AACSB: Analytical thinking

23) Rubium Micro Devices currently manufactures a subassembly for its main product. The costs per unit are as follows:

Direct materials	$51.00
Direct labor	43.00
Variable overhead	38.00
Fixed overhead	33.00
Total	$165.00

Crayola Technologies Inc. has contacted Rubium with an offer to sell 10,000 of the subassemblies for $138.00 each. Rubium will eliminate $89,000 of fixed overhead if it accepts the proposal. What are the relevant costs for Rubium?
A) $929,000
B) $1,029,000
C) $1,409,000
D) $1,739,000
Answer: C
Explanation: The relevant costs for Rubium = [($51.00 + $43.00 + $38.00) × 10,000 + $89,000] = $1,409,000
Diff: 2
Objective: 3
AACSB: Application of knowledge

24) Rubium Micro Devices currently manufactures a subassembly for its main product. The costs per unit are as follows:

Direct materials	$54.00
Direct labor	35.00
Variable overhead	40.00
Fixed overhead	34.00
Total	$163.00

Crayola Technologies Inc. has contacted Rubium with an offer to sell 6,000 of the subassemblies for $144.00 each. Rubium will eliminate $89,000 of fixed overhead if it accepts the proposal. Should Rubium make or buy the subassemblies? What is the difference between the two alternatives?
A) Buy; savings = $89,000
B) Buy; savings = $7,000
C) Make; savings = $1,000
D) Make; savings = $203,000
Answer: C
Explanation: Cost to buy: 6,000 × $144.00 = $864,000
Cost to make: [($54.00 + $35.00 + $40.00) × 6,000 + $89,000] = $863,000
Cost savings = $864,000 - $863,000 = $1,000; make the subassemblies
Diff: 3
Objective: 3
AACSB: Application of knowledge

25) A recent college graduate has the choice of buying a new car for $33,500 or investing the money for four years with an 11% expected annual rate of return. He has an investment of $41,000 in equities and bonds which yields 8% expected annual rate of return. If the graduate decides to purchase the car, the best estimate of the opportunity cost of that decision is ________.
A) $3,280
B) $14,740
C) $41,000
D) $18,040
Answer: B
Explanation: $33,500 × 11% × 4 years = $14,740 cost of the opportunity not chosen.
Diff: 2
Objective: 3
AACSB: Application of knowledge

26) A supplier offers to make Part A for $30. Altec Services Corporation has relevant costs of $47 a unit to manufacture 1,020 units of Part A. If there is excess capacity, the opportunity cost of buying Part A from the supplier is ________.
A) $0
B) $47,940
C) $30,600
D) $78,540
Answer: A
Explanation: The opportunity cost is $0 as there is excess capacity. They will not forgo any profit they can make on other products if they making and selling any other products.
Diff: 2
Objective: 3
AACSB: Application of knowledge

27) Altec Services Corporation has relevant costs of $46 per unit to manufacture 1,050 units of Part A. A current supplier offers to make Part A for $33 per unit. Alternatively, the company can rent out the capacity for $30,000. If capacity is constrained, the opportunity cost of buying Part A from the supplier is ________.
A) $0
B) $13,650
C) $43,650
D) $30,000
Answer: D
Explanation: Alternative rent income = $30,000
Diff: 2
Objective: 3
AACSB: Application of knowledge

28) Opportunity costs are not recorded in financial accounting systems because historical record keeping is limited to transactions involving alternatives that managers actually selected rather than alternatives that they rejected.
Answer: TRUE
Diff: 2
Objective: 3
AACSB: Analytical thinking

29) For decision making, differential costs assist in choosing between alternatives.
Answer: TRUE
Diff: 1
Objective: 3
AACSB: Analytical thinking

30) Differential revenue is the additional total revenue from an activity.
Answer: FALSE
Explanation: Incremental revenue is the additional total revenue from an activity. Differential revenue is the difference in total revenue between two alternatives.
Diff: 1
Objective: 3
AACSB: Analytical thinking

31) Differential revenue is the difference in total revenue between two alternatives.
Answer: TRUE
Diff: 1
Objective: 3
AACSB: Analytical thinking

32) Outsourcing is purchasing from outside vendors parts and other goods instead of producing your

own and contracting for services instead of providing them yourself.
Answer: TRUE
Diff: 1
Objective: 3
AACSB: Analytical thinking

33) Planet Furniture, Inc. is currently producing well below its full capacity. The Swansea Company has approached Plant with an offer to buy 5,000 tools at $17.50 each. Planet sells its end table for $18.50 each; the average cost per unit is $18.30, of which $2.70 is fixed costs. If Planet accepts the order, the increase in operating income will be $7,500.

Answer: FALSE
Explanation: If Planet accepts the order, it will increase operating income by $9,500 ($17.50 - ($18.30 - $2.70) x 5,000
Diff: 1
Objective: 3
AACSB: Analytical thinking

34) Outsourcing is risk free to the manufacturer because the supplier now has the responsibility of producing the part.
Answer: FALSE
Explanation: Outsourcing has risks since the manufacturer is dependent on the supplier for a quality product, delivered in a timely manner, for a reasonable price.
Diff: 1
Objective: 3
AACSB: Analytical thinking

35) Decisions about whether a producer of goods or services will insource or outsource are also called make-or-buy decisions.
Answer: TRUE
Diff: 1
Objective: 3
AACSB: Analytical thinking

36) In a make-or-buy decision when there are alternative uses for capacity, the opportunity cost of idle capacity is relevant.
Answer: TRUE
Diff: 1
Objective: 3
AACSB: Analytical thinking

37) An incremental cost is the difference in total irrelevant costs between two alternatives.
Answer: FALSE
Explanation: An incremental cost is the additional total cost incurred for an activity. A differential cost is the difference in total relevant cost between two alternatives.
Diff: 1
Objective: 3
AACSB: Analytical thinking

38) Under the opportunity-cost approach, the relevant cost of any alternative is the incremental of the alternative plus the opportunity cost of the profit foregone from choosing the alternative.
Answer: TRUE
Diff: 1
Objective: 3
AACSB: Analytical thinking

39) When capacity is constrained, relevant costs equal incremental costs plus opportunity costs.
Answer: TRUE
Diff: 1
Objective: 3
AACSB: Analytical thinking

40) Incremental revenue is the sum of differential revenues of two alternatives.
Answer: FALSE
Explanation: Incremental revenue is the additional total revenue from an activity. Differential revenue is the difference in total revenue between two alternatives.
Diff: 1
Objective: 3
AACSB: Analytical thinking

41) Under the opportunity cost approach, the cost of each alternative includes the incremental costs and the opportunity cost.
Answer: TRUE
Diff: 1
Objective: 3
AACSB: Analytical thinking

42) When capacity is constrained, the relevant revenues and costs of any alternative equal the incremental future revenues and costs plus the opportunity cost.
Answer: TRUE
Diff: 2
Objective: 3
AACSB: Analytical thinking

43) H.J. Manufacturing produces 10,000 units of a part that is used in their assembly process. The production costs are as follows:

Direct materials	$ 50,000
Direct manufacturing labor	20,000
Variable support costs	35,000
Fixed support costs	25,000
Total costs	$130,000

H.J. Manufacturing has the option of purchasing these units from an outside supplier at $10.75 per unit. If the part is outsourced, 40% of the fixed costs cannot be immediately converted to other uses.

a. Describe avoidable costs. What amount of the part's production costs is avoidable?
b. Should H.J. outsource the part? Why or why not?
c. What other items should H.J. consider before outsourcing any of the parts it currently manufactures?
Answer:
a. Avoidable costs are those costs eliminated when a part, product, product line, or business segmented is discontinued. Avoidable production costs for part total $120,000, which are all but the $10,000 ($25,000 × 40%) of fixed costs that cannot be immediately converted to other uses.

b. Based on the financial considerations given, H/J should outsource the part because the $107,000 (10,000 units × $10.75 per part) outsourced cost is less than the $120,000 reduction in annual production costs. In other words, the outsourcing would save H.J an additional $12,500 annually.

c. Other factors to consider include the supplier's ability to meet expected quality and delivery standards, and the likelihood of suppliers increasing prices of components in the future.
Diff: 3
Objective: 3
AACSB: Application of knowledge

44) Rockford Company manufactures a part for use in its production of hats. When 10,000 items are produced, the costs per unit are:

Direct materials	$0.75
Direct manufacturing labor	3.00
Variable manufacturing overhead	1.50
Fixed manufacturing overhead	1.60
Total	$6.85

Angel Company has offered to sell to Rockford Company 10,000 units of the part for $6.00 per unit. The plant facilities could be used to manufacture another item at a savings of $9,000 if Rockford accepts the offer. In addition, $1.00 per unit of fixed manufacturing overhead on the original item would be eliminated.

Required:

a. What is the relevant per unit cost for the original part?

b. Which alternative is best for Rockford Company? By how much?

Answer:

a.

Direct materials	$0.75
Direct manufacturing labor	3.00
Variable manufacturing overhead	1.50
Avoidable fixed manufacturing. overhead	1.00
Total relevant per unit costs	$6.25

b.

	Make	Buy	Effect of Buying
Purchase price		$60,000	$(60,000)
Savings in space		(9,000)	9,000
Direct materials	$7,500		7,500
Direct mfg. labor	30,000		30,000
Variable overhead	15,000		15,000
Fixed overhead saved		(10,000)	10,000
Totals	$52,500	$41,000	$11,500

The best alternative is to buy the part.

Diff: 2

Objective: 3

AACSB: Application of knowledge

45) What are opportunity costs? Explain why opportunity costs are not recorded in financial accounting systems.
Answer: Opportunity cost is the contribution to operating income that is forgone by not using a limited resource in its next-best alternative use. Managers must consider opportunity costs in decision making since deciding to use a resource one way means a manager must forgo the opportunity to use the resource in any other way.
Opportunity costs are not recorded in financial accounting systems because historical record keeping is limited to transactions involving alternatives that managers actually selected rather than alternatives that they rejected. Rejected alternatives do not produce transactions and are not recorded.
Diff: 2
Objective: 3
AACSB: Analytical thinking

46) Factors used to decide whether to outsource a part include ________.
A) the supplier's cost of direct materials
B) if the supplier is reliable
C) the original cost of equipment currently used for production of that part
D) past design costs used to develop the current composition of the part
Answer: B
Diff: 2
Objective: 3
AACSB: Analytical thinking

11.4 Objective 11.4

1) Determining which products should be produced when the plant is operating at full capacity is referred to as a(n) ________.
A) outsourcing analysis
B) total alternative approach
C) product-mix decision
D) short-run focus decision
Answer: C
Diff: 1
Objective: 4
AACSB: Analytical thinking

2) Product mix decisions ________.
A) have a long-run focus
B) help determine how to maximize operating profits
C) focus on selling price per unit
D) help maximizing opportunity costs
Answer: B
Diff: 2
Objective: 4
AACSB: Analytical thinking

3) Capacity constraints include ________.
A) increased demand of warranty services for a pharmaceutical product
B) increased need of display space for a retailer
C) decreased demand for a pharmaceutical product
D) increased fuel efficiency of cars
Answer: B
Diff: 1
Objective: 4
AACSB: Analytical thinking

4) With a constraining resource, managers should choose the product with the ________.
A) lowest contribution margin per unit of the constraining resource
B) highest sales price
C) highest contribution margin per unit of the constraining resource
D) highest gross profit
Answer: C
Diff: 1
Objective: 4
AACSB: Analytical thinking

5) A company has three products possible products that it can produce in a machine intensive production process. Capacity is constrained by the number of hours the machines can run during a period and the products are so popular that all units produced will be sold. Here is additional information:

	Product A	Product B	Product C
Contribution per unit	$20	$30	$40
Machine hours per unit	2.5	3.25	4.5

Which of the following would be an accurate conclusion based on these facts?
A) A balanced mix of 1/3 A, 1/3 B, and 1/3 C should be the goal when maximizing operating income in the short-run.
B) Since Product C has the greatest contribution margin per unit and therefore emphasizing its production and sales will lead to the highest operating income in the short-run
C) Since A takes less time to produce, maximization of operating income will occur by emphasizing production and sales of A.
D) Product B should be emphasized if the goal is to maximize contribution margin.
Answer: D
Diff: 3
Objective: 4
AACSB: Analytical thinking

6) For managers attempting to maximize operating income for a product offering with a great deal of variety, product-mix decisions must usually take into account:
A) more than one constraining resource
B) just those products with the greatest contribution margin per constraining resource
C) products that produce a profit above the full costs of the product
D) how to maximize the selling price of all the products
Answer: A
Diff: 3
Objective: 4
AACSB: Analytical thinking

7) Springer Products manufactures three different product lines, Model X, Model Y, and Model Z. Considerable market demand exists for all models. The following per unit data apply:

	Model X	Model Y	Model Z
Selling price	$50	$66	$80
Direct materials	10	10	10
Direct labor ($15 per hour)	15	15	30
Variable support costs ($5 per machine-hour)	5	10	10
Fixed support costs	12	12	12

Which model has the greatest contribution margin per unit?
A) Model X
B) Model Y
C) Model Z
D) Both Model X and Model Y have the highest and same contribution margin per unit
Answer: B
Explanation: Model X $50 - $10 - $15 - $5 = $20
Model Y $66 - $10 - $15 - $10 = $31 highest
Model Z $80 - $10 - $30 - $10 = $30
Diff: 2
Objective: 4
AACSB: Application of knowledge

8) Springer Products manufactures three different product lines, Model X, Model Y, and Model Z. Considerable market demand exists for all models. The following per unit data apply:

	Model X	**Model Y**	**Model Z**
Selling price	$54	$62	$73
Direct materials	7	7	7
Direct labor ($17 per hour)	17	17	34
Variable support costs ($7 per machine-hour)	7	14	14
Fixed support costs	13	13	13

Which model has the greatest contribution margin per machine-hour?
A) Model X
B) Model Y
C) Model Z
D) Both Model X and Model Y have the highest and same contribution margin per machine-hour
Answer: A
Explanation: Model X $54 - $7 - $17 - $7 = $23 / 1 = $23 highest
Model Y $62 - $7 - $17 - $14 = $24 / 2 = $12
Model Z $73 - $7 - $34 - $14 = $18 / 2 = $9
Diff: 2
Objective: 4
AACSB: Application of knowledge

9) Springer Products manufactures three different product lines, Model X, Model Y, and Model Z. Considerable market demand exists for all models. The following per unit data apply:

	Model X	**Model Y**	**Model Z**
Selling price	$52	$60	$74
Direct materials	8	8	8
Direct labor ($16 per hour)	16	16	32
Variable support costs ($5 per machine-hour)	5	10	10
Fixed support costs	12	12	12

If there is excess capacity, which model is the most profitable to produce?
A) Model X
B) Model Y
C) Model Z
D) Both Model X and Model Y have same and highest profitability
Answer: B
Explanation: Model Y, since it has the greatest contribution margin per unit
Model X $52 - $8 - $16 - $5 = $23
Model Y $60 - $8 - $16 - $10 = $26 highest
Model Z $74 - $8 - $32 - $10 = $24
Diff: 3
Objective: 4
AACSB: Application of knowledge

10) Springer Products manufactures three different product lines, Model X, Model Y, and Model Z. Considerable market demand exists for all models. The following per unit data apply:

	Model X	Model Y	Model Z
Selling price	$55	$69	$78
Direct materials	10	10	10
Direct labor ($15 per hour)	15	15	30
Variable support costs ($7 per machine-hour)	7	14	14
Fixed support costs	11	11	11

If there is a machine breakdown, which model is the most profitable to produce?
A) Model X
B) Model Y
C) Model Z
D) Both Model X and Model Y have same and highest profitability
Answer: A
Explanation: Model X since it has the greatest contribution margin per machine-hour
Model X $55 - $10 - $15 - $7 = $23 / 1 = $23 highest
Model Y $69 - $10 - $15 - $14 = $30 / 2 = $15
Model Z $78 - $10 - $30 - $14 = $24 / 2 = $12
Diff: 3
Objective: 4
AACSB: Application of knowledge

11) Springer Products manufactures three different product lines, Model X, Model Y, and Model Z. Considerable market demand exists for all models. The following per unit data apply:

	Model X	Model Y	Model Z
Selling price	$56	$68	$78
Direct materials	7	7	7
Direct labor ($16 per hour)	16	16	32
Variable support costs ($7 per machine-hour)	7	15	14
Fixed support costs	15	15	15

How can Lisa Dynondo encourage her salespeople to promote the more profitable model?
A) Put all sales persons on fixed salary.
B) Provide higher sales commissions for higher priced items.
C) Provide higher sales commissions for items with the greatest contribution margin per constrained resource.
D) Provide higher sales commissions for items which has the lowest cost and lower sales commissions for items with highest cost.
Answer: C
Diff: 2
Objective: 4
AACSB: Analytical thinking

12) Kinnane's Fine Furniture manufactures two models, Standard and Premium. Weekly demand is estimated to be 100 units of the Standard Model and 77 units of the Premium Model. The following per unit data apply:

	Standard	Premium
Contribution margin per unit	$24	$24
Number of machine-hours required	6	6

The contribution per machine-hour is ________.
A) $24 for Standard, $24 for Premium
B) $144 for Standard, $144 for Premium
C) $18 for Standard, $18 for Premium
D) $4 for Standard, $4 for Premium
Answer: D
Explanation: Standard $24 / 6 = $4; Premium $24 / 6 = $4
Diff: 2
Objective: 4
AACSB: Application of knowledge

13) Kinnane's Fine Furniture manufactures two models, Standard and Premium. Weekly demand is estimated to be 106 units of the Standard Model and 74 units of the Premium Model. The following per unit data apply:

	Standard	Premium
Contribution margin per unit	$21	$24
Number of machine-hours required	3	6

If there are 495 machine-hours available per week, how many rockers of each model should Kinnane produce to maximize profits?
A) 106 units of Standard and 29 units of Premium
B) 17 units of Standard and 74 units of Premium
C) 106 units of Standard and 74 units of Premium
D) 83 units of Standard and 41 units of Premium
Answer: A
Explanation: Standard (106 units × 3 mh) + Premium (29 units × 6 mh) = 495 machine-hours of the constrained resource
Diff: 2
Objective: 4
AACSB: Application of knowledge

14) Kinnane's Fine Furniture manufactures two models, Standard and Premium. Weekly demand is estimated to be 100 units of the Standard Model and 70 units of the Premium Model. The following per unit data apply:

	Standard	Premium
Contribution margin per unit	$21	$20
Number of machine-hours required	3	4

If there are 720 machine-hours available per week, how many rockers of each model should Kinnane produce to maximize profits?
A) 100 units of Standard and 48 units of Premium
B) 71 units of Standard and 70 units of Premium
C) 100 units of Standard and 70 units of Premium
D) 82 units of Standard and 62 units of Premium
Answer: C
Explanation: Standard (100 units × 3 mh) + Premium (70 units × 4 mh) = 580 machine-hours for the current demand
Diff: 2
Objective: 4
AACSB: Application of knowledge

15) A.C. Tech Manufacturing Appliances manufactures three sizes of kitchen appliances: small, medium, and large. Product information is provided below.

	Small	Medium	Large
Unit selling price	$450	$620	$1,240
Unit costs:			
Variable manufacturing	(240)	(280)	(530)
Fixed manufacturing	(80)	(140)	(250)
Fixed selling and administrative	(110)	(125)	(130)
Unit profit	$20	$75	$330
Demand in units	110	140	110
Machine-hours per unit	40	70	110

The maximum machine-hours available are 6,500 per week.

What is the contribution margin per machine-hour for a medium appliance?
A) $0.54
B) $1.07
C) $4.86
D) $7.79
Answer: C
Explanation: Contribution margin = $620 - $280 = $340
Contribution margin per machine hour = $340 / 70 = $4.86
Diff: 2
Objective: 4
AACSB: Application of knowledge

16) A.C. Tech Manufacturing Appliances manufactures three sizes of kitchen appliances: small, medium, and large. Product information is provided below.

	Small	Medium	Large
Unit selling price	$430	$610	$1,210
Unit costs:			
Variable manufacturing	(270)	(280)	(530)
Fixed manufacturing	(40)	(170)	(270)
Fixed selling and administrative	(70)	(75)	(140)
Unit profit	$50	$85	$270
Demand in units	150	170	150
Machine-hours per unit	60	60	150

The maximum machine-hours available are 6,500 per week.

Which of the three product models should be produced first if management incorporates a short-run profit maximizing strategy?
A) small appliance
B) medium appliance
C) large appliance
D) both medium and large appliance
Answer: B
Diff: 2
Objective: 4
AACSB: Application of knowledge

17) A. C .Tech Manufacturing Appliances manufactures three sizes of kitchen appliances: small, medium, and large. Product information is provided below.

	Small	Medium	Large
Unit selling price	$430	$550	$1,230
Unit costs:			
Variable manufacturing	(200)	(320)	(700)
Fixed manufacturing	(50)	(140)	(240)
Fixed selling and administrative	(90)	(25)	(130)
Unit profit	$90	$65	$160
Demand in units	170	130	170
Machine-hours per unit	70	40	170

The maximum machine-hours available are 6,200 per week.

How many of each product should be produced per month using the short-run profit maximizing strategy?

A) 0 130 7
B) 14 130 0
C) 170 170 0
D) 170 70 40

Answer: B

Explanation: Small: (430 - 200) / 70 = 3.29
Medium: (550 - 320) / 40 = 5.75
Large: (1,230 - 700) / 170 = 3.12
Medium (130 × 40) + Small (14 × 70) = 6,180 total machine-hours
Diff: 3
Objective: 4
AACSB: Application of knowledge

18) Granfield Corporation manufactures two products, Product A and Product B. The following information was available:

	Product A	Product B
Selling price per unit	$41	$29
Variable cost per unit	32	19
Total fixed costs	$23,000	

If Granfield Corporation could produce and sell either 10,400 units of Product A or 5,900 units of Product B at full capacity, it should produce and sell ________.
A) 10,400 units of A and none of B
B) 2,556 units of B and 2,300 units of A
C) 5,900 units of B and none of A
D) 6,556 units of A and 5,900 units of b
Answer: A
Explanation: 10,400 × ($41 - $32) = $93,600
Diff: 3
Objective: 4
AACSB: Application of knowledge

19) Product-mix decisions usually have only a short-run focus because they typically arise in the context of capacity constraints that can be relaxed in the long run.
Answer: TRUE
Diff: 2
Objective: 4
AACSB: Analytical thinking

20) For short-run product-mix decisions, managers should focus on minimizing total fixed costs.
Answer: FALSE
Explanation: For short-run product mix decisions, managers should focus on *maximizing* total *contribution margin*.
Diff: 2
Objective: 4
AACSB: Analytical thinking

21) For short-run product-mix decisions, maximizing contribution margin will also result in maximizing operating income.
Answer: TRUE
Diff: 2
Objective: 4
AACSB: Analytical thinking

22) To maximize profits, managers should produce more of the product with the greatest contribution margin per unit of the constraining resource.
Answer: TRUE
Diff: 2
Objective: 4
AACSB: Analytical thinking

23) When there is a constraining resource, a firm should attempt to maximize sales of the product or service with the greatest contribution margin per unit.
Answer: FALSE
Explanation: When there are constrained resources, a firm should attempt to maximize sales of the product or service with the *greatest contribution margin per unit of the constraining resource.*
Diff: 2
Objective: 4

AACSB: Analytical thinking

24) Lewis S. Gray Inc. manufactures a part for use in its production of art deco furniture. When 10,000 items are produced, the costs per unit are:

Direct materials	$ 15
Direct manufacturing labor	60
Variable manufacturing overhead	25
Fixed manufacturing overhead	32
Total	$132

Colonial Accents Company has offered to sell to Lewis S. Gray 10,000 units of the part for $125 per unit. The plant facilities could be used to manufacture another part at a savings of $180,000 if Lewis S. Gray accepts the supplier's offer. In addition, $30 per unit of fixed manufacturing overhead on the original part would be eliminated.

Required:

a. What is the relevant per unit cost for the original part?

b. Which alternative is best for Lewis S. Gray Company? By how much?

Answer:

a.

Direct materials	$15
Direct manufacturing labor	60
Variable manufacturing overhead	25
Avoidable fixed manufacturing overhead	30
Total relevant per unit costs	$130

b.

	Make	Buy	Effect of Buying
Purchase price		$1,250,000	$(1,250,000)
Savings in space		(180,000)	180,000
Direct materials	$150,000		150,000
Direct manufacturing labor	600,000		600,000
Variable overhead	300,000		300,000
Fixed overhead saved		(300,000)	300,000
Totals	$1,050,000	$770,000	$280,000

The best alternative is to buy the part.

Diff: 2

Objective: 4

AACSB: Application of knowledge

25) Canary's Products Inc. manufactures three different product lines, Basic, Better, and Best. Considerable market demand exists for all models. The following per unit data apply:

	Basic	Better	Best
Selling price	$170	$190	$210
Direct materials	60	60	60
Direct labor ($20 per hour)	30	30	40
Variable support costs ($10 per machine-hour)	10	20	20
Fixed support costs	40	40	40

a. For each model, compute the contribution margin per unit.
b. For each model, compute the contribution margin per machine-hour.
c. If there is excess capacity, which model is the most profitable to produce? Why?
d. If there is a machine breakdown, which model is the most profitable to produce? Why?
e. How can Canary encourage its sales people to promote the more profitable model?

Answer: a. The contribution margin per unit is:
$70 for Model X ($170 - $90 - $30 - $10),
$80 for Model Y ($190 - $60 - $30 - $20),
and $90 for Model Z ($210 - $60 - $40 - $20).

b. The contribution margin per machine-hour is
$70 for Model X ($70 contribution margin / 1.0 machine-hour per unit),
$40 for Model Y ($80 / 2.0), and
$45 for Model Z ($90 / 2.0).

c. When there is excess capacity, the Best model is the most profitable because it has the greatest contribution margin per unit.

d. When there are machine-hour capacity constraints, the Basic model is the most profitable because it has the greatest contribution margin per constrained resource.

e. To encourage sales persons to promote specific products, Canary may want to provide marketing incentives such as higher sales commissions for products contributing the most to profits. Canary may also want to educate salespeople about the effects of constrained resources.

Diff: 3
Objective: 4
AACSB: Application of knowledge

26) How does a manager go about choosing which of three products to produce and sell when each product uses a single machine with a limited capacity?

Answer: Management should attempt to maximize output from the machine which is the limited resource. This involves maximizing the contribution margin per unit of the scarce resource. First of all, management needs to determine the contribution margin of each of the three products. Then, the time that it takes to produce a unit of each of the three products should be determined. Then, a contribution margin per machine hour can be calculated. The first product that should be produced is the one with the highest contribution margin per machine hour.

Diff: 2
Objective: 4
AACSB: Analytical thinking

11.5 Objective 11.5

1) The theory of constraints (TOC) defines throughput margin as ________.
A) operating income minus the direct material costs of the goods sold
B) operating income minus the direct labor costs of the goods sold
C) revenues minus the direct material costs of the goods sold
D) revenues minus the full costs of the goods sold
Answer: C
Diff: 3
Objective: 5
AACSB: Analytical thinking

2) Based on the theory of constraints, investments equal ________.
A) the sum of material costs in direct and indirect materials, work-in-process, and finished goods inventories; R&D costs; and business function costs
B) the sum of material costs in direct materials, work-in-process, and finished goods inventories; R&D costs; and capital costs of equipment and buildings
C) the sum of material costs in direct and indirect materials, work-in-process, and finished goods inventories; R&D costs; and full costs
D) the sum of material costs in direct materials, work-in-process, and finished goods inventories; R&D costs; sunk costs, full costs, and business function costs
Answer: B
Diff: 3
Objective: 5
AACSB: Analytical thinking

3) The objective of the Theory of Constraints is to increase throughput margin while increasing investment in plant and equipment.
Answer: FALSE
Explanation: The objective of the Theory of Constraints is to increase throughput margin while while decreasing investments and operating costs.
Diff: 1
Objective: 5
AACSB: Analytical thinking

4) The theory of constraints is more useful for the long-run management of costs since it takes a long-run perspective and focuses on improving processes by eliminating non-value-added activities and reducing the costs of performing value-added activities.
Answer: FALSE
Explanation: The theory of constraints is less useful for the long-run management of costs since it regards operating costs as difficult to change in the short run, it does not identify individual activities and drivers of costs.
Diff: 1
Objective: 5
AACSB: Analytical thinking

5) Activity based costing (ABC) systems are less useful than the theory of constraints (TOC) for long-run pricing, cost control, and capacity management.
Answer: FALSE
Explanation: Activity based costing (ABC) systems take a long-run perspective and focus on improving processes by eliminating non-value-added activities and reducing the costs of performing value-added activities. ABC systems are therefore more useful than TOC for long-run pricing, cost control, and capacity management.
Diff: 2
Objective: 5
AACSB: Analytical thinking

6) Compare and contrast the theory of constraints and activity based costing. Which is more useful in short-run and long-run management of costs?
Answer: The theory of constraints emphasizes management of bottleneck operations as the key to improving performance of production operations as a whole. It focuses on short-run maximization of contribution margin. Because TOC regards operating costs as difficult to change in the short run, it does not identify individual activities and drivers of costs. Therefore, TOC is more useful for the short-run management of costs.
In contrast, activity based costing (ABC) systems take a long-run perspective and focus on improving processes by eliminating non-value-added activities and reducing the costs of performing value-added activities. ABC systems are therefore more useful than TOC for long-run pricing, cost control, and capacity management. The short-run TOC emphasis on maximizing contribution margin by managing bottlenecks complements the long-run strategic-cost-management focus of ABC.
Diff: 2
Objective: 5
AACSB: Analytical thinking

7) Genent's Preserves currently makes jams and jellies and a variety of decorative jars used for packaging. An outside supplier has offered to supply all of the needed decorative jars. For this make-or-buy decision, a cost analysis revealed the following avoidable unit costs for the decorative jars:

Direct materials	$0.56
Direct labor	0.11
Unit-related support costs	0.24
Batch-related support costs	0.30
Product-sustaining support costs	0.53
Facility-sustaining support costs	0.56
Total cost per jar	$2.3

The relevant cost per jar is ________.
A) $0.67 per jar
B) $0.91 per jar
C) $1.74 per jar
D) $2.30 per jar
Answer: D
Explanation: All avoidable costs are relevant for this decision.
Diff: 2
Objective: 5
AACSB: Application of knowledge

8) Genent's Preserves currently makes jams and jellies and a variety of decorative jars used for packaging. An outside supplier has offered to supply all of the needed decorative jars. For this make-or-buy decision, a cost analysis revealed the following avoidable unit costs for the decorative jars:

Direct materials	$0.52
Direct labor	0.12

Unit-related support costs	0.23
Batch-related support costs	0.30
Product-sustaining support costs	0.49
Facility-sustaining support costs	0.60
Total cost per jar	$2.26

The maximum price that Genent's Preserves should be willing to pay for the decorative jars is ________.
A) $0.64 per jar
B) $0.87 per jar
C) $0.49 per jar
D) $2.26 per jar
Answer: D
Explanation: Considering only quantitative factors, the company should not pay more than the avoidable costs of $2.26 per jar. There may be qualitative factors that are also important.
Diff: 2
Objective: 5
AACSB: Application of knowledge

9) Throughput margin is equal to revenues minus direct materials and direct labor of the cost of goods sold.
Answer: FALSE
Explanation: Throughput margin is equal to revenues minus direct materials of the cost of goods sold.
Diff: 2
Objective: 5
AACSB: Analytical thinking

11.6 Objective 11.6

1) Which of the following is an irrelevant cost when considering where to drop a customer?
A) cost of goods sold
B) marketing support
C) depreciation
D) sales order and delivery processing
Answer: C
Diff: 2
Objective: 6
AACSB: Analytical thinking

2) When deciding to lease a new cutting machine or continue using the old machine, the irrelevant cost is ________.
A) $50,000, cost of the old machine
B) $20,000, cost of the new machine
C) $10,000, selling price of the old machine
D) $3,000, annual savings in operating costs if the new machine is purchased
Answer: A
Diff: 2
Objective: 6
AACSB: Analytical thinking

3) Which of the following is true of depreciation cost?
A) Depreciation cost on equipment is irrelevant in decision making because depreciation on equipment that has already been purchased is a past cost.
B) Depreciation cost on equipment is relevant in decision making because depreciation on equipment that has already been purchased is an opportunity cost.
C) Depreciation cost on equipment is irrelevant in decision making because there is no cash transaction.
D) Depreciation cost on equipment is irrelevant in decision making because depreciation on equipment that has already been purchased is an opportunity cost.
Answer: A
Diff: 1
Objective: 6
AACSB: Analytical thinking

4) When deciding whether to discontinue a segment of a business, relevant costs include ________.
A) auditing expenses for the whole company
B) fees paid to a management consultant to study the feasibility of the business segment
C) annual insurance costs of the company
D) future administrative costs that can be eliminated
Answer: D
Diff: 2
Objective: 6
AACSB: Analytical thinking

5) Colonial North Manufacturing, Inc. is considering eliminating one of its product lines. The fixed costs currently allocated to the product line will be allocated to other product lines upon discontinuance. What financial effects occur if the product line is discontinued?
A) net income will decrease by the amount of the contribution margin of the product line being discontinued
B) the company's total fixed costs will increase by the amount of the contribution margin of the product line being discontinued
C) the company's total fixed costs will decrease by the amount of the product line's fixed costs
D) net income will decrease by the amount of the product line's fixed costs
Answer: A
Diff: 2
Objective: 6
AACSB: Analytical thinking

6) Discontinuing unprofitable products will ________.
A) increase profitability if the resources no longer required by the discontinued product can be eliminated
B) increase profitability if capacity constraints are adjusted
C) decrease profitability if the fixed costs does not change after discontinuing the particular business segment
D) increase profitability when a large portion of the fixed costs are unavoidable
Answer: A
Diff: 2
Objective: 6
AACSB: Analytical thinking

7) A segment has the following data:

Sales	$650,000
Variable costs	386,000
Fixed costs	365,500

What will be the incremental effect on net income if this segment is eliminated, assuming the fixed costs will be allocated to profitable segments?
A) $284,500 increase
B) $386,000 decrease
C) $264,000 decrease
D) $365,500 decrease
Answer: C
Explanation: Change in net income = $650,000 - $386,000 = $264,000 decrease
Diff: 2
Objective: 6
AACSB: Application of knowledge

8) State Road Fabricators Inc. is considering eliminating Model A02777 because of losses over the past quarter. The past three months of information for Model A02777 are summarized below:

Sales (1,100 units)	$470,000
Manufacturing costs:	
Direct materials	160,000
Direct labor ($15 per hour)	80,000
Overhead	150,000
Operating loss	($80,000)

Overhead costs are 75% variable and the remaining 25% is depreciation of special equipment for model A02777 that has no resale value.

If Model A02777 is dropped from the product line, operating income will ________.
A) increase by $80,000
B) decrease by $117,500
C) increase by $37,500
D) decrease by $80,000
Answer: B
Explanation: $470,000 - $160,000 - $80,000 - $112,500 = $117,500 This product contributes $117,500 toward corporate profits, therefore, discontinuing this product will decrease operating income by $117,500.
Diff: 3
Objective: 6
AACSB: Application of knowledge

9) The management accountant for Giada's Book Store has prepared the following income statement for the most current year:

	Cookbook	Travel Book	Classics	Total
Sales	$63,000	$179,000	$60,000	$302,000
Cost of goods sold	37,000	70,000	23,000	130,000
Contribution margin	26,000	109,000	37,000	172,000
Order and delivery processing	19,000	26,000	9,000	54,000
Rent (per sq. foot used)	3,000	3,000	3,000	9,000
Allocated corporate costs	10,000	10,000	10,000	30,000
Corporate profit	$ (6,000)	$70,000	$15,000	$79,000

If the cookbook product line had been discontinued prior to this year, the company would have reported ________.

A) greater corporate profits
B) the same amount of corporate profits
C) less corporate profits
D) resulting profits cannot be determined
Answer: C
Explanation: $63,000 - $37,000 - $19,000 - $3,000 = $4,000
The cookbook product line contributed $4,000 toward corporate profits. Without the cookbooks, corporate profits would be $4,000 less than currently reported.
Diff: 3
Objective: 6
AACSB: Application of knowledge

10) The management accountant for Giada's Book Store has prepared the following income statement for the most current year:

	Cookbook	Travel Book	Classics	Total
Sales	$65,000	$164,000	$55,000	$284,000
Cost of goods sold	37,000	67,000	20,000	124,000
Contribution margin	28,000	97,000	35,000	160,000
Order and delivery processing	21,000	25,000	11,000	57,000
Rent (per sq. foot used)	5,000	4,000	4,000	13,000
Allocated corporate costs	10,000	10,000	10,000	30,000
Corporate profit	$ (8,000)	$58,000	$10,000	$60,000

If the travel book line had been discontinued, corporate profits for the current year would have decreased by ________.

A) $97,000
B) $72,000
C) $68,000
D) $58,000
Answer: C
Explanation: $164,000 - $67,000 - $25,000 - $4,000 = $68,000
Diff: 3
Objective: 6
AACSB: Application of knowledge

11) Giant Company has three products, A, B, and C. The following information is available:

	Product A	Product B	Product C
Sales	$70,000	$97,000	$23,000
Variable costs	37,000	51,000	15,000
Contribution margin	33,000	46,000	8,000
Fixed costs:			
Avoidable	10,000	20,000	2,000
Unavoidable	7,000	12,000	9,400
Operating income	$16,000	$14,000	$ (3,400)

Giant Company is thinking of dropping Product C because it is reporting a loss. Assuming Giant drops Product C and does NOT replace it, operating income will ________.
A) increase by $3,400
B) increase by $2,000
C) decrease by $6,000
D) decrease by $11,400
Answer: C
Explanation: Dropping Product C would mean Giant gives up $8,000 in contribution margin while only saving $2,000 in avoidable fixed costs. Without Product C, operating income would be $6,000 less than currently reported.
Diff: 3
Objective: 6
AACSB: Application of knowledge

12) Overhead costs allocated to the sales office and individual customers are always relevant when deciding whether to drop a customer.
Answer: FALSE
Explanation: Overhead costs allocated to the sales office and individual customers are always irrelevant.
Diff: 1
Objective: 6
AACSB: Analytical thinking

13) Avoidable variable and fixed costs should be considered relevant when deciding whether to discontinue a product, product line, business segment, or customer.
Answer: TRUE
Diff: 1
Objective: 6
AACSB: Analytical thinking

14) Depreciation allocated to a product line is a relevant cost when deciding to discontinue that product.
Answer: FALSE
Explanation: Depreciation is a sunk cost and never relevant.
Diff: 2
Objective: 6
AACSB: Analytical thinking

15) In a decision as to whether or not to drop a product, fixed costs that have been allocated to that product are generally not relevant unless there is a savings of fixed costs as a result of dropping the product.
Answer: TRUE
Diff: 2
Objective: 6
AACSB: Analytical thinking

16) A company is considering adding a fourth product to use available capacity. A relevant factor to consider is that corporate costs can now be allocated over four products rather than only three.
Answer: FALSE
Explanation: It appears that corporate costs will not change in total, and therefore they are not relevant costs for deciding whether to add a fourth product.
Diff: 3
Objective: 6
AACSB: Analytical thinking

17) Cassidy Products Inc.is considering eliminating Model EOS1 from its product line because of losses over the past quarter. The past three months of information for model EOS1 is summarized below:

Sales (1,000 units)	$225,000
Manufacturing costs:	
Direct materials	80,000
Direct labor ($15 per hour)	70,000
Support	100,000
Operating loss	($25,000)

Support costs are 70% variable and the remaining 30% is depreciation of special equipment for model EOS1 that has no resale value.

Should Cassidy eliminate Model EOS1 from its product line? Why or why not?
Answer: No, Cassidy should not eliminate Model EOS1 from its product line because it contributes $5,000 toward fixed costs and profits.

Sales (1,000 units)	$225,000
Manufacturing costs:	
Direct materials	80,000
Direct labor	70,000
Variable support ($100,000 × 70%)	70,000
Contribution margin	$5,000

Diff: 2
Objective: 6
AACSB: Application of knowledge

18) The management accountant for the Chocolate S'more Company has prepared the following income statement for the most current year:

	Chocolate	Other Candy	Fudge	Total
Sales	$40,000	$25,000	$35,000	$100,000
Cost of goods sold	26,000	15,000	19,000	60,000
Contribution margin	14,000	10,000	16,000	40,000
Delivery and ordering costs	2,000	3,000	2,000	7,000
Rent (per sq. foot used)	3,000	3,000	2,000	8,000
Allocated corporate costs	5,000	5,000	5,000	15,000
Corporate profit	$4,000	$(1,000)	$7,000	$10,000

a. Do you recommend discontinuing the Other Candy product line? Why or why not?
b. If the Chocolate product line had been discontinued, corporate profits for the current year would have decreased by what amount?
Answer:
a. No, I would not recommend discontinuing the Other Candy product line because this product line contributes $4,000 towards corporate costs and profits.
$25,000 - $15,000 - $3,000 - $3,000 = $4,000
Without the Other Candy product line, corporate profits would be $4,000 less than currently reported.

b. If the Chocolate product line were discontinued, corporate profits would immediately decrease by $9,000.
$40,000 - $26,000 - $2,000 - $3,000 = $9,000
Diff: 3
Objective: 6
AACSB: Application of knowledge

19) Biden Company sells two items, product A and product B. The company is considering dropping product B. It is expected that sales of product A will increase by 40% as a result. Dropping product B will allow the company to cancel its monthly equipment rental costing $200 per month. The other existing equipment will be used for additional production of product A. One employee earning $500 per month can be terminated if product B production is dropped. Biden's other fixed costs are allocated and will continue regardless of the decision made. A condensed, budgeted monthly income statement with both products follows:

	Product A	Product B	Total
Sales	$10,000	$ 8,000	$18,000
Direct materials	2,500	2,000	4,500
Direct labor	2,000	1,200	3,200
Equipment rental	300	2,600	2,900
Other allocated overhead	1,000	2,100	3,100
Operating income	$4,200	$ 100	$ 4,300

Required:
Prepare an incremental analysis to determine the financial effect of dropping product B.

Answer: Incremental change in revenue:

Product A increase in sales $10,000 × 40%	$4,000	
Product B decrease in sales	(8,000)	
Incremental decrease in revenue		($4,000)
Incremental change in variable costs:		
Direct materials: Product A increase $2,500 × 40%	(1,000)	
Product B decrease	2,000	
Direct labor: Product A increase $2,000 × 40%	(800)	
Product B decrease	500	
Incremental decrease in variable costs		700
Equipment rental deduction		200
Incremental decrease in profits if product B is dropped		($3,100)

Diff: 3
Objective: 6
AACSB: Application of knowledge

11.7 Objective 11.7

1) Managers are examining a possible replacement of a machine decision and generate the following numbers:

Book value of old machine $1,00,000
Current disposal value of old machine $50,000
Loss on disposal of old machine $300,000
Cost of new machine $600,000

In performing an analysis and in attempt to answer the question, "should we replace the old machine", which of the following statements would be true

A) the book value of the old machine is relevant
B) the book value of the old machine and the current disposal value of the old machine are both relevant
C) the cost of the new machine and the current disposal value of the old machine are relevant
D) the book value of the old machine and the current disposal value of the old machine are the only relevant items
Answer: C
Diff: 2
Objective: 7
AACSB: Analytical thinking

2) Book value is defined as the ________.
A) sum of the original cost of an asset and the accumulated depreciation
B) difference between the market value of an asset and the accumulated depreciation
C) difference between the original cost of an asset and the accumulated depreciation
D) sum of the market value of an asset and the accumulated depreciation
Answer: C
Diff: 1
Objective: 7
AACSB: Analytical thinking

3) ________ is relevant in a decision to replace equipment.
A) Warehouse rent costs
B) Book value of old equipment
C) Accumulated depreciation on old equipment
D) Salvage value
Answer: D
Diff: 1
Objective: 7
AACSB: Analytical thinking

4) Which of the following is true in a decision to keep or replace existing equipment?
A) The book value of the old equipment is relevant.
B) The disposal value of the old equipment is relevant.
C) Property taxes is relevant.
D) Depreciation on the new equipment is relevant.
Answer: B
Diff: 1
Objective: 7
AACSB: Analytical thinking

5) A company decided to replace an old machine with a new machine. Which of the following is considered a relevant cost?
A) the book value of the old equipment
B) the depreciation expense on the old equipment
C) the loss on the disposal of the old equipment
D) the setup cost of the new equipment
Answer: D
Diff: 1
Objective: 7
AACSB: Analytical thinking

6) What role does a trade-in allowance on old equipment play in a decision to retain or replace equipment?
A) It is relevant since it increases the cost of the new equipment.
B) It is irrelevant since it reduces the cost of the old equipment.
C) It is irrelevant to the decision since it does not impact the cost of the new equipment.
D) It is relevant since it reduces the cost of the new equipment.
Answer: D
Diff: 1
Objective: 7
AACSB: Analytical thinking

7) Hartley's Meat Pies is considering replacing its existing delivery van with a new one. The new van can offer considerable savings in operating costs. Information about the existing van and the new van follow:

	Existing van	New van
Original cost	$59,000	$91,000
Annual operating cost	$19,500	$11,000
Accumulated depreciation	$33,000	—
Current salvage value of the existing van	$26,500	—
Remaining life	9 years	9 years
Salvage value in 9 years	$ 0	$ 0
Annual depreciation	$2,889	$10,111

Sunk costs include ________.
A) the accumulated depreciation of the existing van
B) the original cost of the new van
C) the current salvage value of the existing van
D) the annual operating cost of the new van
Answer: A
Diff: 2
Objective: 7
AACSB: Application of knowledge

8) Hartley's Meat Pies is considering replacing its existing delivery van with a new one. The new van can offer considerable savings in operating costs. Information about the existing van and the new van follow:

	Existing van	New van
Original cost	$50,000	$93,000
Annual operating cost	$17,500	$11,000
Accumulated depreciation	$32,000	—
Current salvage value of the existing van	$23,500	—
Remaining life	10 years	10 years
Salvage value in 10 years	$ 0	$ 0
Annual depreciation	$1,800	$9,300

Relevant costs for this decision include ________.
A) the original cost of the existing van
B) accumulated depreciation
C) the annual operating cost
D) the book value of the existing van
Answer: C
Diff: 2
Objective: 7
AACSB: Application of knowledge

9) Hartley's Meat Pies is considering replacing its existing delivery van with a new one. The new van can offer considerable savings in operating costs. Information about the existing van and the new van follow:

	Existing van	New van
Original cost	$56,000	$95,000
Annual operating cost	$22,500	$15,000
Accumulated depreciation	$33,000	—
Current salvage value of the existing van	$27,500	—
Remaining life	10 years	10 years
Salvage value in 10 years	$ 0	$ 0
Annual depreciation	$2,300	$9,500

If Hartley's Meat Pies replaces the existing delivery van with the new one, over the next 10 years operating income will ________.
A) decrease by $95,000
B) increase by $75,000
C) decrease by $75,000
D) increase by $95,000
Answer: B
Explanation: New van ($15,000 × 10 years) - Existing van ($22,500 × 10 years) = $75,000 less in operating costs, which results in a $75,000 increase in operating income.
Diff: 3
Objective: 7
AACSB: Application of knowledge

10) Planet Design Services, Inc., is considering replacing a machine. The following data are available:

	Old Machine	Replacement Machine
Original cost	$630,000	$510,000
Useful life in years	12	6
Current age in years	6	0
Book value	$350,000	—
Disposal value now	$122,000	—
Disposal value in 6 years	0	0
Annual cash operating costs	$102,000	$59,000

Which of the data provided in the table is a sunk cost?
A) the annual cash operating costs of the old machine
B) the annual cash operating costs of the replacement machine
C) the disposal value of the old machine
D) the original cost of the old machine
Answer: D
Diff: 2
Objective: 7
AACSB: Application of knowledge

11) Planet Design Services, Inc., is considering replacing a machine. The following data are available:

	Old Machine	Replacement Machine
Original cost	$640,000	$520,000
Useful life in years	12	6
Current age in years	6	0
Book value	$400,000	—
Disposal value now	$162,000	—
Disposal value in 6 years	0	0
Annual cash operating costs	$107,000	$61,000

For the decision to keep the old machine, the relevant costs of keeping the old machine is ________.
A) $492,000
B) $642,000
C) $804,000
D) $107,000
Answer: B
Explanation: Relevant cost = $107,000 × 6 = $642,000
Diff: 3
Objective: 7
AACSB: Application of knowledge

12) Planet Design Services, Inc., is considering replacing a machine. The following data are available:

	Old Machine	Replacement Machine
Original cost	$650,000	$510,000
Useful life in years	10	5
Current age in years	5	0
Book value	$400,000	—
Disposal value now	$142,000	—
Disposal value in 5 years	0	0
Annual cash operating costs	$100,000	$66,000

The difference between keeping the old machine and replacing the old machine is ________.
A) $910,000 in favor of keeping the old machine
B) $198,000 in favor of keeping the old machine
C) $910,000 in favor of replacing the old machine
D) $198,000 in favor of replacing the old machine
Answer: B
Explanation: New [$510,000 + (5 × $66,000) - $142,000] - Old [(5 × $100,000)] = $198,000
Diff: 3
Objective: 7
AACSB: Application of knowledge

13) When replacing an old machine with a new machine, the new machine's depreciation expense is relevant.
Answer: TRUE
Diff: 1
Objective: 7
AACSB: Analytical thinking

14) When replacing an old machine with a new machine, the book value of the old machine is a relevant cost.
Answer: FALSE
Explanation: The original price of the old machine and the related accumulated depreciation is a sunk cost and therefore an irrelevant cost.
Diff: 1
Objective: 7
AACSB: Analytical thinking

15) Pat, a Pizzeria manager, replaced the convection oven just six months ago. Today, Turbo Ovens Manufacturing announced the availability of a new convection oven that cooks more quickly with lower operating expenses. Pat is considering the purchase of this faster, lower-operating cost convection oven to replace the existing one they recently purchased. Selected information about the two ovens is given below:

	Existing	New Turbo Oven
Original cost	$60,000	$50,000
Accumulated depreciation	$ 5,000	—
Current salvage value	$40,000	—
Remaining life	5 years	5 years
Annual operating expenses	$10,000	$ 7,500
Disposal value in 5 years	$ 0	$ 0

Required:
a. What costs are sunk?
b. What costs are relevant?
c. What are the net cash flows over the next 5 years assuming the Pizzeria purchases the new convection oven?
d. What other items should Pat, as manager of the Pizzeria, consider when making this decision?

Answer:
a. Sunk costs include the original cost of the existing convection oven and the accompanying accumulated depreciation.

b. Relevant costs include:
Acquisition cost of the new Turbo oven
Current disposal value of the existing convection oven
Differences in annual operating expenses for the existing and the new Turbo oven

c. Net cash flows over 5 years with the new Turbo oven:

Cash inflow:	
Decrease in annual operating expenses ($2,500 × 5)	$ 12,500
Sale of the existing oven	40,000
Cash outflow:	
Acquisition of the new Turbo oven	(50,000)
Net cash inflow (outflow)	$ 2,500

d. Other items the manager should consider when making this decision include:
- The Turbo oven's reliability and efficiency is still unknown since it is a brand-new product.
- If the Turbo oven bakes faster as it claims, the Pizzeria may be able to increase sales due to the quicker baking time.
- After purchasing another oven just six months prior, top management should consider the Turbo oven option, but instead may question the decision-making ability of Pat, the current manager.

Diff: 2
Objective: 7
AACSB: Application of knowledge

16) Why is the depreciation of an old equipment irrelevant to decision making?
Answer: Depreciation cost is irrelevant in decision making because depreciation on equipment that has already been purchased is a past cost. But, the cost of purchasing new equipment in the future that will be written off as depreciation is relevant in decision making.
Diff: 2
Objective: 7
AACSB: Analytical thinking

11.8 Objective 11.8

1) If management takes a multiple-year view in the decision model and judges success according to the current year's results, a problem will occur in the ________.
A) decision model
B) performance evaluation model
C) production evaluation model
D) quantitative model
Answer: B
Diff: 2
Objective: 7
AACSB: Analytical thinking

2) Top management faces a persistent challenge to make sure that the performance evaluation model of lower level managers is ________.
A) focused on short-term performance
B) based solely on quantitative factors
C) consistent with the decision model
D) based solely on qualitative factors
Answer: C
Diff: 2
Objective: 8
AACSB: Analytical thinking

3) Performance evaluation focuses on responsibility centers for a specific period, not on projects or individual items of equipment over their useful lives.
Answer: TRUE
Diff: 2
Objective: 8
AACSB: Analytical thinking

4) How can conflicts arise between the decision model and the performance evaluation model used to evaluate managers? Provide an example of this type of conflict.
Answer: Since managers will act in their self interest, they will make decisions that make their own performance look best. At times, this does not lead to the best decision for the firm. An example of this situation might include evaluating a managers performance on short-term results, when the firm would like decisions made that would maximize long term performance.
Diff: 2
Objective: 8
AACSB: Analytical thinking

11.9 Objective 11.A

1) Linear programming is a tool that maximizes total contribution margin of a mix of products with multiple constraints.
Answer: TRUE
Diff: 1
Objective: A
AACSB: Analytical thinking

2) Which of the following is an assumption of linear programming?
A) Average variable costs remain constant throughout the year.
B) Opportunity costs are irrelevant in decision making.
C) Few sunk costs are relevant in decision making.
D) All costs are either variable or fixed for a single cost driver.
Answer: D
Diff: 2
Objective: A
AACSB: Analytical thinking

3) In linear programming, the goals of management are expressed in ________.
A) an objective function
B) constraints
C) operating policies
D) business functions
Answer: A
Diff: 1
Objective: A
AACSB: Analytical thinking

4) A mathematical inequality or equality that must be appeased is known as a(n) ________.
A) objective function
B) constraint
C) operating policy
D) business function
Answer: B
Diff: 2
Objective: A
AACSB: Analytical thinking

5) Computer Products produces two keyboards, Regular and Special. Regular keyboards have a unit contribution margin of $128, and Special keyboards have a unit contribution margin of $720. The demand for Regulars exceeds Computer Product's production capacity, which is limited by available machine-hours and direct manufacturing labor-hours. The maximum demand for Special keyboards is 80 per month. Management desires a product mix that will maximize the contribution toward fixed costs and profits.

Direct manufacturing labor is limited to 1,600 hours a month and machine-hours are limited to 1,200 a month. The Regular keyboards require 20 hours of labor and 8 machine-hours. Special keyboards require 34 labor-hours and 20 machine-hours.

Let R represent Regular keyboards and S represent Special keyboards. The correct set of equations for the keyboard production process is ________.

A) Maximize: $128R + $720S
Constraints:
- Labor-hours: $20R + 34S \leq 1,600$
- Machine-hours: $8R + 20S \leq 1,200$
- Special: $S \leq 80$
  $S \geq 0$
- Regular: $R \geq 0$

B) Maximize: $128R + $720S
Constraints:
- Labor-hours: $20R + 34S \geq 1,600$
- Machine-hours: $8R + 20S \geq \leq 1,200$
- Special: $S \geq 80$
  $S \geq 0$
- Regular: $R \geq 0$

C) Maximize: $720S + $128R
Constraints:
- Labor-hours: $20R + 8S \leq 1,600$
- Machine-hours: $34R + 20S \leq 1,200$
- Special: $S \leq 80$
  $S \geq 0$
- Regular: $R \geq 0$

D) Maximize: $128R + $720S
Constraints:
- Labor-hours: $20R + 34S \leq 1,600$
- Machine-hours: $8R + 20S \leq 1,200$
- Special: $S \geq 80$
  $S \leq 0$
- Regular: $R \leq 0$

Answer: A
Diff: 3
Objective: A
AACSB: Application of knowledge

6) In linear programming, a constraint is a mathematical inequality or equality that must be satisfied by the
variables in a mathematical model.
Answer: TRUE
Diff: 2
Objective: A
AACSB: Analytical thinking

7) Local Steel Construction Company produces two products, steel and wood beams. Steel beams have a unit contribution margin of $200, and wood beams have a unit contribution margin of $150. The demand for steel beams exceeds Local Steel Construction Company's production capacity, which is limited by available direct labor and machine-hours. The maximum demand for wood beams is 90 per week. Management desires that the product mix should maximize the weekly contribution toward fixed costs and profits.

Direct manufacturing labor is limited to 3,000 hours a week and 1,000 hours is all that the company's outdated machines can run a week. The steel beams require 120 hours of labor and 60 machine-hours. Wood beams require 150 labor hours and 120 machine-hours.

Required:
Formulate the objective function and constraints necessary to determine the optimal product mix.
Answer: S = steel beams W = wood beams

Maximize: $200S + $150W

Constraints:	Labor hours:	$120S + 150W \leq 3{,}000$
	Machine-hours:	$60S + 120W \leq 1{,}000$
	Wood beams:	$W \leq 90$ $W \geq 0$
	Steel beams:	$S \geq 0$

Diff: 2
Objective: A
AACSB: Application of knowledge

***Cost Accounting: A Managerial Emphasis, 16e, Global Edition* (Horngren)**
Chapter 20 Inventory Management, Just-in-Time, and Simplified Costing Methods

20.1 Objective 20.1

1) Among different types of costs associated with inventory, the costs of obtaining purchase approvals are ________.
A) purchasing costs
B) ordering costs
C) stockout costs
D) carrying costs
Answer: B
Diff: 2
Objective: 1
AACSB: Analytical thinking

2) Among different types of costs associated with inventory, the incoming freight charges of inventories are ________.
A) purchasing costs
B) ordering costs
C) stockout costs
D) carrying costs
Answer: A
Diff: 2
Objective: 1
AACSB: Analytical thinking

3) Among different types of costs associated with inventory, the opportunity cost of the investment tied up in inventory is a(n) ________.
A) purchasing cost
B) ordering cost
C) stockout cost
D) carrying cost
Answer: D
Diff: 2
Objective: 1
AACSB: Analytical thinking

4) The costs that result from theft of inventory are ________.
A) shrinkage costs
B) external failure costs
C) stockout costs
D) costs of quality
Answer: A
Diff: 2
Objective: 1
AACSB: Analytical thinking

5) The costs that result when a company runs out of a particular item for which there is a customer demand are ________.
A) shrinkage costs
B) shortage costs
C) stockout costs
D) EOQ estimation costs
Answer: C
Diff: 2
Objective: 1
AACSB: Analytical thinking

6) Which of the following is the best definition of inventory management?
A) planning and control of the flow inventory into and through an organization
B) planning, coordinating, and controlling activities related to the flow of inventory into, through, and out of an organization
C) planning and coordinating activities related to the flow of inventory into and through an organization
D) planning, coordinating, and control of inventory into an organization
Answer: B
Diff: 2
Objective: 1
AACSB: Analytical thinking

7) Which of the following statements is true of costs associated with goods for sale?
A) Appraisal costs is a subcategory of shrinkage costs.
B) Special processing costs are always part of purchasing costs.
C) Opportunity costs are not recorded in the accounting system.
D) Stockout costs are costs that arise when a company runs out of a particular item for which there is no customer demand.
Answer: C
Diff: 2
Objective: 1
AACSB: Analytical thinking

8) Among different types of costs associated with inventory, four categories of quality costs are ________.
A) control costs, inspection costs, internal failure costs, and external failure costs
B) prevention costs, inspection costs, internal failure costs, and external failure costs
C) prevention costs, appraisal costs, internal failure costs, and external failure costs
D) prevention costs, control costs, internal failure costs, and external failure costs
Answer: C
Diff: 2
Objective: 1
AACSB: Analytical thinking

9) Which of the following statements is true of costs associated with goods for sale?
A) Information-gathering technology increases the reliability and timeliness of inventory information and increases the costs related to inventory.
B) Opportunity costs are not recorded in financial accounting systems because they are not a significant component in several cost categories.
C) Purchasing costs include incoming freight costs and are reduced by discounts
D) Opportunity costs are recorded in financial accounting systems but are a not significant component in several cost categories.
Answer: C
Diff: 2
Objective: 1
AACSB: Analytical thinking

10) Carrying costs only include those costs that are entered into the financial accounting system and do not include the opportunity cost of the investment tied up in inventory.
Answer: FALSE
Explanation: Opportunity costs associated with holding inventory are included in the concept of carrying costs.
Diff: 2
Objective: 1
AACSB: Analytical thinking

11) Inventory management is the planning, organizing, and controlling activities that focus on the flow of materials into, through, and out of the organization.
Answer: TRUE
Diff: 1
Objective: 1
AACSB: Analytical thinking

12) Purchasing costs arise in preparing and issuing purchase orders, receiving and inspecting the items included in the orders, and matching invoices received, purchase orders, and delivery records to make payments.
Answer: FALSE
Explanation: Ordering costs arise in preparing and issuing purchase orders, receiving and inspecting the items included in the orders, and matching invoices received, purchase orders, and delivery records to make payments.
Diff: 2
Objective: 1
AACSB: Analytical thinking

13) The opportunity cost of the stockout is the lost revenue on the sale not made plus any lost revenue on future sales due to customer ill will.
Answer: FALSE
Explanation: The opportunity cost of the stockout is the lost contribution margin on the sale not made plus any contribution margin lost on future sales due to customer ill will.
Diff: 2
Objective: 1
AACSB: Analytical thinking

14) Stockout costs arise when an organization experiences an ability to deliver its goods to its customers.
Answer: FALSE
Explanation: Stockout costs are costs that arise when a company runs out of a particular item for which there is customer demand.
Diff: 1
Objective: 1
AACSB: Application of knowledge

15) Shrinkage is measured by adding (a) the cost of the inventory recorded on the books in the absence of theft and other incidents just mentioned, and (b) the cost of inventory when physically counted.
Answer: FALSE
Explanation: Shrinkage is measured by the difference between (a) the cost of the inventory recorded on the books in the absence of theft and other incidents just mentioned, and (b) the cost of inventory when physically counted.
Diff: 2
Objective: 1
AACSB: Analytical thinking

16) Freight in charges forms part of purchasing costs of inventory.
Answer: TRUE
Diff: 1
Objective: 1
AACSB: Analytical thinking

17) All inventory costs are available in financial accounting systems.
Answer: FALSE
Explanation: Opportunity costs are rarely recorded in formal accounting systems and they are often a very significant cost component.
Diff: 1
Objective: 1
AACSB: Analytical thinking

18) Managing inventories to increase net income requires companies to effectively manage costs associated with goods for sale.

Required:

Classify the below listed items as either **Purchasing Costs**, **Ordering Costs**, **Carrying Costs**, **Stockout Costs, Costs of Quality**, or **Shrinkage Costs**.

________ a. costs of obtaining purchase approvals

________ b. costs resulting from embezzlement by employees

________ c. internal failure costs

________ d. opportunity cost of the investment tied up in inventory

________ e. costs associated with storage

________ f. costs of lost sales as a result of not having an item requested by a customer

________ g. freight-in charges

________ h. special processing costs

________ i. costs of wages for work-in-process inspections

________ j. costs that result from misclassifications and clerical errors

Answer:
a. Ordering Costs
b. Shrinkage Costs
c. Costs of Quality
d. Carrying Costs
e. Carrying Costs
f. Stockout Costs
g. Purchasing Costs
h. Ordering Costs
i. Costs of Quality
j. Shrinkage Costs
Diff: 2
Objective: 1
AACSB: Application of knowledge

20.2 Objective 20.2

1) Which of the following statements is true of the the economic order quantity decision model?
A) The economic order quantity increases with higher demand and higher carrying costs and decreases with higher ordering costs.
B) The simplest version of the economic order quantity model assumes there are only ordering costs, carrying costs, stockout costs, and purchasing costs.
C) It assumes the purchase order lead time is not known with certainty.
D) The larger the order quantity, the lower the annual relevant ordering costs and the higher the annual relevant carrying costs.
Answer: D
Diff: 3
Objective: 2
AACSB: Analytical thinking

2) Which of the following is the correct mathematical expression to calculate annual relevant ordering costs?
A) Demand in units for a specified period / (Relevant ordering cost per purchase order × Size of each order)
B) Size of each order × Relevant ordering cost per purchase order / Demand in units for a specified period
C) (Demand in units for a specified period / Size of each order) × Relevant ordering cost per purchase order
D) (Demand in units for a specified period - Size of each order) × Relevant ordering cost per purchase order
Answer: C
Diff: 2
Objective: 2
AACSB: Analytical thinking

3) Under economic-order-quantity decision model, which of the following is an assumption? assumed that ________.
A) the quantity ordered can vary at each reorder point
B) demand, ordering costs, and carrying costs are uncertain
C) the purchasing cost per unit is affected by the order quantity
D) the same quantity is ordered at each reorder point
Answer: D
Diff: 2
Objective: 2
AACSB: Analytical thinking

4) The following information applies to Krynton Company, which supplies microscopes to laboratories throughout the country. Krynton purchases the microscopes from a manufacturer which has a reputation for very high quality in its manufacturing operation.

Annual demand (weekly demand = 1/52 of annual demand)	53,000 units
Orders per year	20
Lead time in days	18 days
Cost of placing an order	$200

What is the reorder point? (Assume a 365 day year.)
A) 1040 units
B) 2614 units
C) 2650 units
D) 2944 units
Answer: B
Explanation: Reorder point = Number of units sold per time period × Purchase-order lead time
Daily demand = 53,000 / (52 × 7) = 145.21
Therefore, reorder point = 145.21 × 18 = 2614
Diff: 2
Objective: 2
AACSB: Analytical thinking

5) The economic order quantity model completely ignores ________.
A) carrying costs
B) ordering costs
C) stockout costs
D) the size of a purchase order
Answer: C
Diff: 2
Objective: 2
AACSB: Analytical thinking

6) Globe Inc. is a distributor of DVDs. DVD Mart is a local retail outlet which sells blank and recorded DVDs. DVD Mart purchases DVDs from Globe at $29.00 per DVD; DVDs are shipped in packages of 70. Globe pays all incoming freight, and DVD Mart does not inspect the DVDs due to Globe's reputation for high quality. Annual demand is 320,000 DVDs at a rate of 6500 DVDs per week. DVD Mart earns 13% on its cash investments. The purchase-order lead time is one week. The following cost data are available:

Relevant ordering costs per purchase order	$115.50
Carrying costs per package per year:	
Relevant insurance, materials handling, breakage, etc., per year	$6.50

What is the economic order quantity?
A) 63.26 packages
B) 44.19 packages
C) 5.81 packages
D) 62.49 packages
Answer: D
Explanation: EOQ = $\sqrt{[(2 \times (320{,}000 / 70) \times \$115.50) / ((\$29.00 \times 13\% \times 70) + \$6.50)]}$
EOQ = 62.49 packages
Diff: 2
Objective: 2
AACSB: Application of knowledge

7) Globe Inc. is a distributor of DVDs. DVD Mart is a local retail outlet which sells blank and recorded DVDs. DVD Mart purchases DVDs from Globe at $25.00 per DVD; DVDs are shipped in packages of 63. Globe pays all incoming freight, and DVD Mart does not inspect the DVDs due to Globe's reputation for high quality. Annual demand is 314,000 DVDs at a rate of 6600 DVDs per week. DVD Mart earns 15% on its cash investments. The purchase-order lead time is one week. The following cost data are available:

Relevant ordering costs per purchase order	$118.50
Carrying costs per package per year:	
Relevant insurance, materials handling, breakage, etc., per year	$5.50

What are the annual relevant ordering costs?
A) $91,977
B) $11,949
C) $8449
D) $8353
Answer: C
Explanation: EOQ = $\sqrt{[(2 \times (314{,}000 / 63) \times \$118.50) / ((\$25.00 \times 15\% \times 63) + \$5.50)]}$
EOQ = 69.90 packages
Annual relevant ordering costs = [(314,000 / 63) × $118.50] / 69.90 = $8449
Diff: 3
Objective: 2
AACSB: Application of knowledge

8) Globe Inc. is a distributor of DVDs. DVD Mart is a local retail outlet which sells blank and recorded DVDs. DVD Mart purchases DVDs from Globe at $29.00 per DVD; DVDs are shipped in packages of 65. Globe pays all incoming freight, and DVD Mart does not inspect the DVDs due to Globe's reputation for high quality. Annual demand is 321,000 DVDs at a rate of 6800 DVDs per week. DVD Mart earns 15% on its cash investments. The purchase-order lead time is one week. The following cost data are available:

Relevant ordering costs per purchase order	$117.50
Carrying costs per package per year:	
Relevant insurance, materials handling, breakage, etc., per year	$9.50

What are the annual relevant carrying costs?
A) $9362
B) $9209
C) $849
D) $6511
Answer: B
Explanation: EOQ = $\sqrt{[(2 \times (321{,}000 / 65) \times \$117.50) / ((\$29.00 \times 15\% \times 65) + \$9.50)]}$
EOQ = 63.02 packages

Annual relevant carrying costs = $\dfrac{(63.02 \times (\$9.50 + (\$4.35 \times 65))}{2}$ = $9209

Diff: 3
Objective: 2
AACSB: Application of knowledge

9) Globe Inc. is a distributor of DVDs. DVD Mart is a local retail outlet which sells blank and recorded DVDs. DVD Mart purchases DVDs from Globe at $28.00 per DVD; DVDs are shipped in packages of 68. Globe pays all incoming freight, and DVD Mart does not inspect the DVDs due to Globe's reputation for high quality. Annual demand is 321,000 DVDs at a rate of 6100 DVDs per week. DVD Mart earns 11% on its cash investments. The purchase-order lead time is one week. The following cost data are available:

Relevant ordering costs per purchase order	$118.50
Carrying costs per package per year:	
Relevant insurance, materials handling, breakage, etc., per year	$4.50

What are the relevant total costs?
A) $18,758
B) $84,917
C) $15,471
D) $13,124
Answer: C
Explanation: EOQ = $\sqrt{[(2 \times (321{,}000 / 68) \times \$118.50) / ((\$28.00 \times 11\% \times 68) + \$4.50)]}$
EOQ = 72.31 packages

Annual relevant carrying costs = $\dfrac{(72.31 \times (\$4.50 + (\$3.08 \times 68))}{2}$ = $7735.00

Annual relevant ordering costs = [(321,000 / 68) × $118.50] / 72.31 = $7735.99
Relevant total costs = $7735.00 + $7736 = $15,471
Diff: 3
Objective: 2
AACSB: Application of knowledge

10) Globe Inc. is a distributor of DVDs. DVD Mart is a local retail outlet which sells blank and recorded DVDs. DVD Mart purchases DVDs from Globe at $30.00 per DVD; DVDs are shipped in packages of 66. Globe pays all incoming freight, and DVD Mart does not inspect the DVDs due to Globe's reputation for high quality. Annual demand is 312,000 DVDs at a rate of 6500 DVDs per week. DVD Mart earns 10% on its cash investments. The purchase-order lead time is one week. The following cost data are available:

Relevant ordering costs per purchase order	$118.50
Carrying costs per package per year:	
Relevant insurance, materials handling, breakage, etc., per year	$5.50

How many deliveries will be made during each time period?
A) 63.71 deliveries
B) 39.89 deliveries
C) 90.10 deliveries
D) 62.84 deliveries
Answer: A
Explanation: EOQ = $\sqrt{[(2 \times (312{,}000 / 66) \times \$118.50) / ((\$30.00 \times 10\% \times 66) + \$5.50)]}$
EOQ = 74.20 packages
Number of deliveries = [(312,000 / 66) / 74.20 = 63.71
Diff: 3
Objective: 2
AACSB: Application of knowledge

11) Short Grass Incorporated is a distributor of golf balls. Martin's Golf Supplies is a local retail outlet which sells golf balls. Martin's purchases the golf balls from Short Grass Incorporated at $0.85 per ball; the golf balls are shipped in cartons of 42. Short Grass Incorporated pays all incoming freight, and Martin's Golf Supplies does not inspect the balls due to Short Grass' reputation for high quality. Annual demand is 158,520 golf balls at a rate of 3191 balls per week. Martin's Golf Supplies earns 7% on its cash investments. The purchase-order lead time is one week. The following cost data are available:

Relevant ordering costs per purchase order	$130.00
Carrying costs per carton per year:	
Relevant insurance, materials handling, breakage, etc., per year	$0.77

If Martin's makes an order (1 / 12 of annual demand) once per month, what are the relevant total costs? (Round costs to the nearest cent and quantities to the nearest whole number.)
A) $1560.00
B) $514.09
C) $2075.03
D) $3120.00
Answer: C
Explanation: Order Quantity = Annual Demand / 12 = 13,210 balls / month / 42 golf balls per carton = 315 cartons per month

Relevant Total Costs = Ordering Costs + Carrying Costs

Carrying Cost per carton = price × invest rate + insurance/handling
Carrying Cost per carton = ($0.85 × $42 × 7%) + $0.77 = $3.27

RTC = (12 × $130.00) + ((315 / 2) × $3.27) = $2075.03
Diff: 2
Objective: 2
AACSB: Application of knowledge

12) Short Grass Incorporated is a distributor of golf balls. Martin's Golf Supplies is a local retail outlet which sells golf balls. Martin's purchases the golf balls from Short Grass Incorporated at $1.15 per ball; the golf balls are shipped in cartons of 72. Short Grass Incorporated pays all incoming freight, and Martin's Golf Supplies does not inspect the balls due to Short Grass' reputation for high quality. Annual demand is 158,520 golf balls at a rate of 3891 balls per week. Martin's Golf Supplies earns 8% on its cash investments. The purchase-order lead time is one week. The following cost data are available:

Relevant ordering costs per purchase order	$128.00
Carrying costs per carton per year:	
Relevant insurance, materials handling, breakage, etc., per year	$0.87

What is the economic order quantity? (Round costs to the nearest cent and quantities to the nearest whole number.)
A) 183 cartons
B) 274 cartons
C) 275 cartons
D) 367 cartons
Answer: B
Explanation: Annual Demand / 158,520 / 72 = 2202 cartons
Carrying Cost per carton = ($1.15 × 72 × 8%) + $0.87 = $7.49
EOQ = $\sqrt{[(2 \times (158{,}520 / 72) \times \$128.00) / (\$7.49)]}$
EOQ = $274.3 cartons - round to $274
Diff: 2
Objective: 2
AACSB: Application of knowledge

13) Short Grass Incorporated is a distributor of golf balls. Martin's Golf Supplies is a local retail outlet which sells golf balls. Martin's purchases the golf balls from Short Grass Incorporated at $1.15 per ball; the golf balls are shipped in cartons of 52. Short Grass Incorporated pays all incoming freight, and Martin's Golf Supplies does not inspect the balls due to Short Grass' reputation for high quality. Annual demand is 157,520 golf balls at a rate of 3291 balls per week. Martin's Golf Supplies earns 12% on its cash investments. The purchase-order lead time is one week. The following cost data are available:

Relevant ordering costs per purchase order	$125.00
Carrying costs per carton per year:	
Relevant insurance, materials handling, breakage, etc., per year	$0.77

Purchasing at the EOQ recommended level, how many deliveries will be made during each time period? (Round costs to the nearest cent and quantities to the nearest whole number.)

A) 2 deliveries
B) 4.3 deliveries
C) 9.8 deliveries
D) 12 deliveries

Answer: C

Explanation: Annual Demand / 157,520 / 52 = 3029 cartons
Carrying Cost per carton = ($1.15 × 52 × 12%) + $0.77 = $7.95
EOQ = $\sqrt{[(2 \times (157{,}520 / 52) \times \$125.00) / (\$7.95)]}$
EOQ = 308.6 cartons - round to 309

Deliveries = Annual Demand / EOQ = 9.8
Diff: 3
Objective: 2
AACSB: Application of knowledge

14) Short Grass Incorporated is a distributor of golf balls. Martin's Golf Supplies is a local retail outlet which sells golf balls. Martin's purchases the golf balls from Short Grass Incorporated at $0.95 per ball; the golf balls are shipped in cartons of 72. Short Grass Incorporated pays all incoming freight, and Martin's Golf Supplies does not inspect the balls due to Short Grass' reputation for high quality. Annual demand is 162,520 golf balls at a rate of 3591 balls per week. Martin's Golf Supplies earns 12% on its cash investments. The purchase-order lead time is one week. The following cost data are available:

Relevant ordering costs per purchase order	$132.00
Carrying costs per carton per year:	
Relevant insurance, materials handling, breakage, etc., per year	$0.77

Purchasing at the EOQ recommended level, what are the relevant total costs? (Round costs to the nearest cent and quantities to the nearest whole number. Your answer might be slightly different from the best answer due to rounding.)
A) $1584
B) $2313
C) $1157
D) $3168
Answer: B
Explanation: Annual Demand / 162,520 / 72 = 2257 cartons
Carrying Cost per carton = ($0.95 × 72 × 12%) + $0.77 = $8.98
EOQ = $\sqrt{[(2 \times (162{,}520 / 72) \times \$132.00) / (\$8.98)]}$
EOQ = 257.6 cartons - round to 258

$$\text{RTC} = \frac{[(162{,}520 / 72) \times \$132.00}{258} + \frac{[258 \times (\$8.98)]}{2} = \$2313$$

(Your solution might be slightly different based on rounding.)
Diff: 3
Objective: 2
AACSB: Application of knowledge

15) The purchase-order lead time is the ________.
A) time between placing an order and its delivery
B) time between receiving a customer order and producing the products
C) time between receiving a customer order and delivering the items
D) time required to correct errors in the defective products
Answer: A
Diff: 2
Objective: 2
AACSB: Analytical thinking

16) Which of the following statements is true of the economic-order-quantity decision model?
A) It assumes purchasing costs are relevant because the cost per unit changes due to the quantity ordered.
B) Demand, ordering costs, and carrying costs are all known with certainty.
C) It assumes that stockout costs are relevant even if no stockouts occur.
D) It assumes that ordering costs and carrying costs are irrelevant.
Answer: B
Diff: 3
Objective: 2
AACSB: Analytical thinking

17) Vision Company sells optical equipment. Blitz Company manufactures special glass lenses. Vision orders 11,700 lenses per year, 260 per week, at $38 per lens. Blitz covers all shipping costs. Vision earns 22% on its cash investments. The purchase-order lead time is 4.0 weeks. Vision sells 315 lenses per week. The following data are available:

Relevant ordering costs per purchase order	$45.25
Relevant insurance, materials handling, breakage, and so on, per year	$5.50

What is the economic order quantity for Vision?
A) 439 lenses
B) 356 lenses
C) 276 lenses
D) 195 lenses
Answer: C
Explanation: EOQ = $\sqrt{2 \times 11{,}700 \times \$45.25) / ((\$38 \times 22\%) + \$5.50}$
EOQ = 276 lenses
Diff: 3
Objective: 2
AACSB: Application of knowledge

18) Vision Company sells optical equipment. Blitz Company manufactures special glass lenses. Vision orders 11,400 lenses per year, 220 per week, at $40 per lens. Blitz covers all shipping costs. Vision earns 22% on its cash investments. The purchase-order lead time is 3.0 weeks. Vision sells 315 lenses per week. The following data are available:

Relevant ordering costs per purchase order	$47.25
Relevant insurance, materials handling, breakage, and so on, per year	$5.50

What is the reorder point?
A) 660 lenses
B) 945.0 lenses
C) 1318 lenses
D) 1605.0 lenses
Answer: B
Explanation: Reorder point = 315 lenses × 3.0 weeks = 945.0 lenses
Diff: 2
Objective: 2
AACSB: Application of knowledge

19) Beryl Company sells 900 flash drives per week. Purchase-order lead time is 2 weeks and the economic-order quantity is 1625 units. What is the reorder point?
A) 3250 units
B) 1450 units
C) 1800 units
D) 1625 units
Answer: C
Explanation: Reorder point = 900 × 2= 1800 units
Diff: 2
Objective: 2
AACSB: Application of knowledge

20) Delinz Company sells 115 hams per week. Purchase-order lead time is 6 weeks and the economic-order quantity is 210 hams. What is the reorder point?
A) 1950 hams
B) 690 hams
C) 1260 hams
D) 210 hams
Answer: B
Diff: 2
Objective: 2
AACSB: Analytical thinking

21) Miniature Company sells stuffed tigers. Birtal Inc. manufactures many different stuffed animals. Miniature orders 21,200 tigers per year, 22 per week, at $10 per tiger. The manufacturer covers all shipping costs. Miniature earns 20% on its cash investments. The purchase-order lead time is 2 weeks. Miniature sells 320 tigers per week. The following data are available (based on management's estimates):

Estimated ordering costs per purchase order	$23
Estimated insurance, materials handling, breakage, and so on, per year	$7
Actual ordering costs per order	$27

What is the economic order quantity using the estimated amounts?
A) 698.3 stuffed tigers
B) 329.2 stuffed tigers
C) 232.8 stuffed tigers
D) 493.8 stuffed tigers
Answer: B
Explanation: EOQ = $\sqrt{[(2 \times 21{,}200 \times \$23) / (\$7 + (0.2 \times \$10))]}$
EOQ = 329.2 units
Diff: 3
Objective: 2
AACSB: Application of knowledge

22) Relevant total costs in the economic order quantity decision model equal relevant ordering costs plus which of the following costs?
A) carrying costs
B) stockout costs
C) quality costs
D) purchasing costs
Answer: A
Diff: 2
Objective: 2
AACSB: Analytical thinking

23) The Allianz Company produces a specialty wood furniture product, and has the following information available concerning its inventory items:

Relevant ordering costs per purchase order	$470
Relevant carrying costs per year for each package:	
Required annual return on investment	18%
Required other costs per year	$5

Annual demand is 33,000 packages per year. The purchase price per package is $49.
What is the economic order quantity?
A) 1875.37 units
B) 1059.38 units
C) 1498.19 units
D) 2490.78 units
Answer: C
Explanation: Unit carrying costs = ($49 × 0.18) + $5 = $13.82
EOQ = $\sqrt{[(2 \times 33{,}000 \times \$470) / \$13.82]}$ = 1498.19 units
Diff: 2
Objective: 2
AACSB: Application of knowledge

24) The Allianz Company produces a specialty wood furniture product, and has the following information available concerning its inventory items:

Relevant ordering costs per purchase order	$550
Relevant carrying costs per year for each package:	
Required annual return on investment	13%
Required other costs per year	$5

Annual demand is 34,000 packages per year. The purchase price per package is $51.
What is the annual relevant ordering costs?
A) $6837
B) $10,428
C) $7873
D) $11,300
Answer: B
Explanation: Unit carrying costs = ($51 × 0.13) + $5 = $11.63
EOQ = $\sqrt{[(2 \times 34{,}000 \times \$550) / \$11.63]}$ = 1793.27 units
Annual relevant ordering costs = (34,000 / 1793.27) × $550 = $10,428
Diff: 3
Objective: 2
AACSB: Application of knowledge

25) The Allianz Company produces a specialty wood furniture product, and has the following information available concerning its inventory items:

Relevant ordering costs per purchase order	\$460
Relevant carrying costs per year for each package:	
Required annual return on investment	17%
Required other costs per year	\$6

Annual demand is 33,000 packages per year. The purchase price per package is \$50.
What is the annual relevant carrying costs?
A) \$16,308
B) \$13,702
C) \$10,491
D) \$2894
Answer: C
Explanation: Unit carrying costs = (\$50 × 0.17) + \$6 = \$14.5
EOQ = $\sqrt{[(2 \times 33{,}000 \times \$460) / \$14.5]}$ = 1446.99 units
Annual relevant carrying costs = (1446.99 / 2) × \$14.5 = \$10,491
Diff: 3
Objective: 2
AACSB: Application of knowledge

26) The Allianz Company produces a specialty wood furniture product, and has the following information available concerning its inventory items:

Relevant ordering costs per purchase order	\$470
Relevant carrying costs per year for each package:	
Required annual return on investment	13%
Required other costs per year	\$5

Annual demand is 33,000 packages per year. The purchase price per package is \$49.
What are the relevant total costs at the economic order quantity?
A) \$18,780
B) \$20,387
C) \$11,223
D) \$12,694
Answer: A
Explanation: Unit carrying costs = (\$49 × 0.13) + \$5 = \$11.37
EOQ = $\sqrt{[(2 \times 33{,}000 \times \$470) / \$11.37]}$ = 1651.74 units
Annual relevant carrying costs = (1651.74 / 2) × \$11.37 = \$9390
Annual relevant ordering costs = (33,000 / 1651.74) × \$470 = \$9390
Total costs at the economic order quantity = \$9390 + \$9390 = \$18,780
Diff: 3
Objective: 2
AACSB: Application of knowledge

27) The Allianz Company produces a specialty wood furniture product, and has the following information available concerning its inventory items:

Relevant ordering costs per purchase order	$550
Relevant carrying costs per year for each package:	
Required annual return on investment	17%
Required other costs per year	$7

Annual demand is 30,000 packages per year. The purchase price per package is $53.
Which of the following statements is true of Allianz's EOQ system costs?
A) At EOQ, the annual relevant ordering costs is exactly the half of annual relevant carrying costs.
B) At EOQ, the annual relevant carrying costs is higher than the annual relevant ordering costs.
C) At EOQ, the annual relevant carrying costs is exactly the half of the annual relevant total costs.
D) At EOQ, the annual relevant carrying costs is equal to the annual relevant total costs.
Answer: C
Diff: 3
Objective: 2
AACSB: Application of knowledge

28) The Allianz Company produces a specialty wood furniture product, and has the following information available concerning its inventory items:

Relevant ordering costs per purchase order	$490
Relevant carrying costs per year for each package:	
Required annual return on investment	15%
Required other costs per year	$8

Annual demand is 33,000 packages per year. The purchase price per package is $50.
What are the total relevant costs, assuming the quantity ordered equals 1500 units?
A) $16,405
B) $18,280
C) $16,780
D) $22,405
Answer: D
Explanation: Unit carrying costs = ($50 × 0.15) + $8 = $15.50

$$\text{Total relevant costs} = \left[\frac{(33{,}000 \times \$490)}{1500} + \frac{(1500 \times \$15.50)}{2}\right] = \$22{,}405$$

Diff: 3
Objective: 2
AACSB: Application of knowledge

29) The Allianz Company produces a specialty wood furniture product, and has the following information available concerning its inventory items:

Relevant ordering costs per purchase order	$510
Relevant carrying costs per year for each package:	
Required annual return on investment	15%
Required other costs per year	$4

Annual demand is 35,000 packages per year. The purchase price per package is $52.
How many deliveries will be required at the economic order quantity?
A) 16.36 deliveries
B) 15.91 deliveries
C) 20.12 deliveries
D) 23.14 deliveries
Answer: C
Explanation: Deliveries at EOQ = 35,000 / 1739.37 = 20.12 deliveries
Diff: 3
Objective: 2
AACSB: Application of knowledge

30) All of the following are reasons why a company might carry a safety stock except:
A) a buffer against unexpected increases in demand
B) a contingency against the uncertainty about lead time
C) a strategy to lower the carrying cost of inventory
D) a way of softening the impact of sudden unavailability of stock from suppliers
Answer: C
Diff: 1
Objective: 2
AACSB: Analytical thinking

31) The following information applies to Krynton Corp. which supplies microscopes to laboratories throughout the country. Krynton purchases the microscopes from a manufacturer which has a reputation for very high quality in its manufacturing operation.

Annual demand (weekly demand= 1/52 of annual demand)	14,000 units
Orders per year as per EOQ model	17
Lead time in days	16 days
Annual relevant carrying costs	$3500

What are the annual relevant ordering costs, assuming that relevant total costs are minimal?
A) $824
B) $3719
C) $3500
D) $3294
Answer: C
Explanation: In EOQ decision model, annual relevant ordering costs and annual relevant carrying costs are equal when relevant total costs are minimal at the EOQ.
Diff: 2
Objective: 2
AACSB: Application of knowledge

32) The following information applies to Krynton Corp. which supplies microscopes to laboratories throughout the country. Krynton purchases the microscopes from a manufacturer which has a reputation for very high quality in its manufacturing operation.

Annual demand (weekly demand= 1/52 of annual demand)	16,000 units
Orders per year as per EOQ model	17
Lead time in days	18 days

Annual relevant carrying costs	$2600

Assuming each order was made at the economic order quantity amount, what is the cost of placing an order?
A) $850 per order
B) $153 per order
C) $144 per order
D) $900 per order
Answer: B
Explanation: Cost of placing an order = $2600 / 17 = $153 per order
Diff: 3
Objective: 2
AACSB: Application of knowledge

33) The following information applies to Krynton Corp. which supplies microscopes to laboratories throughout the country. Krynton purchases the microscopes from a manufacturer which has a reputation for very high quality in its manufacturing operation.

Annual demand (weekly demand= 1/52 of annual demand)	18,000 units
Orders per year as per EOQ model	18
Lead time in days	16 days
Annual relevant carrying costs	$3600

What is the economic order quantity assuming each order was made at the economic-order-quantity amount?
A) 2057 units
B) 1000 units
C) 1108 units
D) 3200 units
Answer: B
Explanation: EOQ = 18,000 / 18 = 1000
Diff: 2
Objective: 2
AACSB: Application of knowledge

34) If Premium Company has a safety stock of 480 units and the average daily demand is 68 units, how many days can be covered if the shipment from the supplier is delayed by 4 days?
A) 7 days
B) 4 days
C) 11 days
D) 3 days
Answer: A
Explanation: Days that can be covered = 480 / 68 = 7 days
Diff: 2
Objective: 2
AACSB: Application of knowledge

35) If Kenton Inc. has a safety stock of 215 units and the average weekly demand is 35 units, how many days can be covered if the shipment from the supplier is delayed by 16 days?
A) 16 days
B) 43 days
C) 59 days
D) 27 days
Answer: B
Explanation: Days that can be covered = 215 / 35 = 6 weeks = 43 days
Diff: 2
Objective: 2
AACSB: Application of knowledge

36) The optimal safety stock level is the quantity of safety stock that minimizes the sum of the annual relevant ________.
A) stockout costs and carrying costs
B) ordering costs and carrying costs
C) ordering costs and stockout costs
D) ordering costs and purchasing costs
Answer: A
Diff: 1
Objective: 2
AACSB: Analytical thinking

37) Companies use safety stock as a buffer against unexpected decreases in demand.
Answer: FALSE
Explanation: Companies use safety stock as a buffer against unexpected increases in demand.
Diff: 1
Objective: 2
AACSB: Analytical thinking

38) The EOQ model factors in the probability of stockouts.
Answer: FALSE
Explanation: The EOQ model assumes that no stockouts occur.
Diff: 2
Objective: 2
AACSB: Analytical thinking

39) The optimal safety-stock level is the quantity of safety stock that minimizes the sum of annual relevant stockout and ordering costs.
Answer: FALSE
Explanation: The optimal safety-stock level is the quantity of safety stock that minimizes the sum of annual relevant stockout and carrying costs.
Diff: 2
Objective: 2
AACSB: Analytical thinking

40) The EOQ model is solved using calculus but the key intuition is that relevant total costs are minimized when relevant ordering costs equal relevant carrying costs.
Answer: TRUE
Diff: 2
Objective: 2
AACSB: Analytical thinking

41) The reorder point is the quantity level of inventory at which a new purchase order is made.
Answer: TRUE
Diff: 1
Objective: 2
AACSB: Analytical thinking

42) Due to unprecedented growth during the year, Flowers by Kelly decided to use some of its surplus cash to increase the size of several inventory order quantities that had been previously determined using an EOQ model.

Required:
Identify whether increasing the size of inventory orders will increase, decrease, or have no effect on each of the following items.

________ a. Average inventory

________ b. Cost of goods sold

________ c. Number of orders per year

________ d. Total annual carrying costs

________ e. Total annual carrying and ordering costs

________ f. Total annual ordering costs

Answer:
a. Increase
b. No effect
c. Decrease
d. Increase
e. Depends which costs increase/decrease more
f. Decrease
Diff: 2
Objective: 2
AACSB: Application of knowledge

43) The only product of a company has an annual demand of 14,000 units. The cost of placing an order is $70 and the cost of carrying one unit in inventory for one year is $20.

Required:
Determine the economic order quantity.
Answer: $\sqrt{[(2 \times 14{,}000 \times \$70) / \$20}$ = 313.05 units
Diff: 2
Objective: 2
AACSB: Application of knowledge

44) Picture Company has one particular product that has an annual demand of 5,000 units. Total manufacturing costs per unit total $50. Ordering costs for the product total $60 per purchase order. Currently, the carrying costs per unit are 25% of manufacturing costs.

Required:
Determine the economic manufacturing order quantity.
Answer: $\sqrt{[(2 \times 5{,}000 \times \$60) / (\$50 \times 25\%)]}$ = 219 units
Diff: 2
Objective: 2
AACSB: Application of knowledge

45) Ralph was in the process of completing the quarterly planning for the purchasing department when a major computer malfunction lost most of his data. For direct material XXX he was able to recover the following:

Average inventory level of XXX	200
Orders per year	40
Average daily demand	48
Working days per year	250
Annual ordering costs	$4,000
Annual carrying costs	$6,000

Ralph purchases at the EOQ quantity level.

Required:
Determine the annual demand, the cost of placing an order, the annual carrying cost of one unit, and the economic order quantity.
Answer: Annual demand = 48 × 250 = 12,000

Cost of placing an order = $4,000/40 = $100 per order

Carrying cost of one unit = $6,000/200 = $30 per unit

EOQ = The square root of (2 × 12,000 × $100)/30 = 283 units
Diff: 3
Objective: 2
AACSB: Application of knowledge

46) Clothes, Inc., has an average annual demand for red, medium polo shirts of 25,000 units. The cost of placing an order is $80 and the cost of carrying one unit in inventory for one year is $25.

Required:

a. Use the economic-order-quantity model to determine the optimal order size.

b. Determine the reorder point assuming a lead time of 10 days and a work year of 250 days.

c. Determine the safety stock required to prevent stockouts assuming the maximum lead time is 20 days and the maximum daily demand is 125 units.

Answer:

a. The square root of [(2 × 25,000 × $80) / $25] = 400 units

b. Daily demand = 25,000/250 = 100 units Reorder point = 100 units per day × 10 days = 1,000 units

c.

Maximum demand per day	125 units
Maximum lead time	× 20 days
Maximum lead time demand	2,500 units
Reorder point without safety stocks	1,000 units
Safety stock	1,500 units

Diff: 2
Objective: 2
AACSB: Application of knowledge

47) An inventory item of Avizone Corp. has an average daily demand of 25 units with a maximum daily demand of 30 units. The economic order quantity is 500 units. Without safety stocks, the reorder point is 125 units. Safety stocks are set at 235 units.

Required:
a. Determine the reorder point with safety stocks.
b. Determine the maximum inventory level.
c. Determine the average lead time.

Answer: a.

Reorder point without safety stocks	125 units
Safety stock	235 units
Reorder point with safety stocks	360 units

b.

Economic-order quantity	500 units
Safety stocks	235 units
Maximum inventory level	735 units

c. Average lead time = 125 units at reorder point / 25 units a day = 5 days
Diff: 3
Objective: 2
AACSB: Application of knowledge

48) For supply item ABC, Andrews Company has been ordering 125 units based on the recommendation of the salesperson who calls on the company monthly. A new purchasing agent has been hired by the company who wants to start using the economic-order-quantity method and its supporting decision elements. She has gathered the following information:

Annual demand in units	250
Days used per year	250
Lead time, in days	10
Ordering costs	$100
Annual unit carrying costs	$20

Required:
Determine the EOQ, average inventory, orders per year, average daily demand, reorder point, annual ordering costs, and annual carrying costs.
Answer:
EOQ = The square root of [(2 × 250 × $100) / $20] = 50

Average inventory = 50/2 = 25

Orders per year = 250/50 = 5

Average daily demand = 250/250 = 1 unit

Reorder point = 10/1 = 10 units

Annual ordering costs = 5 × $100 = $500

Annual carrying costs = 25 × $20 = $500
Diff: 3
Objective: 2
AACSB: Application of knowledge

49) Discuss considerations that should be fully taken into account when developing inventory related relevant costs for use in an economic order quantity (EOQ) model.
Answer: It is crucial that the costs be incremental.

Consider incremental carrying costs. If they are costs that will change with the quantity of inventory held, then they are relevant. If there are costs that would be unchanged regardless of how much inventory was in the warehouse (such as a clerical salary or material handler who was working at below full capacity), then those costs are not relevant for decision-making purposes. Relevant carrying costs are likely to be costs like shrinkage, breakage, obsolescence, and costs of hiring extra employees (or having existing employees work overtime) if higher levels of inventory will make those costs increase.

Consider incremental opportunity cost of capital. If there is a decision to carry more inventory, then there will be money spent to purchase the inventory. The opportunity cost of capital is what would the other most beneficial use of the money be if it wasn't needed to purchase the higher level of inventory. It is calculated by multiplying the company's required rate of return by the per unit costs and then by the number of units purchased for the inventory and incurred at the time the units are received.

Stockout costs require an estimate of the lost contribution margin on sales lost because of a stockout. Ordering costs are only those that change with the numbers of orders placed.
Diff: 2
Objective: 2
AACSB: Application of knowledge

20.3 Objective 20.3

1) Which of the following costs is a relevant inventory carrying cost of carrying inventory?
A) The lost contribution margin on future sales forgone as a result of customer dissatisfaction in product quality.
B) The lost contribution margin on sales forgone because of the shortage of inventory.
C) The costs of storage space owned that cannot be used for other profitable purposes when inventories decrease.
D) The costs of shrinkage.
Answer: D
Diff: 3
Objective: 3
AACSB: Analytical thinking

2) For inventory carrying costs, which of the following statements is true of the relevant opportunity cost of capital of inventory?
A) It is the return received by investing capital in inventory rather than elsewhere.
B) It is calculated as the per-unit costs of carrying inventory divided by the required rate of return .
C) It is the return foregone by investing capital elsewhere rather than in inventory.
D) It is calculated as the required rate of return multiplied by the per-unit costs of acquiring inventory including the purchase price, incoming freight, and incoming inspection.
Answer: D
Diff: 2
Objective: 3
AACSB: Analytical thinking

3) Which of the following statements is true of relevant inventory costs?
A) The salaries paid to clerks, stock keepers, and materials handlers are relevant carrying costs if they are unaffected by changes in inventory levels.
B) The costs of expediting an order from a supplier are relevant incremental costs of stockouts.
C) Warehouse rent, warehouse workers' salaries and costs of insurance, that change with the quantity of inventory held are irrelevant carrying costs.
D) Those ordering costs that change with the number of orders placed are irrelevant ordering costs.
Answer: B
Diff: 2
Objective: 3
AACSB: Analytical thinking

4) The annual relevant carrying costs of inventory consists of the sum of the ________.
A) relevant ordering costs and the relevant costs of quality
B) relevant ordering costs plus the relevant opportunity costs of capital
C) relevant incremental costs plus the relevant opportunity costs of capital
D) relevant incremental costs plus the relevant ordering costs
Answer: C
Diff: 2
Objective: 3
AACSB: Analytical thinking

5) Which of the following costs is a relevant inventory stockout cost?
A) The costs of obsolescence and costs of insurance that change with the quantity of inventory held.
B) The return forgone by investing capital in inventory rather than elsewhere.
C) The lost contribution margin on sales forgone as a result of customer dissatisfaction due to unavailability of goods.
D) The costs of storage space owned that cannot be used for other profitable purposes when inventories decrease.
Answer: C
Diff: 2
Objective: 3
AACSB: Analytical thinking

6) Increases in the carrying cost and decreases in the ordering cost per purchase order result in ________.
A) smaller EOQ amounts
B) larger EOQ amounts
C) larger relevant total costs
D) smaller relevant total costs
Answer: A
Diff: 2
Objective: 3
AACSB: Analytical thinking

7) The costs of storage space owned are always relevant costs of carrying inventory.
Answer: FALSE
Explanation: The costs of storage space owned that cannot be used for other profitable purposes when inventories decrease are irrelevant costs of carrying inventory. But if the space has other profitable uses or if total rental cost is tied to the amount of space occupied, storage costs are relevant costs of carrying inventory.
Diff: 2
Objective: 3
AACSB: Analytical thinking

8) The cost of breakage and obsolescence are relevant incremental costs of carrying inventory.
Answer: TRUE
Diff: 1
Objective: 3
AACSB: Analytical thinking

9) The IBP Grocery orders most of its items in lot sizes of 10 units. Average annual demand per side of beef is 720 units per year. Ordering costs are $25 per order with an average purchasing price of $100. Annual inventory carrying costs are estimated to be 40% of the unit cost.

Required:
a. Determine the economic order quantity.

b. Determine the annual cost savings if the shop changes from an order size of 10 units to the economic order quantity.

c. Since the shelf life is limited, the IBP Grocery must keep the inventory moving. Assuming a 360-day year, determine the optimal lot size under each of the following: (1) a 20-day shelf life and (2) a 10-day shelf life.
Answer:
a. The square root of [(2 × 720 × $25) / $40] = 30 units

b.

Current 10-unit order:		
Ordering costs ($25 × 720/10)	$1,800	
Carrying costs ($100 × 0.40 × 10/2)	200	$2,000
EOQ 30-unit order:		
Ordering costs ($25 × 720/30)	600	
Carrying costs ($100 × 0.40 × 30/2)	600	1,200
Annual savings		$ 800

c. Average daily demand = 720 / 360 = 2 per day

Average days' supply in EOQ = 30/2 = 15 days
(1) 20-day shelf life allows for up to 40 units (20 × 2), EOQ is acceptable.
(2) 10-day shelf life allows for up to 20 units (10 × 2), EOQ is not acceptable.
Diff: 3
Objective: 2, 3
AACSB: Analytical thinking

10) Why do conflicts arise between the EOQ model's optimal order quantity and the order quantity that managers regard as optimal?
Answer: The EOQ model considers more costs into account than the costs included in the financial records. For instance, consider opportunity costs. The EOQ model takes into account opportunity costs because these costs are relevant costs when calculating inventory carrying costs. However, when managers

are evaluated on financial accounting numbers opportunity costs are ignored as financial accounting only records actual transactions, not the costs of opportunities forgone. This difference in costs results in conflicts between the EOQ model's optimal order quantity and the order quantity that managers regard as optimal.
Diff: 2
Objective: 3
AACSB: Analytical thinking

11) The executive vice president of Robotics, Inc., is concerned because the cost of materials has not been in line with the budget for several periods, even after implementing an EOQ model. The company has the normal direct material variance computations of price and efficiency at the end of each month. The price variance of the direct materials used is usually near expectations. The vice president does not understand how the budget differences are always larger than the material price variances.

Required:
What explanation can you give for the evaluation problems presented?
Answer: An EOQ model does not solve all inventory related problems. The first problem is the timing of material price variance computations. They should be at the time of purchase, not at the time of usage. By changing when the variance is computed, the responsibility is placed where it should be, in purchasing, not in production. Also, the timing of when materials are used could explain the difference between the budget variances and the material price variances. Materials may be purchased in one period and not used until another period. Also, material usage may include items purchased during several previous periods.
Diff: 2
Objective: 3
AACSB: Application of knowledge

20.4 Objective 20.4

1) Which of the following statements is true of just-in-time (JIT) purchasing?
A) In JIT purchasing, the optimal safety-stock level is the quantity of safety stock that minimizes the sum of annual relevant stockout and carrying costs.
B) JIT purchasing is guided solely by the EOQ model because that model emphasizes the tradeoff between relevant carrying and ordering costs.
C) In JIT purchasing, raw materials (or goods) are purchased so that products are delivered just as needed for production or sales.
D) Only disadvantage of JIT purchasing is the higher level carrying and inspection costs.
Answer: C
Diff: 2
Objective: 4
AACSB: Analytical thinking

2) Which of the following is not a reason why a company would adopt JIT purchasing practices?
A) high shrinkage costs
B) low ordering costs
C) low carrying costs of inventory
D) reliable supply chains
Answer: C
Diff: 2
Objective: 4
AACSB: Analytical thinking

3) Which of the following term is defined as: "the flow of goods, services, and information from the initial sources of materials and services to the delivery of products to consumers"?
A) customer list
B) enterprise requirements plan (ERP)
C) material requirements plan (MRP)
D) supply chain
Answer: D
Diff: 1
Objective: 4
AACSB: Analytical thinking

4) Sharing sales information throughout the supply chain leads to which of the following?
A) larger stockouts
B) increased manufacturing of products not immediately needed by retailers
C) fewer manufacturing orders that had to be expedited
D) higher inventories held by each company in the supply chain
Answer: C
Diff: 2
Objective: 4
AACSB: Analytical thinking

5) A company's inventory levels are dependent on a number of variables including the demand for the product, supplier relationships, and supplier relationships with their manufacturers.
Answer: TRUE
Diff: 2
Objective: 4
AACSB: Analytical thinking

6) Companies that implement JIT purchasing will emphasize developing short-term supplier relationships with many suppliers to attain flexibility.
Answer: FALSE
Explanation: Companies that implement JIT purchasing choose their suppliers carefully and develop long-term supplier relationships.
Diff: 2
Objective: 4
AACSB: Analytical thinking

7) Just-in-time purchasing describes the flow of goods, services, and information from the initial sources of materials and services to the delivery of products to consumers, regardless of whether those activities occur in the same organization or in other organizations.
Answer: FALSE
Explanation: Supply chain describes the flow of goods, services, and information from the initial sources of materials and services to the delivery of products to consumers, regardless of whether those activities occur in the same organization or in other organizations.
Diff: 2
Objective: 4
AACSB: Analytical thinking

8) The supply chain describes the flow of goods, services, and information from the initial sources of materials and services to the delivery of products to consumers, regardless of whether those activities occur in the same company or in other companies.
Answer: TRUE
Diff: 1
Objective: 4
AACSB: Analytical thinking

9) The manufacturing manager of New Technology Company is concerned about the company's newest plant. When the plant began operations three years ago, it had the best of everything. It had modern equipment, well-trained employees, engineered work and assembly stations, and a controlled environment. During the first two years, the evaluation results were very good with almost all cost variances being favorable. However, recently, things have turned negative.

In recent months, everything seems to be operating in a crisis management mode. Although most cost variances remain favorable, the plant's segment contribution is declining and customers are complaining about poor quality and slow delivery. Several customers have suggested that they may take their business elsewhere if things do not improve.

The shop floor is in continual turmoil. In-process inventory is everywhere, production employees have difficulty finding jobs that need to be worked on, and scheduling has requested a larger computer to keep track of work in process.

The vice president of sales does not know where to begin with solving the customers' problems. It seems that everyone is working very hard and the plant has the best facilities and trained employees in the industry.

Required:
What is the nature of the plant's problems? What recommendation would you make to help improve the situation?
Answer: The basic problem appears to be too much work-in-process inventory and a lack of control over the flow of this inventory. Since the plant had two good years of production, it may be that increased demands are pushing the plant near its capacity and management has lost control of how to manage a near-capacity situation. Although the employees are well trained and skilled in what they do, that is not enough to ensure the production process runs smoothly. All activities must be organized to be efficient.

A beginning recommendation is to implement a materials required planning system where each workstation controls what it produces, and pushes it to the next workstation. This can be accomplished by tighter controls over the scheduling of production units by workstation. This would be incorporated with a master production schedule, bill of materials, and timely inventory system.
Diff: 3
Objective: 4
AACSB: Application of knowledge

10) What is a supply chain, and what are the benefits of a supply chain analysis? Provide an example of these benefits.
Answer: The supply chain describes the flow of goods, services, and information from the initial sources of materials and services to the delivery of products to customers, regardless of whether these activities occur in the same organization or in other organizations. Utilizing supply chain analysis allows companies to coordinate their activities and reduce inventories throughout the supply chain. An example of the benefits of supply chain analysis might be the emergence of supplier or vendor-managed inventories such as the relationship between Procter & Gamble and Walmart.
Diff: 2
Objective: 4
AACSB: Analytical thinking

20.5 Objective 20.5

1) A push-through system that manufactures finished goods for inventory on the basis of demand forecasts and produces a master schedule for quantity and timing of units to be produced.
A) just-in-time purchasing
B) materials requirements planning
C) relevant total costs
D) economic order quantity
Answer: B
Diff: 1
Objective: 5
AACSB: Analytical thinking

2) A demand-pull system in which each component in a production line is produced immediately as needed by the next step in the production line is referred to as ________.
A) just-in-time production
B) materials requirements planning
C) relevant total costs
D) economic order quantity
Answer: A
Diff: 1
Objective: 5
AACSB: Analytical thinking

3) Which of the following statements best defines a just-in-time production system?
A) a push-through system that manufactures finished goods for inventory on the basis of demand forecasts
B) a push-through system in which each component in a production line is produced immediately as needed by the next step in the production line
C) a demand-pull system that manufactures finished goods for inventory on the basis of demand forecasts
D) a demand-pull system in which each component in a production line is produced immediately as needed by the next step in the production line
Answer: D
Diff: 2
Objective: 5
AACSB: Analytical thinking

4) Which of the following statements best defines a materials requirements planning system?
A) a demand-pull system in which each component in a production line is produced immediately as needed by the next step in the production line
B) a push-through system that manufactures finished goods for inventory on the basis of demand forecasts
C) a demand-pull system that manufactures finished goods for inventory on the basis of demand forecasts
D) a push-through system in which each component in a production line is produced immediately as needed by the next step in the production line
Answer: B
Diff: 2
Objective: 5
AACSB: Analytical thinking

5) A system that emphasizes lean production techniques, low quantities of inventory, and close coordination among production workstations is called ________.
A) Economic order quantity production
B) Just-in-time production
C) Materials requirements planning production
D) Push-through system
Answer: B
Diff: 1
Objective: 5
AACSB: Analytical thinking

6) The management accountant aids in MRP by ________.
A) doing journal entries as requested
B) preparing plant appropriation requests
C) maintaining accurate records of inventory and its costs
D) contacting vendors to make sure they can deliver the materials in time
Answer: C
Diff: 1
Objective: 5

AACSB: Analytical thinking

7) The demand-pull feature of JIT production systems results in close coordination among workstations and smooths the flow of goods.
Answer: TRUE
Diff: 1
Objective: 5
AACSB: Analytical thinking

8) JIT purchasing and production systems can be used in service industries as supplies and the labor to manage those supplies can be a significant cost element in some service organizations.
Answer: TRUE
Explanation: Materials requirements planning system uses a master production schedule.
Diff: 2
Objective: 5
AACSB: Analytical thinking

9) A "push-through" system, often described as a materials requirement planning system, focuses first on the forecasted amount and timing of finished goods and then determines the demand for materials components and subassemblies at each of the prior stages of production.
Answer: TRUE
Diff: 2
Objective: 5
AACSB: Analytical thinking

10) Just-in-Time (JIT) production systems are also referred to as lean production.
Answer: TRUE
Diff: 1
Objective: 5
AACSB: Analytical thinking

11) Just-in-time systems are similar to materials requirement planning systems as both systems are demand-pull systems.
Answer: FALSE
Explanation: Just-in-time systems are not similar to materials requirement planning systems as just-in-time production is a demand-pull system and materials requirements planning is a push-through approach.
Diff: 2
Objective: 5
AACSB: Analytical thinking

12) Kretzinger Company makes extensive use of financial performance reports for each of its departments. Although most departments have been reporting favorable cost variances with the company's current inventory system, management is concerned about the overall performance of the purchasing department. For example, the following information is for the purchasing of materials for a product the company has been manufacturing for several years:

Purchase Year	Quantity Used	Average Inventory	Price Variance
20X1	40,000	8,000	$ 1,000 F
20X2	60,000	15,000	10,000 F
20X3	60,000	20,000	12,000 F
20X4	50,000	12,500	20,000 U
20X5	54,000	18,000	8,000 F
20X6	58,000	23,200	9,500 F

Required:

a. Compute the inventory turnover for each year. Can any conclusions be drawn for a yearly comparison of the purchase price variance and the inventory turnover?

b. Identify problems likely to be caused by evaluating purchasing only on the basis of the purchase price variance.

c. What recommendations will improve the evaluation process?

Answer: a.

Year	Quantity used		Average inventory	Turnover
20X1	40,000	divided by	8,000	5.0
20X2	60,000	divided by	15,000	4.0
20X3	60,000	divided by	20,000	3.0
20X4	50,000	divided by	12,500	4.0
20X5	54,000	divided by	18,000	3.0
20X6	58,000	divided by	23,200	2.5

Favorable purchase prices appear to be associated with decreases in inventory turnover and increases in average inventory levels. Decreases in inventory turnover are a possible signal of the buildup of excess inventory. Excess inventory will reduce return on investment of the company and the above information indicates a need for a just-in-time inventory system.

b. To achieve quantity discounts and favorable materials price variances, purchasing may be ordering excess inventory, thereby increasing subsequent storage, obsolescence, and handling costs. To obtain a low price, purchasing may be ordering from a supplier whose goods have inferior quality which may, in turn, lead to increased inspection, rework, and, perhaps, dissatisfied customers.

c. It appears that two items may help improve the situation. First, consider the change to a just-in-time inventory system that would greatly improve the inventory turnover and reduce the amount of inventory carried. Second, additional measures should be used in the evaluation of the purchasing department. Either different financial measures should be used or the addition of nonfinancial measures should be implemented.
Diff: 3
Objective: 5
AACSB: Application of knowledge

20.6 Objective 20.6

1) A grouping of all the different types of equipment used to make a given product is referred to as ________.
A) total quality management
B) materials requirements planning
C) manufacturing cells
D) economic order quantity
Answer: C
Diff: 1
Objective: 6
AACSB: Analytical thinking

2) Which of the following statements best defines manufacturing cells?
A) They are manufacturing areas that use a "push-through" approach whereby finished goods are manufactured on the basis of demand forecasts.
B) They are manufacturing centers which focuses on production of a single product and in which workers focus on master one skill so as to be efficient and effective in their work
C) They are work areas with different types of equipment grouped together to make related products and to minimize handling costs
D) They are production centers positioned in various areas throughout a production facility, close to the associated talent (direct laborers) in which goods are manufactured only after receiving customer orders.
Answer: C
Diff: 2
Objective: 6
AACSB: Analytical thinking

3) Which of the following terms is defined as the time required to get equipment, tools, and materials ready to start production?
A) setup time
B) delivery time
C) manufacturing-cycle time
D) product design time
Answer: A
Diff: 1
Objective: 6
AACSB: Analytical thinking

4) Which of the following statements best defines setup time?
A) It is the time required to manufacture an item, including order preparation time, inspection time, and customer delivery time.
B) It is the time required to get equipment, tools, and materials ready to start the production of a component or product.
C) It is a time or period ranging from the time when a customer orders goods to the time when they are delivered to the customer.
D) It is the time required to create a new product to be sold by a business to its customers.
Answer: B
Diff: 2
Objective: 6
AACSB: Analytical thinking

5) An order is received by a company and then spends 1 day in assembly and 3 days in finishing before being stored in the warehouse. On average, the units are stored for 3 days before being shipped to a customer. Which of the following measures would be true?
A) work-in-process time of 7 days
B) manufacturing cycle time of 4 days
C) pass-through time of 6 days
D) manufacturing cycle time of 7 days
Answer: B
Diff: 1
Objective: 6
AACSB: Analytical thinking

6) Which of the following statements best defines manufacturing cycle time in a JIT production system?
A) the time from when raw materials are received until it becomes a finished good
B) the time from when an order is received until it becomes a finished good
C) the time from when raw materials are received until it is delivered to the customers
D) the time from when an order is received until it is delivered to the customers
Answer: B
Diff: 2
Objective: 6
AACSB: Analytical thinking

7) Which of the following statements is true of just-in-time production systems?
A) In a just-in-time production system, a master production schedule specifies the quantity and timing of each item to be produced.
B) Sales budget triggers each step of the production process in a just in time production system.
C) Defects arising at one workstation affect other workstations in the line quickly because of the tight links between workstations.
D) Production is organized in manufacturing cells in a just in time production system, which are production centers that use a "push-through" approach whereby finished goods are manufactured on the basis of demand forecasts.
Answer: C
Diff: 2
Objective: 6
AACSB: Analytical thinking

8) A system that comprises a single database that collects data and feeds it into software applications supporting all of a company's business activities is known as a(n) ________.
A) economic order quantity (EOQ) system
B) enterprise resource planning (ERP) system
C) just-in-time (JIT) system
D) material requirements planning (MRP) system
Answer: B
Diff: 1
Objective: 6
AACSB: Analytical thinking

9) Which of the following statements best defines an enterprise resource planning (ERP) system?
A) a demand-pull system in which each component in a production line is produced immediately as needed by the next step in the production line as planned by enterprise resource management
B) a system that comprises a single database that collects data and feeds it into software applications supporting all of a company's business activities
C) a planning system that omits recording some of the journal entries relating to the stages from the purchase of direct materials to the sale of finished goods
D) a system that is made up of work areas with different types of equipment grouped together to make related products
Answer: B
Diff: 2
Objective: 6
AACSB: Analytical thinking

10) Which of the following is a disadvantage of an enterprise resource planning (ERP) system?
A) The use of standard costing systems is not allowed in an ERP system.
B) Shifting manufacturing and distribution plans rapidly in response to changes in supply and demand is not possible in an ERP system.
C) The ERP systems must often be customized to fit the strategic needs of the user.
D) The ERP system increases lead times when purchasing material from a different supplier.
Answer: C
Diff: 2
Objective: 6
AACSB: Analytical thinking

11) Which of the following statements is true of the financial and nonfinancial measures in just-in-time production systems?
A) The inventory turnover ratio is expected to decrease.
B) Units produced per hour are expected to increase.
C) Manufacturing cycle time is expected to increase.
D) Total setup time for machines with respect to total manufacturing time is expected to increase.
Answer: B
Diff: 2
Objective: 6
AACSB: Analytical thinking

12) A successful implementation of a JIT production system should result in a lowering of the inventory turnover ratio.
Answer: FALSE
Explanation: The inventory turnover ratio: (cost of goods sold/average inventory) should increase as a result of a JIT system implementation as the average inventory should fall, relatively speaking, as less inventory is on hand as a result of JIT practices.
Diff: 1
Objective: 6
AACSB: Analytical thinking

13) In a just-in-time system, suppliers are selected primarily on the basis of their ability to provide materials and products at the lowest possible price.
Answer: FALSE
Explanation: In a just-in-time system, suppliers are selected on the basis of their ability to deliver quality materials in a timely manner.
Diff: 2
Objective: 6
AACSB: Analytical thinking

14) Successful implementation of a JIT production system and effective accomplishments of its goals should result in a decrease in the inventory turnover ratio and a decrease in the number of days of inventory on hand.
Answer: FALSE
Explanation: It should result in an increase in the inventory turn over ratio and a decrease in the average number of days of inventory on hand.
Diff: 2
Objective: 6
AACSB: Analytical thinking

15) The Jarvis Corporation produces bucket loader assemblies for the tractor industry. The product has a long term life expectancy. Jarvis has a traditional manufacturing and inventory system. Jarvis is considering the installation of a just-in-time inventory system to improve its cost structure. In doing a full study using its manufacturing engineering team as well as consulting with industry JIT experts and the main vendors and suppliers of the components Jarvis uses to manufacture the bucket loader assemblies, the following incremental cost-benefit relevant information is available for analysis:

The Jarvis cost of investment capital hurdle rate is 15%.
One time cost to rearrange the shop floor to create the manufacturing cell workstations is $275,000.
One time cost to retrain the existing workforce for the JIT required skills is $60,000.
Anticipated defect reduction is 40%. Currently there is a cost of quality defect assessment listed as $150,000 per year.
The setup time for each of the existing functions will be reduced by 67%. Currently the forecast for setup costs are $225,000 per year.
Jarvis will expect to save $200,000 per year in carrying costs as a result of having a lower inventory.

The suppliers will require a 15% premium over the current level of prices in order to position themselves to supply the material on a smaller and more frequent schedule. Currently the materials purchases are $1,500,000 per year.

Required:
Determine whether it is in the best interest of Jarvis Corporation to install a JIT system.
Answer:
1. Initial Investment = $275,000 + 60,000 = $335,000

2. Annual Savings:
Defect Cost Reduction = 40% of $150,000 = $60,000
Setup Cost Reduction = 67% of $225,000 = $150,750
Carrying Cost reduction = $200,000

Total Savings = (60,000 + 150,750 + 200,000) = $410,750

3. Annual Increased Costs:
Vendor Premium = 15% of $1,500,000 = $225,000

4. Net Annual Savings = (410,750 - 225,000) = $185,750

5. Savings/Initial Investment = (185,750 / 335,000) = 55 %

Since the net savings is returning 55% per year on the initial investment (which is far in excess of the companies hurdle rate of 15%), the JIT project should be implemented.
Diff: 3
Objective: 6
AACSB: Analytical thinking

16) What are five features of a just-in-time manufacturing system?
Answer: A just-in-time (JIT) system has many positive features. It organizes production in manufacturing cell groups which allow for all equipment used for a given product to be grouped together. This reduces material handling costs and sequences the production process. A second feature of a JIT system is that workers are trained to be multiskilled. They are trained to operate various machines as well as to do light maintenance and repairs on the machines. A third feature of JIT is that it aggressively works to eliminate defects. Because there is a tight link between the steps, defects are quickly noticed in the next step and addressed before large numbers of units become backlogged. A fourth feature of a JIT system is that it reduces setup time and manufacturing lead time. Reduced setup costs make it more practical to produce smaller batches and react faster to changes in customer demand. A fifth feature of a JIT system is the firm only uses suppliers who are capable of meeting delivery demands in a timely fashion. This also causes an increase in the quality of the goods being received by the firm.
Diff: 2
Objective: 6
AACSB: Analytical thinking

17) The Controller of Nip-it-in-the-Bud Inc. has studied the possibility of implementing a JIT production system. The annual incremental retooling costs of the JIT system is projected to be about $67,000 however, the new system will lower insurance costs by $10,000 and storage costs will drop by $20,000 a year as the company will be able to reuse warehouse space for other strategic purposes. In addition, material handling costs will drop by $10,000 a year and because of a resulting increase in quality and faster delivery, the company's contribution margin on the product will increase by $2.00 on annual sales of 20,000 units.
Required:
Calculate the net incremental benefit of the JIT system implementation.
Answer:

Incremental savings in insurance and storage costs		$30,000
Incremental savings in material handling costs		10,000
Additional contribution margin ($2.00 x 20,000)		40,000
Total incremental operating income	$80,000	
Less: Incremental annual retooling costs	(67,000)	
Net Incremental benefit		$13,000

Diff: 2
Objective: 6
AACSB: Application of knowledge

20.7 Objective 20.7

1) Traditional normal and standard costing systems usually use 4 trigger points to record the flow of costs through the production system. Such costing is called ________.
A) backflush costing
B) delayed costing
C) variable tracking
D) sequential tracking
Answer: D
Diff: 1
Objective: 7
AACSB: Analytical thinking

2) A costing system that omits recording some or all of the journal entries relating to the cycle from purchase of direct materials to the sale of finished goods is called ________.
A) dependent costing
B) synchronous costing
C) sequential costing
D) backflush costing
Answer: D
Diff: 1
Objective: 7
AACSB: Analytical thinking

3) Which of the following statements best defines backflush costing system?
A) an integrated costing system covering a company's accounting, distribution, manufacturing, purchasing, human resources, and other functions
B) a costing system that omits recording some of the journal entries relating to the stages from the purchase of direct materials to the sale of finished goods
C) a push-through system in which each component in a production line is produced immediately as needed by the next step in the production line
D) a costing system that comprises a single database that collects data and feeds it into software applications supporting all of a company's business activities
Answer: B
Diff: 2
Objective: 7
AACSB: Analytical thinking

4) Games R Us manufactures various games. For March, there were no beginning inventories of direct materials and no beginning or ending work in process. Conversion costs is the only indirect manufacturing cost category currently used. Journal entries are recorded when materials are purchased and when conversion costs are allocated under backflush costing.

Conversion costs — March	$470,000
Direct materials purchased — March	$1,090,000
Units produced — March	61,800
Units sold — March	44,800

Which of the following journal entries properly records the purchase of direct materials?

A) Accounts Payable Control	470,000	
Inventory: Raw and In-Process Control		470,000
B) Inventory: Materials and In-Process Control	1,090,000	
Accounts Payable Control		1,090,000
C) Inventory: Raw and In-Process Control	1,090,000	
Conversion Costs		1,090,000
D) Conversion Costs	1,090,000	
Inventory: Raw and In-Process Control		1,090,000

Answer: B
Diff: 3
Objective: 7
AACSB: Application of knowledge

5) Games R Us manufactures various games. For March, there were no beginning inventories of direct materials and no beginning or ending work in process. Conversion costs is the only indirect manufacturing cost category currently used. Journal entries are recorded when materials are purchased and when conversion costs are allocated under backflush costing.

Conversion costs — March	$440,000
Direct materials purchased — March	$1,130,000
Units produced — March	67,800
Units sold — March	42,800

Which of the journal entries properly records conversion costs?

A) Conversion Costs	440,000	
Various Accounts (such as wages payable)		440,000
B) Various Accounts (such as wages payable)	440,000	
Conversion Costs		440,000
C) Conversion Costs	440,000	
Inventory: Direct Materials		440,000
D) Inventory: Direct Materials	440,000	
Conversion Costs		440,000

Answer: A
Diff: 2
Objective: 7
AACSB: Application of knowledge

6) Games R Us manufactures various games. For March, there were no beginning inventories of direct materials and no beginning or ending work in process. Conversion costs is the only indirect manufacturing cost category currently used. Journal entries are recorded when materials are purchased and when conversion costs are allocated under backflush costing.

Conversion costs — March	$410,000
Direct materials purchased — March	$1,130,000
Units produced — March	59,800
Units sold — March	49,800

Which of the following entries properly records the cost of goods sold for the month?

A) Finished Goods	1,282,475	
Work in Process		1,282,475
B) Cost of Goods Sold	1,282,475	
Finished Goods	1,282,475	
C) Finished Goods	1,282,475	
Cost of Goods Sold	1,282,475	
D) Cost of Goods Sold	1,282,475	
Work in Process		1,282,475

Answer: B

Explanation: (Conversion costs of $410,000 + Direct Materials Purchased of $1,130,000)/59,800 units produced x 49,800 units sold = $1,282,475.

Diff: 3

Objective: 7

AACSB: Application of knowledge

7) Vision Company manufactures digital cameras. For May, there were no beginning inventories of direct materials and no beginning or ending work-in -process. Conversion costs is the only indirect manufacturing cost category currently used. Journal entries are recorded when materials are purchased and when units are sold.

Conversion costs - May	$106,625
Direct materials purchased - May	$255,575
Units produced - May	90,500 units
Units sold - May	78,500 units
Selling price	$27 each

Which of the following journal entries properly reflects the purchase of materials under backflush costing?

A) Inventory Control	$255,575	
Accounts Payable Control		$255,575
B) Accounts Payable Control	$255,575	
Allocated Costs: Direct Materials		$255,575
C) Accounts Payable Control	$255,575	
Materials Inventory		$255,575
D) Allocated Costs: Direct Materials	$255,575	
Inventory: Raw and Material		$255,575

Answer: A
Diff: 2
Objective: 7
AACSB: Application of knowledge

8) Vision Company manufactures digital cameras. For May, there were no beginning inventories of direct materials and no beginning or ending work-in -process. Conversion costs is the only indirect manufacturing cost category currently used. Journal entries are recorded when materials are purchased and when units are sold.

Conversion costs - May	$109,625
Direct materials purchased - May	$255,575
Units produced - May	86,500 units
Units sold - May	77,500 units
Selling price	$30 each

Which of the following journal entries would be recorded when units are sold for the month under backflush costing? Please round intermediate calculations to two decimal places (i.e., unit costs)

A) Cost of Goods Sold	$327,050	
Inventory: Raw and In-Process		$327,050
B) Cost of Goods Sold	$327,050	
Inventory Control		$228,625
Conversion Costs Allocated		$98,425
C) Inventory Inventory Control	$228,625	
Conversion Costs Allocated	$98,425	
Cost of Goods Sold		$327,050
D) Cost of Goods Sold	$354,000	
Inventory: Raw and In-Process		$255,575
Conversion Costs Allocated		$98,425

Answer: B

Explanation:

Direct materials ($255,575 / 86,500)	$2.95
Conversion costs ($109,625 / 86,500)	1.27
Total	$4.22

Cost of Goods Sold = 77,500 × $4.22 = $327,050

Inventory Control = 77,500 × $2.95 = $228,625

Conversion Costs Allocated = 77,500 × $1.27 = $98,425

Diff: 3

Objective: 7

AACSB: Application of knowledge

9) Vision Company manufactures digital cameras. For May, there were no beginning inventories of direct materials and no beginning or ending work-in -process. Conversion costs is the only indirect manufacturing cost category currently used. Journal entries are recorded when materials are purchased and when units are sold.

Conversion costs - May	$105,625
Direct materials purchased - May	$262,575
Units produced - May	89,500 units
Units sold - May	87,500 units
Selling price	$23 each

If the two trigger points are completion of good finished units of product and sale of finished goods, which of the following entries would be used to record cost of finished units completed under backflush costing? (Round intermediate calculations to the nearest cent and final calculations to the nearest dollar.)

A) Finished Goods	$359,625	
Inventory Control		$256,375
Conversion Costs Allocated		$103,250
B) Finished Goods	$368,200	
Inventory: Raw Materials		$262,575
Conversion Costs Allocated		$105,625
C) Finished Goods	$368,200	
Accounts Payable Control		$262,575
Conversion Costs Allocated		$368,200
D) Inventory Inventory Control	$256,375	
Conversion Costs Allocated	$103,250	
Finished Good		$359,625

Answer: C
Explanation: Finished Goods = 89,500 × $4.11 = $368,200
Accounts Payable Control = 89,500 × $2.93 = $262,575
Conversion Costs Allocated = 89,500 × $1.18 = $105,625
Diff: 3
Objective: 7
AACSB: Application of knowledge

10) Under backflush costing approach where three trigger points are used (stage A, stage C, and stage D), the purchase of materials is:
A) credited to the Materials and In-Process Inventory Control account
B) debited to the Materials and In-Process Inventory Control account
C) debited to the Materials Inventory Control account
D) ignored because the manufacturing process moves so quickly from acquisition of materials to the sale of the finished good
Answer: B
Diff: 2
Objective: 7
AACSB: Analytical thinking

11) Which of the following statements is true of a backflush costing system?
A) All costs are tracked sequentially as products pass through each stage of production.
B) When inventories are minimal, as in JIT production systems, backflush costing complicates costing systems.
C) Usage of a backflush costing system does not satisfy the absorption costing rules of GAAP
D) Backflush costing increases the ability of the accounting system to pinpoint the uses of resources at each step in the production process.
Answer: C
Diff: 2
Objective: 7
AACSB: Analytical thinking

12) Which of the following statements best defines a trigger point in a sequential-tracking costing system?
A) the inventory level at which a new purchase order is generated
B) the point at which the sum of annual relevant stockout and ordering costs is minimal
C) the production level at which the costing system becomes incapable of tracking the production costs
D) a stage in the production cycle at which journal entries are made in the accounting system
Answer: D
Diff: 2
Objective: 7
AACSB: Analytical thinking

13) In a backflush-costing system, no record of work in process appears in the accounting records.
Answer: TRUE
Diff: 1
Objective: 7
AACSB: Analytical thinking

14) Companies that utilize backflush costing typically prorate underallocated or overallocated conversion costs between work-in-process, finished goods, and cost of goods sold.
Answer: FALSE
Explanation: Companies that use backflush costing typically have low inventories so that prorating underallocated or overallocated conversion costs between work in process, finished goods, and cost of goods sold is seldom necessary.
Diff: 2
Objective: 7
AACSB: Analytical thinking

15) The accounting procedures in a backflush-costing system strictly adhere to Generally Accepted Accounting Principles (GAAP).
Answer: FALSE
Explanation: The accounting procedures in a backflush-costing system do not strictly adhere to Generally Accepted Accounting Principles (GAAP).
Diff: 2
Objective: 7
AACSB: Analytical thinking

16) A firm using a backflush costing system will always use actual costs rather than standard costs.
Answer: FALSE
Explanation: A firm using a backflush costing system can use standard costs as well as actual costs.
Diff: 2
Objective: 7
AACSB: Analytical thinking

17) Companies that have low manufacturing lead time usually find that a version of backflush costing will report cost numbers totally different to what a sequential costing approach would report.
Answer: FALSE
Explanation: Companies that have low manufacturing lead time usually find that a version of backflush costing will report cost numbers similar to what a sequential costing approach would report.
Diff: 3
Objective: 7
AACSB: Analytical thinking

18) The journal entry to dispose of the difference between actual conversion costs incurred and standard conversion costs allocated is different under backflush costing and sequential tracking.
Answer: FALSE
Explanation: The journal entry to dispose of the difference between actual conversion costs incurred and standard conversion costs allocated is exactly the same under backflush costing and sequential tracking.
Diff: 2
Objective: 7
AACSB: Analytical thinking

19) A positive aspect of backflush costing is the presence of the visible audit trail.
Answer: FALSE
Explanation: In backflush costing, the visible audit trail diminishes.
Diff: 1
Objective: 7
AACSB: Analytical thinking

20) To comply with GAAP, backflush cost numbers can be adjusted by recording a journal entry.
Answer: TRUE
Diff: 2
Objective: 7
AACSB: Analytical thinking

21) Vision Enterprises manufactures converter boxes for high definition TVs. All processing is initiated when an order is received. For March there were no beginning inventories. Conversion Costs and Direct Materials are the only manufacturing cost accounts. Direct Materials are purchased under a just-in-time system. Backflush costing is used with a finished goods trigger point. Additional information is as follows:

Actual conversion costs	$435,000
Standard materials costs per unit	115
Standard conversion cost per unit	85
Units produced	7,900
Units sold	7,600

Required:
Record all journal entries for the monthly activities related to the above transactions if backflush costing is used.
Answer: *To record actual conversion costs*:

Conversion Costs	435,000	
Various Accounts		435,000

To record finished goods:

Finished Goods (7,900 × $200)	1,580,000	
Inventory - Materials and In Process Control (7,900 × 115)		908,500
Conversion Costs Allocated (7,900 × 85)		671,500

To record sale of 7,600 units:

Cost of Finished Goods Sold (7,600 × 200)	1,520,000	
Finished Goods		1,520,000

Diff: 3
Objective: 7
AACSB: Application of knowledge

22) Tornado Electronics manufactures stereos. All processing is initiated when an order is received. For April there were no beginning inventories. Conversion Costs and Direct Materials are the only manufacturing cost accounts. Direct Materials are purchased under a just-in-time system. Backflush costing is used with a finished goods trigger point. Additional information is as follows:

Actual conversion costs	$232,000
Standard materials costs per unit	60
Standard conversion cost per unit	140
Units produced	3,200
Units sold	2,800

Required:
Record all journal entries for the monthly activities related to the above transactions if backflush costing is used.
Answer: *To record actual conversion costs*:

Conversion Costs	232,000	
Various Accounts		232,000

To record finished goods:

Finished Goods (3,200 × $200)	640,000	
Accounts Payable Control (3,200 × 60)		192,000
Conversion Costs Allocated (3,200 × 140)		448,000

To record sale of 2,800 units:

Cost of Finished Goods Sold (2,800 × 200)	560,000	
Finished Goods		560,000

Diff: 3
Objective: 7
AACSB: Application of knowledge

23) Corry Corporation manufactures filters for cars, vans, and trucks. A backflush costing system is used and standard costs for a filter are as follows:

Direct materials	$2.60
Conversion costs	4.20
Total	$6.80

Filters are scheduled for production only after orders are received, and are shipped immediately upon completion. This results in product costs being charged directly to cost of goods sold. In December, 3,000 filters were produced and shipped. Materials were purchased at a cost of $8,450 and actual conversion costs of $13,650 were recorded.

Required:
Prepare journal entries to record December's costs for the production of the filters.
Answer:

Materials Inventory	8,450	
Accounts Payable		8,450
Conversion Costs	13,650	
Various Credits		13,650
Cost of Goods Sold	22,100	
Materials Inventory		8,450
Conversion Costs		13,650

Diff: 2
Objective: 7
AACSB: Application of knowledge

24) What are the implications of JIT and backflush costing systems for activity-based costing (ABC) systems?
Answer: Simplifying the production process, as a JIT system does, makes more of the costs direct and reduces the extent of overhead cost allocations. Simple ABC systems are often adequate for companies implementing JIT. These simple ABC systems work well with backflush costing. Costs from ABC systems yield a more accurate budgeted conversion cost per unit for different products in the backflush costing system. The activity-based cost information is also useful for product costing, decision making, and cost management.
Diff: 2
Objective: 7
AACSB: Analytical thinking

25) Backflush costing does not strictly adhere to generally accepted accounting principles. Explain why. Also, describe the types of businesses that might use backflush costing.
Answer: The principal reason why backflush costing does not strictly adhere to GAAP is that the work-in-process accounts are not recognized in the accounting records. Work in process consists of unfinished goods. Substantial business resources were dedicated to their production, and should be recognized in the accounts as an asset. This approach to costing is usually used by companies that adopt JIT production methods. While not totally devoid of inventories, such companies seek to minimize inventories thus minimizing the problems associated with no work-in-process accounts.

The type of business which would use backflush costing would be firms that use JIT production, have fast manufacturing lead times, or have very stable inventory levels from period to period. For these companies, backflush costing will report cost numbers similar to what a sequential costing approach would report.
Diff: 3
Objective: 7
AACSB: Analytical thinking

20.8 Objective 20.8

1) Which of the following statements is true of lean accounting?
A) It is much complex than traditional product costing but produces more accurate product unit costs.
B) It does not always compute costs for individual products but does emphasize product costs by value stream.
C) It omits recording some of the journal entries relating to the stages from the purchase of direct materials to the sale of finished goods.
D) It is acceptable under GAAP.
Answer: B
Diff: 2
Objective: 8
AACSB: Analytical thinking

2) Which of the following statements best defines lean accounting?
A) an accounting system that comprises a single database that collects data and feeds it into software applications supporting all of a company's business activities
B) a costing method that supports creating value for the customer by costing the entire value stream thereby eliminating waste in the accounting process
C) an accounting system that omits recording some of the journal entries relating to the stages from the purchase of direct materials to the sale of finished goods
D) an integrated costing system covering a company's accounting, distribution, manufacturing, purchasing, human resources, and other functions
Answer: B
Diff: 2
Objective: 8
AACSB: Analytical thinking

3) Lean accounting is much simpler than traditional product costing because ________.
A) it compares value stream costs against costs that include costs of all purchased materials
B) it computes the cost of individual products
C) calculating actual product costs by value streams requires less overhead allocation
D) adding a larger markup on value stream costs to compensate for some of the excluded costs is easier than tracing all non value added costs
Answer: C
Diff: 2
Objective: 8
AACSB: Analytical thinking

4) Proponents of lean accounting argue that the lack of individual product cost information is irrelevant because most decisions about products are made at the product line level making value stream costs more relevant than product costs.
Answer: TRUE
Diff: 2
Objective: 8
AACSB: Analytical thinking

5) In lean accounting environments, it is critical that work-in-process and finished goods accounting be accurate for accurate financial accounting and pricing decisions.
Answer: FALSE
Explanation: In lean accounting environments, WIP and finished goods are immaterial from an accounting perspective and pricing is more related to competitive forces than cost plus strategies.
Diff: 2
Objective: 8
AACSB: Analytical thinking

6) Lean accounting takes in to consideration all costs associated with inventories.
Answer: FALSE
Explanation: Lean accounting excludes certain support costs and unused capacity costs.
Diff: 1
Objective: 8
AACSB: Analytical thinking

7) Lean accounting is much simpler than traditional product costing. Why?
Answer: Lean accounting is much simpler than traditional product costing because calculating actual product costs by value streams requires less overhead allocation.
Diff: 1
Objective: 8
AACSB: Analytical thinking

8) What are the principles of lean accounting? Are there any limitations? Discuss.
Answer: Lean accounting is a costing method that supports creating value for the customer by costing the entire value stream, not individual products or departments, thereby eliminating waste in the accounting process. If there are multiple, related products made in a single value stream, then product costs for the individual products are not even computed.

It is a simpler means by which to calculate values and costs consistent with the emphasis of JIT and remaining focused on the supply chain concept.

Regarding limitations of the lean accounting: (1) it does not compute costs for individual products - this may restrict its value for certain types of decisions; (2) it excludes many of the support costs and unused capacity costs; (3) it does not account for inventories under generally accepted accounting principles.

Proponents of lean accounting argue that by focusing on the specific value stream and allocating all other costs that do not directly contribute to the value stream, those other costs will be highlighted in a way that will cause managers to reduce those costs and/or find other alternative uses for the excess capacity that may contribute to them.
Diff: 2
Objective: 8
AACSB: Analytical thinking

Cost Accounting: A Managerial Emphasis, 16e, Global Edition **(Horngren)**
Chapter 21 Capital Budgeting and Cost Analysis

21.1 Objective 21.1

1) Which of the following involves the process of making decisions for significant financial investments in projects to develop new products, expand production capacity, or remodel current production facilities?
A) capital budgeting
B) working capital management
C) master budgeting
D) capitalization
Answer: A
Diff: 1
Objective: 1
AACSB: Analytical thinking

2) Which of the following is a stage of the capital budgeting process that indicates potential capital investments that agree with an organization's strategy?
A) identify projects stage
B) make predictions stage
C) obtain information stage
D) implement the decision, evaluate performance, and learn stage
Answer: A
Diff: 1
Objective: 1
AACSB: Analytical thinking

3) Which of the following is a stage of the capital budgeting process during which a plant manager is queried for assembly time?
A) make decisions by choosing among alternatives stage
B) obtain information stage
C) make predictions stage
D) implement the decision, evaluate performance, and learn stage
Answer: B
Diff: 1
Objective: 1
AACSB: Analytical thinking

4) Which of the following is a stage of the capital budgeting process that forecasts all potential cash flows attributable to the alternative projects?
A) identify projects stage
B) make decisions by choosing among alternatives stage
C) implement the decision, evaluate performance, and learn stage
D) make predictions stage
Answer: D
Diff: 1
Objective: 1
AACSB: Analytical thinking

5) Which of the following is a stage of the capital budgeting process that determines which investment yields the greatest benefit and the least cost to an organization?
A) make decisions by choosing among alternatives stage
B) make predictions stage
C) identify projects stage
D) implement the decision, evaluate performance, and learn stage

Answer: A
Diff: 1
Objective: 1
AACSB: Analytical thinking

6) Which of the following is a stage of the capital-budgeting process that tracks realized cash flows and compares those against estimated numbers?
A) implement the decision, evaluate performance, and learn stage
B) make predictions stage
C) identify projects stage
D) make decisions by choosing among alternatives stage
Answer: A
Diff: 1
Objective: 1
AACSB: Analytical thinking

7) Which of the following is the first stage to the capital budgeting process?
A) forecast all potential cash flows attributable to the alternative projects
B) determine which investment yields the greatest benefit and the least cost to the organization
C) obtain funding and make the investments selected
D) identify potential capital investments that agree with the organization's strategy
Answer: D
Diff: 1
Objective: 1
AACSB: Analytical thinking

8) Which of the following is a stage of the capital budgeting process in which a firm obtains funding for the project?
A) make decisions by choosing among alternatives stage
B) identify projects stage
C) obtain information stage
D) implement the decision, evaluate performance, and learn stage
Answer: D
Diff: 1
Objective: 1
AACSB: Analytical thinking

9) Capital budgeting is both a decision making and control tool. Which of the following is an example of capital budgeting as a control tool?
A) A company uses capital budgeting techniques to evaluate a group of prospective alternative projects.
B) A large manufacturer sets up a "capital relief" fund to help supplement sustainability projects that would not meet targeted rates of returns without the capital relief fund assistance.
C) When considering capital expenditures, a company looks at a minimum of six potential (alternative) projects.
D) A company's capital project is not meeting the level of profitability expected, will not meet the targeted NPV, and is abandoned.
Answer: D
Diff: 1
Objective: 1
AACSB: Analytical thinking

10) Which of the following methods utilizes discounted cash flows when analyzing potential capital expenditures?

Methods:
1. Accrual accounting rate-of-return
2. Internal Rate of Return (IRR)
3. Payback Period
4. Net Present Value (NPV)

A) 1 only
B) 1 and 2
C) 1 and 3
D) 2 and 4
Answer: D
Diff: 2
Objective: 1
AACSB: Analytical thinking

11) Capital budgeting is the process of making long-run planning decisions for investments in projects.
Answer: TRUE
Diff: 2
Objective: 1
AACSB: Analytical thinking

12) A capital budget spans only a one-year period.
Answer: FALSE
Explanation: A capital budget normally is for a period of time greater than one year.
Diff: 2
Objective: 1
AACSB: Analytical thinking

13) In the "Identify projects" stage of capital budgeting, companies gather information from all parts of the value chain to evaluate alternative projects.
Answer: FALSE
Explanation: In "Identify projects" stage of capital budgeting, companies identify potential capital investments that agree with organizations' strategies. In the second stage, companies obtain information.
Diff: 1
Objective: 1
AACSB: Analytical thinking

14) In the "obtain information" stage of capital budgeting, a company gathers information from all parts of the value chain to evaluate alternative projects.
Answer: TRUE
Diff: 1
Objective: 1
AACSB: Analytical thinking

15) In the "make decisions by choosing among alternatives" stage of the capital budgeting process, a company determines which investment yields the greatest benefit and the least cost to the organization.
Answer: TRUE
Diff: 1
Objective: 1
AACSB: Analytical thinking

16) In the "make predictions" stage of the capital budgeting process, a company forecasts all potential net income additions those are attributable to the alternative projects.
Answer: FALSE
Explanation: In the "make predictions" stage of the capital budgeting process, company forecasts all potential *cash flows* attributable to the alternative projects.
Diff: 1
Objective: 1
AACSB: Analytical thinking

17) The accrual accounting rate-of-return method is a discounted cash flow approach to analyzing possible capital budget expenditures.
Answer: FALSE
Explanation: The IRR and the NPV are the two discounted cash flow methods while the accrual accounting rate-of-return and the payback period approaches do not take into account the time value of money.
Diff: 1
Objective: 1
AACSB: Analytical thinking

18) Match each one of the examples below with one of the stages of the capital budgeting decision model.

Stages:
1. Identify Projects
2. Obtain Information
3. Make Predictions
4. Make Decisions by Choosing Among Alternatives
5. Implement the Decision, Evaluate Performance, and Learn

________ a. Issuing corporate stock for the funds to purchase new equipment
________ b. Learning how to effectively operate Machine #8 only takes 15 minutes
________ c. The need to reduce the costs to process the vegetables used in producing goulash
________ d. Monitoring the costs to operate a new machine
________ e. Percentage of defective merchandise considered too high
________ f. Will introducing the new product substantially upgrade our image as a producer of quality products?
________ g. Estimating yearly cash flows and setting investment budgets accordingly using a 12-year planning horizon.
________ h. Use of the internal rate of return for each alternative
________ i. Tracking realized cash flows and comparing against estimated numbers.

Answer:
a. 5. Implement the Decision, Evaluate Performance, and Learn
b. 2. Obtain Information
c. 1. Identify Projects
d. 5. Implement the Decision, Evaluate Performance, and Learn
e. 1. Identify Projects
f. 2. Obtain Information
g. 3. Make Predictions
h. 4. Make Decisions by Choosing Among Alternatives
i. 5. Implement the Decision, Evaluate Performance, and Learn

Diff: 2
Objective: 1
AACSB: Analytical thinking

19) List the capital budgeting methods used to analyze financial information.
Answer: Capital budgeting is long-run planning for investment projects that usually have a life that is greater than one year.
Capital budgeting methods include (1) net present value (NPV), (2) internal rate-of-return (IRR), (3) payback, and (4) accrual accounting rate-of-return (AARR). Both the net present value (NPV) and internal rate-of-return (IRR) methods use discounted cash flows.
Diff: 1
Objective: 1
AACSB: Analytical thinking

20) Explain capital budgeting and then briefly discuss each of the five stages of a capital budgeting project?
Answer: Capital budgeting is long-run planning for investment projects that usually have a life that is greater than one year.

Stage 1 of a capital budgeting project is the identify projects stage in which a firm determines which types of capital investments are necessary to accomplish organization objectives and strategies. Stage 2 is the obtain information stage in which a firm gathers information from all parts of the value chain to analyze alternative projects. Stage 3 is the make predictions stage in which the firm forecasts all potential cash flows attributable to the alternative projects. Stage 4 is the make decisions by choosing among alternatives stage in which the firm determines which investment yields the greatest benefit and the least cost to the organization. Stage 5 is the implement the decision, evaluate performance, and learn stage that is further separated into two sub stages: (1) obtain funding and make the investments selected in the stage 4 process, and (2) track the realized cash flows, compare against the forecast numbers, and revise plans if necessary.
Diff: 2
Objective: 1
AACSB: Analytical thinking

21) Cast Iron Stove Company wants to buy a molding machine that can be integrated into its computerized manufacturing process. It has received three bids for the machine and related manufacturer's specifications. The bids range from $3,500,000 to $3,550,000. The estimated annual savings of the machines range from $260,000 to $270,000. The payback periods are almost identical and the net present values are all within $8,000 of each other. The president just doesn't know what to do about which vendor to choose since all of the selection criteria are so close together.

Required:
What suggestions do you have for the president?
Answer: The president needs to consider nonfinancial and qualitative factors between the three vendors. Quality of output units, manufacturing flexibility, and cycle time are all additional factors that can be considered about the machines. Other items might include worker safety, ease of learning and using, and ease of maintenance.
Diff: 2
Objective: 1
AACSB: Analytical thinking

21.2 Objective 21.2

1) Upon which of the following items does discounted cash flow methods for capital budgeting focus?
A) cash inflows and required rate of return
B) operating income and required rate of return
C) operating income and cost of capital
D) working capital and cost of capital
Answer: A
Diff: 2
Objective: 2
AACSB: Analytical thinking

2) Net present value is calculated using which of the following?
A) internal rate of return
B) required rate of return as a discount rate
C) risk-free rate
D) predetermined overhead cost rate
Answer: B
Diff: 2
Objective: 2
AACSB: Analytical thinking

3) Which of the following capital budgeting methods uses discounted cash flows?
A) accrual accounting rate-of-return method
B) net present value method
C) projected income method
D) payback method
Answer: B
Diff: 2
Objective: 2
AACSB: Analytical thinking

4) Which of the following methods is described as follows: "It 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 using the required rate of return"?
A) payback method
B) accrual accounting rate-of-return method
C) internal rate of return
D) net present value method
Answer: D
Diff: 2
Objective: 2
AACSB: Analytical thinking

5) Assume your goal in life is to retire with $2,800,000. How much would you need to save at the end of each year if interest rates average 10% and you have a 30-year work life? (Round the final answer to the nearest whole dollar.)
A) $9333
B) $17,022
C) $186,667
D) $160,464
Answer: B
Explanation: Savings × (164.49) = $2,800,000
Savings = $17,022.31
Diff: 2
Objective: 2
AACSB: Application of knowledge

6) Assume your goal in life is to retire with three million dollars. How much would you need to save at the end of each year if interest rates average 5% and you have a 10-year work life?
A) $15,000
B) $1,841,740
C) $238,512
D) $600,000
Answer: C
Explanation: Look up annuity factor in the table or use function on a calculator or computer.
Savings × (12.578) = $3,000,000
Savings = $238,511.69
Diff: 3
Objective: 2
AACSB: Application of knowledge

7) Assume your goal in life is to retire with 1 million dollars. How much would you need to save at the end of each year if investment rates average 5% and you have a 16-year work life?
A) $3125
B) $42,270
C) $458,112
D) $125,000
Answer: B
Explanation: Look up annuity factor in the table or use function on a calculator or computer.
Savings × (23.6575) = $1,000,000
Savings = $42,269.89
Diff: 3
Objective: 2
AACSB: Application of knowledge

8) Difend Cleaners has been considering the purchase of an industrial dry-cleaning machine. The existing machine is operable for three more years and will have a zero disposal price. If the machine is disposed now, it may be sold for $170,000. The new machine will cost $360,000 and an additional cash investment in working capital of $170,000 will be required. The new machine will reduce the average amount of time required to wash clothing and will decrease labor costs. The investment is expected to net $130,000 in additional cash inflows during the first year of acquisition and $290,000 each additional year of use. The new machine has a three-year life, and zero disposal value. These cash flows will generally occur throughout the year and are recognized at the end of each year. Income taxes are not considered in this problem. The working capital investment will not be recovered at the end of the asset's life.

What is the net present value of the investment, assuming the required rate of return is 6%? Would the company want to purchase the new machine?
A) $264,290; yes
B) $243,489.592; yes
C) $($243,489.592); no
D) $($264,290); no
Answer: A
Explanation:

Yr. 0 ($170,000 - $360,000 - $170,000) × 1.000 =	$(-360,000)
Yr. 1 $130,000 × 0.943 =	122,590
Yr. 2 $290,000 × 0.890 =	258,100
Yr. 3 $290,000 × 0.840 =	243,600
Net present value at 6%	$264,290

Diff: 3
Objective: 2
AACSB: Application of knowledge

9) Difend Cleaners has been considering the purchase of an industrial dry-cleaning machine. The existing machine is operable for three more years and will have a zero disposal price. If the machine is disposed now, it may be sold for $100,000. The new machine will cost $430,000 and an additional cash investment in working capital of $100,000 will be required. The new machine will reduce the average amount of time required to wash clothing and will decrease labor costs. The investment is expected to net $140,000 in additional cash inflows during the first year of acquisition and $270,000 each additional year of use. The new machine has a three-year life, and zero disposal value. These cash flows will generally occur throughout the year and are recognized at the end of each year. Income taxes are not considered in this problem. The working capital investment will not be recovered at the end of the asset's life.

What is the net present value of the investment, assuming the required rate of return is 9%? Would the company want to purchase the new machine?

A) $(208,440); yes
B) $(134,160); no
C) $134,160; yes
D) $208,440; no

Answer: C

Explanation:

Yr. 0 ($100,000 - $430,000 - $100,000) × 1.000 =	-$430,000
Yr. 1 $140,000 × 0.917 =	128,380
Yr. 2 $270,000 × 0.842 =	227,340
Yr. 3 $270,000 × 0.772 =	208,440
Net present value at 9%	$134,160

Diff: 3
Objective: 2
AACSB: Application of knowledge

10) Diemia Hospital has been considering the purchase of a new x-ray machine. The existing machine is operable for three more years and will have a zero disposal price. If the machine is disposed now, it may be sold for $170,000. The new machine will cost $700,000 and an additional cash investment in working capital of $115,000 will be required. The new machine will reduce the average amount of time required to take the x-rays and will allow an additional amount of business to be done at the hospital. The investment is expected to net $150,000 in additional cash inflows during the year of acquisition and $180,000 each additional year of use. The new machine has a three-year life, and zero disposal value. These cash flows will generally occur throughout the year and are recognized at the end of each year. Income taxes are not considered in this problem. The working capital investment will not be recovered at the end of the asset's life.

What is the net present value of the investment, assuming the required rate of return is 9%? Would the hospital want to purchase the new machine?
A) $(27,510); no
B) $117,000 no
C) $27,510; yes
D) $117,000; yes
Answer: C
Explanation:

Yr. 0 ($170,000 - $700,000 - $115,000) × 1.000 =	-$645,000
Yr. 1 $150,000 × 0.917 =	137,550
Yr. 2 $180,000 × 0.842 =	151,560
Yr. 3 $180,000 × 0.772 =	138,960
Yr. 4 $180,000 × 0.708 =	127,440
Yr. 5 $180,000 × 0.650 =	117,000
Net present value at 9%	$27,510

Diff: 3
Objective: 2
AACSB: Application of knowledge

11) Diemia Hospital has been considering the purchase of a new x-ray machine. The existing machine is operable for five more years and will have a zero disposal price. If the machine is disposed now, it may be sold for $120,000. The new machine will cost $650,000 and an additional cash investment in working capital of $105,000 will be required. The new machine will reduce the average amount of time required to take the x-rays and will allow an additional amount of business to be done at the hospital. The investment is expected to net $130,000 in additional cash inflows during the year of acquisition and $110,000 each additional year of use. The new machine has a five-year life, and zero disposal value. These cash flows will generally occur throughout the year and are recognized at the end of each year. Income taxes are not considered in this problem. The working capital investment will not be recovered at the end of the asset's life.

What is the net present value of the investment, assuming the required rate of return is 16%? Would the hospital want to purchase the new machine?
A) $112,060, yes
B) -$257,620; no
C) -$257,620; yes
D) $52,360; yes
Answer: B
Explanation:

Yr. 0 ($120,000 - $650,000 - $105,000) × 1.000 =	-$635,000
Yr. 1 $130,000 × 0.862 =	112,060
Yr. 2 $110,000 × 0.743 =	81,730
Yr. 3 $110,000 × 0.641 =	70,510
Yr. 4 $110,000 × 0.552 =	60,720
Yr. 5 $110,000 × 0.476 =	52,360
Net present value at 16%	-$257,620

Diff: 3
Objective: 2
AACSB: Application of knowledge

12) In using the net present value method, only projects with a zero or positive net present value are acceptable because ________.
A) the return from these projects equals or exceeds the cost of capital
B) a positive net present value on a particular project guarantees company profitability
C) the company will be able to pay the necessary payments on any loans secured to finance the project
D) it results in high payback period
Answer: A
Diff: 2
Objective: 2
AACSB: Analytical thinking

13) Which of the following is another term for required rate of return?
A) hurdle rate
B) total cost rate
C) variance rate
D) predetermined overhead rate
Answer: A
Diff: 2
Objective: 2
AACSB: Analytical thinking

14) Which of the following projects is rejected on the basis of net present value method?
A) Project A with an NPV of $10,000
B) Project B with an NPV of $(15,000)
C) Project C with an NPV of $21,000
D) Project D with an NPV of $1200
Answer: B
Diff: 2
Objective: 2
AACSB: Analytical thinking

15) An annuity is ________.
A) a noncash expense
B) a series of equal cash flows at equal time intervals
C) an investment product whose funds are invested in the stock market
D) a rate at which an investment's present value of all expected cash inflows equals the present value of project's expected cash outflows.
Answer: B
Diff: 2
Objective: 2
AACSB: Analytical thinking

16) The net present value method focuses on ________.
A) cash flows and required rate of return
B) inventory cost and cost of capital
C) working capital and cost of capital
D) operating income and required rate of return
Answer: A
Diff: 2
Objective: 2
AACSB: Analytical thinking

17) If the net present value for a project is positive, which of the following is true?
A) the project should be accepted because its expected rate of return is greater than the cost of capital
B) its internal rate of return is more than its cost of capital
C) its expected rate of return is below the required rate of return
D) its internal rate of return is less than its cost of capital
Answer: A
Diff: 2
Objective: 2
AACSB: Analytical thinking

18) Concose Park Department is considering a new capital investment. The cost of the machine is $280,000. The annual cost savings if the new machine is acquired will be $165,000. The machine will have a 3-year life and the terminal disposal value is expected to be $35,000. There are no tax consequences related to this decision. If Concose Park Department has a required rate of return of 14%, which of the following is closest to the present value of the project?

A) \$190,880
B) \$87,750
C) \$126,755
D) \$103,130
Answer: C
Explanation: (\$165,000 × 2.322) + (\$35,000 × 0.675) - \$280,000 = \$126,755
Diff: 3
Objective: 2
AACSB: Application of knowledge

19) Forge Company wants to purchase a new cutting machine for its sewing plant. The investment is expected to generate annual cash inflows of \$140,000. The required rate of return is 10% and the current machine is expected to last for seven years. Of the following choices, which is the dollar amount the company would be willing to spend for the machine, assuming its life is also seven years? Income taxes are not considered.
A) \$1,328,180
B) \$882,000
C) \$702,660
D) \$681,520
Answer: D
Explanation: X = \$140,000 × PV Ann 7 (10%) = \$140,000 × 4.868
X= \$681,520
Diff: 3
Objective: 2
AACSB: Application of knowledge

20) The Zeron Corporation wants to purchase a new machine for its factory operations at a cost of $380,000. The investment is expected to generate $225,000 in annual cash flows for a period of four years. The required rate of return is 10%. The old machine can be sold for $30,000. The machine is expected to have zero value at the end of the four-year period. What is the net present value of the investment? Would the company want to purchase the new machine? Income taxes are not considered.
A) $363,025; yes
B) $22,500; no
C) $350,000; yes
D) $375,650; no
Answer: A
Explanation:

Year 0 =	($30,000 - $380,000) =	-$350,000
Year 1 =	$225,000 × 0.909 =	204,525
Year 2 =	$225,000 × 0.826 =	185,850
Year 3 =	$225,000 × 0.751 =	168,975
Year 4 =	$225,000 × 0.683 =	153,675
Net present value at 10%		$363,025

Diff: 3
Objective: 2
AACSB: Application of knowledge

21) Forise Water Company drills small commercial water wells. The company is in the process of analyzing the purchase of a new drill. Information on the proposal is provided below.

Initial investment:	
Asset	$700,000
Working capital	$188,000
Operations (per year for four years):	
Cash receipts	$530,000
Cash expenditures	$240,000
Disinvestment:	
Salvage value of drill (existing)	$120,000
Discount rate	18%

What is the net present value of the investment? Assume there is no recovery of working capital.
A) -$188,000
B) $12,100
C) $290,000
D) $200,100
Answer: B

Explanation: Year 0 =	(-$188,000 - $700,000 + $120,000) =	-$768,000
Year 1 =	$290,000 × 0.847 =	245,630
Year 2 =	$290,000 × 0.718 =	208,220
Year 3 =	$290,000 × 0.609 =	176,610
Year 4 =	$290,000 × 0.516 =	149,640
Net present value at 18%		$12,100

Diff: 3
Objective: 2
AACSB: Application of knowledge

22) The capital budgeting method that calculates the discount rate at which the present value of expected cash inflows from a project equals the present value of expected cash outflows is the ________.
A) net present value method
B) accrual accounting rate-of-return method
C) payback method
D) internal rate of return method

Answer: D
Diff: 2
Objective: 2
AACSB: Analytical thinking

23) Which of the following best describes the internal rate-of-return (IRR) method?
A) it calculates the discount rate at which an investment's present value of the total of all expected cash inflows equals the present value of its expected cash outflows.
B) it calculates the discount rate at which an investment's future value of all expected cash inflows equals the present value of its expected cash outflows.
C) it calculates the discount rate at which an investment's total of all expected cash inflows equals the present value of its expected cash outflows.
D) it calculates the discount rate at which sum of an investment's present value of all expected cash inflows equals the present value of its expected cash outflows.
Answer: D
Diff: 2
Objective: 2
AACSB: Analytical thinking

24) A general rule in capital budgeting is that a project is accepted only if the internal rate of return equals or ________.
A) exceeds the required rate of return
B) exceeds the inflation rate
C) exceeds the risk-free rate
D) exceeds the accrual accounting rate of return
Answer: A
Diff: 2
Objective: 2
AACSB: Analytical thinking

25) The Comil Corporation recently purchased a new machine for its factory operations at a cost of $328,325. The investment is expected to generate $115,000 in annual cash flows for a period of four years. The required rate of return is 13%. The old machine has a remaining life of four years. The new machine is expected to have zero value at the end of the four-year period. The disposal value of the old machine at the time of replacement is zero. What is the internal rate of return?
A) 12%
B) 13%
C) 14%
D) 15%
Answer: D
Explanation:
$328,325 = $115,000F
F = 2.855
Chart criteria for four years is 2.855 = 15%
Diff: 3
Objective: 2
AACSB: Application of knowledge

26) Locil Corporation recently purchased a new machine for $307,890 with a eight-year life. The old equipment has a remaining life of eight years and no disposal value at the time of replacement. Net cash flows will be $90,000 per year. What is the internal rate of return?
A) 24%
B) 29%
C) 33%
D) 37%
Answer: A
Explanation: $307,890 = $90,000F
F = 3.421
Chart criteria for 8 years is 3.421 = 24%
Diff: 2
Objective: 2
AACSB: Application of knowledge

27) Soda Manufacturing Company provides vending machines for soft-drink manufacturers. The company has been investigating a new piece of machinery for its production department. The old equipment has a remaining life of five years and the new equipment will cost $99,825 with a five-year life. The expected additional cash inflows are $25,000 per year. What is the internal rate of return?
A) 8%
B) 12%
C) 6%
D) 4%
Answer: A
Explanation:
$99,825 = $25,000F
F = 3.993
Chart criteria for 5 years is 3.993 = 8%
Diff: 2
Objective: 2
AACSB: Application of knowledge

28) Diamond Manufacturing Company provides glassware machines for major department store retailers. The company has been investigating a new piece of machinery for its production department. The old equipment has a remaining life of eight years and the new equipment will cost $141,969 with a eight-year life. The expected additional cash inflows are $37,000 per year. What is the internal rate of return?
A) 13%
B) 15%

C) 20%
D) 23%
Answer: C
Explanation:
$141,969 = $37,000F
F = 3.837
Chart criteria for 8 years is 3.837 = 20%
Diff: 2
Objective: 2
AACSB: Application of knowledge

29) Midize Flower Company provides flowers and other nursery products for decorative purposes in medium to large sized restaurants and businesses. The company has been investigating the purchase of a new specially equipped van for deliveries. The van will cost $61,392 with a eight-year life. The expected additional cash inflows are $16,000 per year. What is the internal rate of return?
A) 17%
B) 20%
C) 22%
D) 27%
Answer: B
Explanation:
$61,392 = $16,000F
F = 3.837
Chart criteria for 8 years is 3.837 = 20%
Diff: 2
Objective: 2
AACSB: Application of knowledge

30) Which of the following best explains why the net present value method of capital budgeting is preferred over the internal rate-of-return method?
A) the net present value method is expressed as a percentage of initial investment
B) the net present values of individual projects can be added to determine the effects of accepting a combination of projects
C) the percentage return computed under the net present value method is very easy to compare
D) the calculation under the net present value method is easy as it does not use time value of money
Answer: B
Diff: 2
Objective: 2
AACSB: Application of knowledge

31) In situations where the required rate of return is not constant for each year of the project, it is advantageous to use ________.
A) the nominal rate-of-return method
B) the internal rate-of-return method
C) the net present value method
D) the projected income method
Answer: C
Diff: 2
Objective: 2
AACSB: Analytical thinking

32) A "what-if" technique that examines how a result will change if the original predicted data are NOT achieved or if an underlying assumption changes is called ________.
A) sensitivity analysis
B) net present value analysis
C) internal rate-of-return analysis
D) adjusted rate-of-return analysis
Answer: A
Diff: 1
Objective: 2
AACSB: Analytical thinking

33) Investment A requires a net investment of $604,021 The required rate of return is 12% for the three-year annuity. What are the annual cash inflows if the net present value equals 0? (rounded)
A) $2,416,084
B) $251,466
C) $604,016
D) -$1,812,063
Answer: B
Explanation: 2.402 × annual cash inflows - $604,021 = $0 = $251,466
Diff: 3
Objective: 2
AACSB: Application of knowledge

34) The minimum annual acceptable rate of return on an investment is the ________.
A) accrual accounting rate of return
B) hurdle rate
C) internal rate of return
D) net present value
Answer: B
Diff: 2
Objective: 2
AACSB: Analytical thinking

35) Hypore Darby Park Department is considering a new capital investment. The following information is available on the investment. The cost of the machine will be $348,400. The annual cost savings if the new machine is acquired will be $80,000. The machine will have a 6-year life, at which time the terminal disposal value is expected to be zero. Hypore Park Department is assuming no tax consequences. What is the internal rate of return for Hypore Park Department?
A) 5%
B) 10%
C) 9%
D) 11%
Answer: B
Explanation: PV Factor is $348,400 / $80,000 = 4.355. This corresponds to a 10% IRR using the annuity table for a 6-year annuity.
Diff: 3
Objective: 2
AACSB: Application of knowledge

36) Which of the following is an advantage of internal rate of return method?
A) Sum of IRRs of individual projects gives an IRR of a combination or portfolio of projects.
B) The percentage returns computed under the IRR method are easy to understand and compare.
C) It can be expressed as a unique number.
D) It can be used when the required rate of return varies over the life of a project.
Answer: B
Diff: 3
Objective: 2
AACSB: Analytical thinking

37) The net present value method assumes that project cash flows can be reinvested at the company's ________.
A) internal rate of return
B) required rate of return
C) growth rate
D) accounting rate of return
Answer: B
Diff: 3
Objective: 2
AACSB: Analytical thinking

38) The internal rate of return method assumes that project cash flows can be reinvested at the project's ________.
A) internal rate of return
B) required rate of return
C) growth rate
D) accounting rate of return
Answer: A
Diff: 3
Objective: 2
AACSB: Analytical thinking

39) The NPV method is the preferred method over IRR for selecting projects because ________.
A) its result is expressed in dollars and management can make an assessment as to its financial impact on the value of the business
B) it accounts for the time value of money better than IRR
C) it assumes that cash flows are reinvested at the internal rate of return for each and every year of the useful life
D) it gives a project ranking consistent with that of IRR
Answer: A
Diff: 3
Objective: 2
AACSB: Analytical thinking

40) The Required Rate of Return (RRR) is set externally by creditors as the interest rate on long term liabilities.
Answer: FALSE
Explanation: The RRR is internally set, usually by upper management, and typically takes into account the cost of the company's capital and the return that an organization could expect to receive elsewhere for an investment of comparable risk.
Diff: 2
Objective: 2
AACSB: Analytical thinking

41) Discounted cash flow methods do not consider the present value of the cash flows after the recovery of the initial investment.
Answer: FALSE
Explanation: Discounted cash flow methods focus on all cash inflows and cash outflows for the entire expected useful life of the proposed project.
Diff: 2
Objective: 2
AACSB: Analytical thinking

42) The three common discounted cash flow methods are net present value, internal rate of return, and payback.
Answer: FALSE
Explanation: The two common discounted cash flow methods are net present value and internal rate of return. The traditional payback method is not a discounted cash flow method.
Diff: 2
Objective: 2
AACSB: Analytical thinking

43) The net present value (NPV) method calculates the expected monetary gain or loss from a project by discounting all expected future cash inflows and outflows back to the present point in time using the required rate of return.
Answer: TRUE
Diff: 2
Objective: 2
AACSB: Analytical thinking

44) The discount rate used to calculate the NPV should be the interest rate that the company could borrow at to finance the proposed capital project.
Answer: FALSE
Explanation: The discount rate is the required rate of return on the project and is a type of hurdle rate that management has set as a goal. It can be derived from the company's cost of capital - which would include borrowings but also the cost of equity. It is also a function of the opportunity cost of capital.
Diff: 2
Objective: 2
AACSB: Analytical thinking

45) Discounted cash flow methods of evaluating capital expenditures focuses on the operating income as calculated under accrual accounting rules.
Answer: FALSE
Explanation: DCF methods do not include depreciation in the operating cash flows and should account for the income tax effect of operating cash flows and depreciation.
Diff: 2
Objective: 2
AACSB: Analytical thinking

46) The net present value method can be used in situations where the required rate of return varies over the life of the project.
Answer: TRUE
Diff: 2
Objective: 2
AACSB: Analytical thinking

47) The net present value method accurately assumes that project cash flows can only be reinvested at the company's required rate of return.
Answer: TRUE
Diff: 2
Objective: 2
AACSB: Analytical thinking

48) If internal rate of return is less than required rate of return, the net present value is positive.
Answer: FALSE
Explanation: If internal rate of return is less than required rate of return, the net present value is negative.
Diff: 2
Objective: 2
AACSB: Analytical thinking

49) Managers prefer projects with higher IRRs to projects with lower IRRs, if all other things are equal.
Answer: TRUE
Diff: 2
Objective: 2
AACSB: Analytical thinking

50) The Enor Machine Company is evaluating a capital expenditure proposal that requires an initial investment of $99,360 and has predicted cash inflows of $20,000 per year for 8 years. It will have no salvage value.

Required:
a. Using a required rate of return of 10%, determine the net present value of the investment proposal.
b. Determine the proposal's internal rate of return.
Answer:
a.

	Predicted Cash Flows	**Year(s)**	**PV Factor**	**PV of Cash Flows**
Initial investment	$(99,360)	0	1.000	$(99,360)
Annual cash inflows	20,000	8	5.335	106,700
Net present value				$ 7,340

b. Present value factor of an annuity of $1.00 = $99,360/$20,000 = 4.968

From the annuity table, the 4.968 factor is closest to the 8-year row at the 12% column. Therefore, the IRR is 12%.
Diff: 2
Objective: 2
AACSB: Application of knowledge

51) Network Service Center is considering purchasing a new computer network for $82,000. It will require additional working capital of $13,000. Its anticipated eight-year life will generate additional client revenue of $33,000 annually with operating costs, excluding depreciation, of $15,000. At the end of eight years, it will have a salvage value of $9,500 and return $5,000 in working capital. Taxes are not considered.

Required:
a. If the company has a required rate of return of 14%, what is the net present value of the proposed investment?

b. What is the internal rate of return?

Answer:
a.

	Predicted Cash Flows	**Year(s)**	**PV Factor @ 14%**	**PV of Cash Flows**
Initial investment	$(95,000)	0	1.000	$(95,000)
Annual revenue operations, net of operating costs	18,000	1-8	4.639	83,502
Salvage value, work capital recovered	14,500	8	0.351	5,090
Net present value				$(6,408)

b. Trial and error is necessary. You know it is below 14% because the answer to Part A was negative and, therefore, less than the discount rate. Therefore, let's try 12%.

	Predicted Cash Flows	**Year(s)**	**PV Factor @ 12%**	**PV of Cash Flows**
Initial investment	$(95,000)	0	1.000	$(95,000)
Annual revenue operations, net of operating costs	18,000	1-8	4.968	89,424
Salvage value, work capital recovered	14,500	8	0.404	5,858
Net present value				$282

The (almost) zero net present value indicates an internal rate of return of approximately 12%.
Diff: 3
Objective: 2
AACSB: Application of knowledge

52) EIF Manufacturing Company needs to overhaul its drill press or buy a new one. The facts have been gathered, and they are as follows:

	Current Machine	New Machine
Purchase Price, New	$88,000	$110,000
Current book value	33,000	
Overhaul needed now	44,000	
Annual cash operating costs	77,000	44,000
Current salvage value	22,000	
Salvage value in five years	5,500	22,000

Required:
Which alternative is the most desirable with a current required rate of return of 20%? Show computations, and assume no taxes.
Answer: *Present value of keeping current system*:

	Predicted Cash Flows	Year(s)	PV Factor @ 20%	PV of Cash Flows
Overhaul	$(44,000)	0	1.000	$(44,000)
Annual operations costs	(77,000)	1-5	2.991	(230,307)
Salvage value at end	5,500	5	0.402	2,211
Net present value				$(272,096)

Present value of new system:

	Predicted Cash Flows	Year(s)	PV Factor @ 20%	PV of Cash Flows
Investment	$(110,000)	0	1.000	$(110,000)
Salvage value, old	22,000	0	1.000	22,000
Annual operation costs	(44,000)	1-5	2.991	(131,604)
Salvage value at end	22,000	5	0.402	8,844
Net present value				$(210,760)

Buying the new equipment is the most desirable by $61,336 ($272,096 - $210,760).
Diff: 3
Objective: 2
AACSB: Application of knowledge

53) Flilane Tire Company needs to overhaul its auto lift system or buy a new one. The facts have been gathered, and they are as follows:

	Current Machine	New Machine
Purchase Price, New	$123,750	$162,800
Current book value	36,850	
Overhaul needed now	30,250	
Annual cash operating costs	69,300	52,800
Current salvage value	44,000	
Salvage value in five years	8,800	38,500

Required:
Which alternative is the most desirable with a current required rate of return of 15%? Show computations, and assume no taxes.

Answer: *Present value of keeping current system*:

	Predicted Cash Flows	Year(s)	PV Factor @ 15%	PV of Cash Flows
Overhaul	$(30,250)	0	1.000	$(30,250)
Annual operation costs	(69,300)	1-5	3.352	(232,294)
Salvage value at end	8,800	5	0.497	4,374
Net present value				$(258,170)

Present value of new system:

	Predicted Cash Flows	Year(s)	PV Factor @ 15%	PV of Cash Flows
Investment	($162,800)	0	1	($162,800)
Salvage value, old	44,000	0	1	$44,000
Annual operation costs	-52,800	1-5	3.352	($176,986)
Salvage value at end	38,500	5	0.497	$19,135
Net present value				($276,651)

Overhauling the existing system is the most desirable by $18,481 [$(258,170) - $(276,651)].
Diff: 3
Objective: 2
AACSB: Application of knowledge

54) ABC Boat Company is interested in replacing a molding machine with a new improved model. The old machine has a salvage value of $10,000 now and a predicted salvage value of $4,000 in six years, if rebuilt. If the old machine is kept, it must be rebuilt in one year at a predicted cost of $20,000.

The new machine costs $80,000 and has a predicted salvage value of $12,000 at the end of six years. If purchased, the new machine will allow cash savings of $20,000 for each of the first three years, and $10,000 for each year of its remaining six-year life.

Required:
What is the net present value of purchasing the new machine if the company has a required rate of return of 14%?
Answer:

	Predicted Cash Flows	Year(s)	PV Factor	PV of Cash Flows
Initial investment	$(80,000)	0	1.000	$(80,000)
Salvage of old	10,000	0	1.000	10,000
Annual operations	20,000	1-3	2.322	46,440
Annual operations	10,000	4-6	(3.889-2.322)	15,670
Save by not rebuilding	20,000	1	0.877	17,540
Salvage of new	12,000	6	0.456	5,472
Net present value				$15,122

Diff: 3
Objective: 2
AACSB: Application of knowledge

55) Retail Outlet is looking for a new location near a shopping mall. It is considering purchasing a building rather than leasing, as it has done in the past. Three retail buildings near a new mall are available but each has its own advantages and disadvantages. The owner of the company has completed an analysis of each location that includes considerations for the time value of money. The information is as follows:

	Location A	Location B	Location C
Internal rate of return	13%	17%	20%
Net present value	$25,000	$40,000	$20,000

The owner does not understand how the location with the highest percentage return has the lowest net present value.
Required:
Explain to the owner what is (are) the probable cause(s) of the comparable differences.
Answer: The highest probability is that location C has a much lower initial investment than the other two. Therefore, it can show a higher rate of return with fewer dollars of inflow. Unfortunately, this may cause it to have the lowest net present value since this model is presented in dollar terms. Location C could also have a shorter life which could give it a higher percentage return during its life but fewer dollars overall.
Diff: 2
Objective: 2
AACSB: Analytical thinking

21.3 Objective 21.3

1) Which of the following methods is described as the method that measures the time it will take to recoup, in the form of future cash inflows, the total dollars invested in a project?
A) the accrued accounting rate-of-return method
B) the payback method
C) the internal rate-of-return method

D) the book-value method
Answer: B
Diff: 1
Objective: 3
AACSB: Analytical thinking

2) The net initial investment for a piece of construction equipment is $2,900,000. Annual cash inflows are expected to increase by $500,000 per year. The equipment has an 10-year useful life. What is the payback period?
A) 10.00 years
B) 7.40 years
C) 5.80 years
D) 4.80 years
Answer: C
Diff: 2
Objective: 3
AACSB: Application of knowledge

3) The payback method of capital budgeting approach to an investment decision ________.
A) considers cash flows over the life of the investment
B) assumes that cash flows occur uniformly throughout the year
C) considers time value of money
D) ignores the initial investment
Answer: B
Diff: 2
Objective: 3
AACSB: Analytical thinking

4) Malive Park Department is considering a new capital investment. The following information is available on the investment. The cost of the machine will be $179,000. The annual cost savings if the new machine is acquired will be $35,000. The machine will have a 10-year life, at which time the terminal disposal value is expected to be zero. Malive Park is assuming no tax consequences. Malive Park has a 14% required rate of return. What is the payback period for the investment?
A) 4.1 years
B) 5.1 years
C) 10.0 years
D) 10.2 years
Answer: B
Diff: 2
Objective: 3
AACSB: Application of knowledge

5) Pearl Manufacturing Company provides glassware machines for major department store retailers. The company has been investigating a new piece of machinery for its production department. The old equipment has a remaining life of six years and the new equipment has a value of $319,400 with a six-year life. The expected additional cash inflows are $113,000 per year. What is the payback period for this investment?
A) 1.8 years
B) 3.8 years
C) 2.8 years
D) 6 years
Answer: C
Explanation: PB = $319,400 / $113,000 = 2.8 years.
Diff: 2
Objective: 3
AACSB: Application of knowledge

6) Ambinu Flower Company provides flowers and other nursery products for decorative purposes in medium to large sized restaurants and businesses. The company has been investigating the purchase of a new specially equipped van for deliveries. The van has a value of $133,750 with a six-year life. The expected additional cash inflows are $52,500 per year. What is the payback period for this investment?
A) 1.5 years
B) 2.5 years
C) 6 years
D) 3.5 years
Answer: B
Explanation: PB = $133,750 / $52,500 = 2.5 years.
Diff: 2
Objective: 3
AACSB: Analytical thinking

7) Unlike the net present value method and the internal rate-of-return method, the payback method does NOT distinguish between the origins of the cash flows.
Answer: FALSE
Explanation: None of the three capital budgeting methods distinguish between the origins of the cash flows.
Diff: 2
Objective: 3
AACSB: Analytical thinking

8) If there are non-uniform cash flows (cash flows that differ from year-to-year), payback period is calculated by dividing net initial investment by uniform increase in annual future cash flows.
Answer: FALSE
Explanation: If there are varying cash flows, cumulative cash flows must be tracked to determine the payback period.
Diff: 3
Objective: 3
AACSB: Analytical thinking

9) A weaknesses of the payback method is that it does not consider a project's cash flows after the payback period.
Answer: TRUE
Diff: 2
Objective: 3
AACSB: Analytical thinking

10) Supply the missing data for each of the following proposals:

	Proposal A	Proposal B	Proposal C
Initial investment	(a)	$62,900	$226,000
Annual net cash inflow	$60,000	(c)	(e)
Life, in years	10	6	10
Salvage value	$0	$10,000	$0
Payback period in years	(b)	(d)	5.65
Internal rate of return	12%	24%	(f)

Answer: a.

Annual cash inflow	$ 60,000
Present value factor for 10 years, 12%	× 5.650
Initial investment	$339,000

b. Payback period = $339,000/$60,000 = 5.65 years

c.

Initial investment	$62,900
PV of salvage value ($10,000 × 0.275)	(2,750)
Net PV of annual net cash inflow	$60,150

Annual cash inflow = $60,150/3.020 = $19,917.22

d. Payback = $62,900/$19,917.22 = 3.158

e. Annual net cash inflow = $226,000/5.650 = $40,000

f. PV factor for 10 years = $226,000/$40,000 = 5.650

Look up value 5.650 in PV of annuity table under 10 years in Table 4 and the internal rate of return is 12%.
Diff: 3
Objective: 3
AACSB: Application of knowledge

11) Book & Bible Bookstore desires to buy a new coding machine to help control book inventories. The machine sells for $36,586 and requires working capital of $4,000. Its estimated useful life is five years and will have a salvage value of $4,000. Recovery of working capital will be $4,000 at the end of its useful life. Annual cash savings from the purchase of the machine will be $10,000.

Required:
a. Compute the net present value at a 14% required rate of return.
b. Compute the internal rate of return.
c. Determine the payback period of the investment.
Answer:
a.

	Predicted Cash Flows	**Year(s)**	**PV Factor @ 14%**	**PV of Cash Flows**
Investment	$(36,586)	0	1.000	$(36,586)
Working capital needed	(4,000)	0	1.000	(4,000)
Annual operations	10,000	1-5	3.433	34,330
Working capital returned	4,000	5	0.519	2,076
Salvage value	4,000	5	0.519	2,076
Net present value				$(2,104)

b. Trial and error is required. Because net present value is negative in part a, the internal rate of return is less than 14%. Start by trying 12%.

	Predicted Cash Flows	**Year(s)**	**PV Factor @ 12%**	**PV of Cash Flows**
Investment	$(36,586)	0	1.000	$(36,586)
Working capital needed	(4,000)	0	1.000	(4,000)
Annual operations	10,000	1-5	3.605	36,050
Working capital returned	4,000	5	0.567	2,268
Salvage value	4,000	5	0.567	2,268
Net present value				$-0-

With a zero net present value, the internal rate of return is 12%.

c. Payback period = ($36,586 + $4,000)/$10,000 = 4.06 years.
Diff: 3
Objective: 2, 3
AACSB: Application of knowledge

12) Sam's Structures desires to buy a new crane and accessories to help move and install modular buildings. The machine sells for $75,000 and requires working capital of $10,000. Its estimated useful life is six years and it will have a salvage value of $17,560. Recovery of working capital will be $10,000 at the end of its useful life. Annual cash savings from the purchase of the machine will be $20,000.

Required:
a. Compute the net present value at a 12% required rate of return.
b. Compute the internal rate of return.
c. Determine the payback period of the investment.

Answer:
a.

	Predicted Cash Flows	Year(s)	PV Factor @ 12%	PV of Cash Flows
Investment	$(75,000)	0	1.000	$(75,000)
Working capital needed	(10,000)	0	1.000	(10,000)
Annual operations	20,000	1-6	4.111	82,220
Working capital returned	10,000	6	0.507	5,070
Salvage value	17,560	6	0.507	8,903
Net present value				$11,193

b. Trial and error is required. Because net present value is negative in part a, the internal rate of return is greater than 12%. Start by trying any % above 12% and the solution is listed below:

	Predicted Cash Flows	Year(s)	PV Factor	PV of Cash Flows
Investment	$(75,000)	0	1.000	$(75,000)
Working capital needed	(10,000)	0	1.000	(10,000)
Annual operations	20,000	1-6	3.685	73,700
Working capital returned	10,000	6	0.410	4,100
Salvage value	17,560	6	0.410	7,200
Net present value				$-0-

With a zero net present value, the internal rate of return is 16%.

c. Payback period = ($75,000 + $10,000)/$20,000 = 4.25 years.
Diff: 3
Objective: 2, 3
AACSB: Application of knowledge

13) Griffith Vehicle has received three proposals for its new vehicle-painting machine. Information on each proposal is as follows:

	Proposal X	Proposal Y	Proposal Z
Initial investment in equipment	$240,000	$150,000	$190,000
Working capital needed	0	0	10,000
Annual cash saved by operations:			
Year 1	80,000	50,000	80,000
Year 2	80,000	42,000	80,000
Year 3	80,000	46,000	80,000
Year 4	80,000	24,000	80,000
Salvage value end of year:			
Year 1	100,000	80,000	60,000
Year 2	80,000	60,000	50,000
Year 3	40,000	40,000	30,000
Year 4	10,000	20,000	15,000
Working capital returned	0	0	10,000

Required:
Determine each proposal's payback.
Answer: Proposal X payback = $240,000/$80,000 = 3 years

Proposal Y	Cash Savings	Savings Accumulated	To Be Recovered
Year 0			$150,000
Year 1	$50,000	$ 50,000	100,000
Year 2	42,000	98,000	58,000
Year 3	46,000	142,000	12,000
Year 4	24,000	186,000	0

Proposal Y payback = 3 years plus $12,000/$24,000 or 3.5 years.

Proposal Z payback = ($190,000 + $10,000)/$80,000 = 2.5 years
Diff: 3
Objective: 3
AACSB: Application of knowledge

14) Cedile Trailer Supply has received three proposals for its new trailer assembly line. Information on each proposal is as follows:

	Proposal X	Proposal Y	Proposal Z
Initial investment in equipment	$180,000	$140,000	$145,000
Working capital needed	0	0	15,000
Annual cash saved by operations:			
Year 1	60,000	60,000	60,000
Year 2	60,000	50,000	60,000
Year 3	60,000	35,000	60,000
Year 4	60,000	10,000	60,000
Salvage value end of year:			
Year 1	30,000	25,000	45,000
Year 2	25,000	20,000	40,000
Year 3	20,000	15,000	35,000
Year 4	15,000	10,000	25,000
Working capital returned:	0	0	15,000

Required:
Determine each proposal's payback.
Answer: Proposal X payback = $180,000/$60,000 = 3.00 years

Proposal Y	Cash Savings	Savings Accumulated	To Be Recovered
Year 0			$140,000
Year 1	$60,000	$ 60,000	80,000
Year 2	50,000	110,000	30,000
Year 3	35,000	145,000	0

Proposal Y payback = 2 years plus $30,000/$35,000 or 2.86 years.

Proposal Z payback = ($145,000 + $15,000)/$60,000 = 2.67 years
Diff: 3
Objective: 3
AACSB: Application of knowledge

15) A company financial analyst estimates that a project that will cost $150,000 will return the following cash flows:

Year 1 $45,000
Year 2 $55,000
Year 3 $60,000
year 4 $85,000
Year 5 $90,000

Calculate the discounted payback period if required rate of return is 10%
Answer: The discounted cash flow values are as follows (assuming a 10% discount rate):

Year 1 .909 x $45,000 = $40,950
Year 2 .826 x $55,000 = $45,430
Year 3 .751 x $60,000 = $45,060
Year 4 .683 x $85,000 = $58,055
Year 5 .621 x $90,000 = $55,890

By the end of year 3, the cumulative discounted cash flows equal $131,395 which means that $18,605 needs to be recovered in year 4.

$18,605/$58,055 = .32 + 3 years = 3.32 years discounted cash flow payback period
Diff: 2
Objective: 3
AACSB: Analytical thinking

21.4 Objective 21.4

1) Which of the following methods of capital budgeting divides the average annual accrual accounting income of a project by a measure of the investment in it?
A) net present value
B) internal rate of return
C) payback method
D) accrual accounting rate of return
Answer: D
Diff: 1
Objective: 4
AACSB: Analytical thinking

2) Accrual accounting rate of return is calculated by dividing ________.
A) net initial investment by an increase in expected average annual after-tax operating income
B) an increase in expected average annual after-tax operating income by the net initial investment
C) an increase in expected average annual cash flow by the net initial investment
D) net initial investment by an increase in expected average annual cash flow
Answer: B
Diff: 2
Objective: 4
AACSB: Analytical thinking

3) Which of the following is the numerator in the mathematical expression for accrual accounting rate-of-return (AARR)?
A) increase in expected average investment
B) increase in expected average annual after-tax operating income
C) increase in expected average cash flow
D) increase in expected net initial investment

Answer: B
Diff: 2
Objective: 4
AACSB: Analytical thinking

4) AARR indicates the average rate at which ________.
A) a dollar of investment generates after-tax operating income
B) a dollar of after-tax cash flow generates net income
C) a dollar of investment generates a positive cash flow
D) a dollar of after-tax non-operating income generates net income
Answer: A
Diff: 2
Objective: 4
AACSB: Analytical thinking

5) Which of the following statements is true of accrual accounting rate of return (AARR) method and internal rate of return (IRR) method?
A) AARR method calculates the return in absolute terms, whereas IRR method calculates the result in terms of percentage.
B) The AARR method calculates the return using operating-income numbers after considering accruals and taxes, whereas the IRR method calculates the return using after-tax cash flows and the time value of money.
C) The AARR method calculates the return considering the time value of money, whereas the IRR method calculates the return ignoring the time value of money.
D) The AARR method considers cash flows, whereas the IRR method considers operating income.
Answer: B
Diff: 3
Objective: 4
AACSB: Analytical thinking

6) The AARR method is similar to the IRR method as ________.
A) both calculate the return using after-tax cash flows
B) both calculate the return using operating-income numbers after considering accruals and taxes
C) both calculate the result in terms of percentage
D) both consider the time value of money
Answer: C
Diff: 2
Objective: 4
AACSB: Analytical thinking

7) Which of the following is a limitation of AARR method?
A) It is difficult to compare projects as its result is expressed in dollars and not in percentage terms.
B) It does not consider income earned throughout a project's expected useful life.
C) It does not track initial investment.
D) It does not consider time value of money.
Answer: D
Diff: 2
Objective: 4
AACSB: Analytical thinking

8) Accrual accounting rate of return is calculated by dividing increase in expected average annual after-tax operating income by the net initial investment.
Answer: TRUE
Diff: 2
Objective: 4
AACSB: Analytical thinking

9) The accrual accounting rate-of-return method is similar to the internal rate-of-return method because both methods calculate a rate-of-return percentage.
Answer: TRUE
Diff: 2
Objective: 4
AACSB: Analytical thinking

10) Accrual accounting rate of return is calculated by dividing an increase in expected average annual after-tax operating income by the net initial or average investment.
Answer: TRUE
Diff: 2
Objective: 4
AACSB: Analytical thinking

11) The accrual accounting rate-of-return method has a significant weakness for use in making capital budgeting decisions because it does NOT track cash flows and it ignores the time value of money.
Answer: TRUE
Diff: 2
Objective: 4
AACSB: Analytical thinking

12) As cash flows and time value of money are central to capital budgeting decisions, the AARR method is regarded as better than the IRR method.
Answer: FALSE
Explanation: As cash flows and time value of money are central to capital budgeting decisions, the IRR method is regarded as better than the AARR method.
Diff: 2
Objective: 4
AACSB: Analytical thinking

13) Unlike the payback method, which ignores cash flows after the payback period, the AARR method considers income earned throughout a project's expected useful life.
Answer: TRUE
Diff: 1
Objective: 4
AACSB: Analytical thinking

14) Gavin and Alex, baseball consultants, are in need of a microcomputer network for their staff. They have received three proposals, with related facts as follows:

	Proposal A	Proposal B	Proposal C
Initial investment in equipment	$90,000	$90,000	$90,000
Annual cash increase in operations:			
Year 1	80,000	45,000	90,000
Year 2	10,000	45,000	0
Year 3	45,000	45,000	0
Salvage value	0	0	0
Estimated life	3 yrs	3 yrs	1 yr

The company uses straight-line depreciation for all capital assets.

Required:
a. Compute the payback period, net present value, and accrual accounting rate of return with initial investment, for each proposal. Use a required rate of return of 14%.

b. Rank each proposal 1, 2, and 3 using each method separately. Which proposal is best? Why?
Answer:
a.
Payback Method

***Payback for Proposal A*:**	Year 1	$80,000
	Year 2	10,000
Payback is 2 years		$90,000

Payback for Proposal B:	Year 1	$45,000
	Year 2	45,000
Payback is 2 years		$90,000

Payback for proposal C:	Year 1	$90,000
Payback is 1 year		

Net Present Value:

Proposal A:	**Predicted Cash Flows**	**Year(s)**	**PV Factor**	**PV of Cash Flows**
Investment	$(90,000)	0	1.000	$(90,000)
Annual operations				
Year 1	80,000	1	0.877	70,160
Year 2	10,000	2	0.769	7,690
Year 3	45,000	3	0.675	30,375
Net present value				$18,225

Proposal B:	**Predicted Cash Flows**	**Year(s)**	**PV Factor**	**PV of Cash Flows**
Investment	$(90,000)	0	1.000	$(90,000)
Annual operations				
Year 1	45,000	1	0.877	39,465
Year 2	45,000	2	0.769	34,605
Year 3	45,000	3	0.675	30,375
Net present value				$14,445

Proposal C:	**Predicted Cash Flows**	**Year(s)**	**PV Factor**	**PV of Cash Flows**
Investment	$(90,000)	0	1.000	$(90,000)
Annual operations				
Year 1	90,000	1	0.877	78,930
Net present value				$11,070

Accrual Accounting Rate of Return:

Proposal A: $\frac{(\$80{,}000 + \$10{,}000 + \$45{,}000)/3 - (\$90{,}000/3)}{\$90{,}000} = 0.167$

Proposal B: ($45,000 - $30,000)/$90,000 = 0.167

Proposal C: ($90,000 - $90,000)/$90,000 = 0.0

b. ***Summary:***

Method	**Proposal A**	**Proposal B**	**Proposal C**
Payback method ranks	2.5	2.5	1.0
Net present value	1.0	2.0	3.0
AARR	1.5	1.5	3.0

Even though Proposal C is Number 1 for payback, it comes in last with the other two methods. Because the net present value method takes into account the time value of money and the other proposals are less comprehensive, Proposal A would be the best alternative.
Diff: 3
Objective: 4
AACSB: Analytical thinking

15) Gibson Manufacturing is considering buying an automated machine that costs $600,000. It requires working capital of $60,000. Annual cash savings are anticipated to be $280,200 for five years. The company uses straight-line depreciation. The salvage value at the end of five years is expected to be $24,000. The working capital will be recovered at the end of the machine's life.

Required:
Compute the accrual accounting rate of return based on the initial investment.
Answer: Accrual accounting income = $280,200 - (($600,000 - $24,000)/5)
= $280,200 - $115,200
= $165,000

AARR with initial investment = $165,000 / ($600,000 + $60,000)
= $165,000 / $660,000
= 0.25
Diff: 2
Objective: 4
AACSB: Application of knowledge

16) What are the four alternative methods for evaluating capital budgeting projects? What is an advantage and disadvantage of each method?
Answer: The four methods are: 1. Net Present Value (NPV); 2. Internal Rate of Return (IRR); 3. Payback; and 4. Accrual Accounting Rate of Return (AARR). NPV has advantages in that it uses discounted cash flows, and can deal with uneven cash flows, considers the inflows and outflows of the project. A disadvantage of NPV is that the results indicate if it achieves a particular cost of capital or not, but it does not indicate what the rate of return actually is. The IRR method generates an expected rate of return for the investment given the time of the project and the discounting of cash flows. A disadvantage of the IRR is that the results are expressed in the form of a percentage rather than in dollars and it is difficult to use when the project has uneven cash flows. The payback is simple to use, and adapts to both even and uneven cash flows. It also highlights the liquidity of a project. A disadvantage to the payback is that it does not consider either the time value of money, or the cash flows that occur after the payback time period. The AARR method uses the information that is most often found in financial statements — including net income and depreciation. A drawback is that the method does not take into account the time value of money or the cash flows of the project.
Diff: 2
Objective: 4
AACSB: Analytical thinking

17) Bock Construction Company is considering four proposals for the construction of new loading facilities that will include the latest in ship loading/unloading equipment. After careful analysis, the company's accountant has developed the following information about the four proposals:

	Proposal 1	**Proposal 2**	**Proposal 3**	**Proposal 4**
Payback period	4 years	4.5 years	6 years	7 years
Net present value	$80,000	$178,000	$166,000	$308,000
Internal rate of return	12%	14%	11%	13%
Accrual accounting rate of return	8%	6%	4%	7%

Required:
How can this information be used in the decision-making process for the new loading facilities? Does it cause any confusion?
Answer: The managers can use the information to determine which proposal is best under the various alternatives. This may be accomplished by ranking each alternative. Also, the managers must determine the factors that are the most important to the company. For example, if short-run risk is high, a short payback period may be highly desirable. In this case, Proposal 1 is best. However, if total cash returned is critical to the company's operations, then Proposal 4 is probably best.

Any time that multiple measures are used there may be confusion because very seldom will one proposal appear to be the best with all models. In this case, payback ranks Proposal 1 the best, NPV ranks Proposal 4 the best, IRR ranks Proposal 2 the best, and AARR ranks Proposal 1 the best. The importance of each ranking will depend upon the circumstances of the organization and the managers must be attuned as to what is most favorable.

The net present value and the internal rate-of-return methods are superior because they consider the time value of money.
Diff: 2
Objective: 4
AACSB: Analytical thinking

18) What are the strengths and weaknesses of the accrual accounting rate-of-return (AARR) method for evaluating long-term projects?
Answer: The accrual accounting rate of return (AARR) divides an accrual accounting measure of average annual income from a project by an accrual accounting measure of its investment. AARR gives managers an idea of how accepting a project will affect a firm's future reported accounting profitability. However, AARR uses accrual accounting income numbers, does not track cash flows, and ignores the time value of money.
Diff: 2
Objective: 4
AACSB: Analytical thinking

21.5 Objective 21.5

1) Which of the following is a component of net-initial-investment cash flows?
A) original cost of an old equipment
B) initial working capital investment
C) depreciation cost
D) after-tax cash flow from operations
Answer: B
Diff: 2
Objective: 5
AACSB: Analytical thinking

2) The galaxy Corporation disposes a capital asset with an original cost of $180,000 and accumulated depreciation of $91,000 for $47,000. The company's tax rate is 40%. Calculate the after-tax cash inflow from the disposal of the capital asset.
A) $16,800
B) ($16,800)
C) $63,800
D) $89,000
Answer: C
Explanation: ($180,000 - $91,000) = $89,000; $89,000 - $47,000 = $42,000 loss; $42,000 × 0.4 = $16,800 tax savings from loss plus $47,000 proceeds = $63,800
Diff: 3
Objective: 5
AACSB: Application of knowledge

3) The Golden Shades Corporation disposes a capital asset with an original cost of $320,000 and accumulated depreciation of $140,000 for a salvage price of $42,000. Golden Shades's tax rate is 35%. Calculate the after-tax cash inflow from the disposal of the capital asset.
A) $48,300
B) $138,000
C) $42,000
D) $90,300
Answer: D
Explanation: ($320,000 - $140,000) = $180,000; $180,000 - $42,000 = $138,000 loss; $138,000 × 0.35 = $48,300 tax savings from loss plus $42,000 proceeds = $90,300
Diff: 3
Objective: 5
AACSB: Application of knowledge

4) The Ambitz Corporation has an annual cash inflow from operations from its investment in a capital asset of $44,000 (excluding the deprecation) each year for seven years. The corporation's income tax rate is 35%. Calculate the total after-tax cash inflow from operations for seven years.
A) $308,000
B) $308,002
C) $200,200
D) $44,000
Answer: C
Explanation: $44,000 × 7 = $308,000; $308,000 × (1 - 0.35) = $200,200 net cash flow
Diff: 3
Objective: 5
AACSB: Application of knowledge

5) The Venoid Corporation has an annual cash inflow from operations from its investment in a capital asset of $23,000 (excluding depreciation) each year for five years. The corporation's income tax rate is 30%. Calculate the total after-tax cash inflow from operations for five years.
A) $115,000
B) $80,500
C) $34,500
D) $23,000
Answer: B
Explanation: $23,000 × 5 = $115,000; $115,000 × (1 - 0.3) = $80,500 net cash flow
Diff: 3
Objective: 5
AACSB: Application of knowledge

6) A company is looking to purchase and replace a fixed asset for $245,000. It will sell the asset that will be replaced for $46,000 but will incur a $20,000 gain upon that sale. It must also commit $30,000 of working-capital to the investment. The firm's tax rate is 35%. What is the amount of the relevant initial investment?
A) $245,000
B) $254,000
C) $199,000
D) $206,000
Answer: B
Explanation: ($245,000) purchase price + $46,000 sale of old asset - $(20,000 * 35%) tax on gain of sale of old asset - $30,000 working-capital investment = $254,000
Diff: 2
Objective: 5
AACSB: Analytical thinking

7) The focus in capital budgeting should be on ________.
A) favorable and unfavorable variance
B) expenses under accrual accounting
C) expected future cash flows that differ between alternatives
D) allocation of overheads
Answer: C
Diff: 2
Objective: 5
AACSB: Analytical thinking

8) An example of a sunk cost in a capital budgeting decision for new equipment is ________.
A) the initial investment in working capital
B) the original price of an old equipment
C) the necessary transportation costs on a new equipment
D) the initial investment in a new equipment
Answer: B

Diff: 2
Objective: 5
AACSB: Analytical thinking

9) Depreciation is usually NOT considered an operating cash flow in capital budgeting because ________.
A) depreciation is usually a constant amount each year over the life of the capital investment
B) deducting depreciation from operating cash flows would be counting the lump-sum amount twice
C) depreciation usually does not result in an increase in working capital
D) depreciation usually has no effect on the disposal price of the machine
Answer: B
Diff: 2
Objective: 5
AACSB: Analytical thinking

10) The relevant terminal disposal price of a machine equals the ________.
A) difference between the salvage value of the old machine and the ultimate salvage value of the new machine
B) total of the salvage values of the old machine and the new machine
C) salvage value of the old machine
D) salvage value of the new machine
Answer: A
Diff: 3
Objective: 5
AACSB: Analytical thinking

11) Net initial investment includes ________.
A) depreciation on new equipment, cash outflow for working capital, and after-tax cash inflow from disposal of the old equipment
B) cash outflow to purchase new equipment, depreciation on new equipment, and after-tax cash inflow from disposal of the old equipment
C) cash outflow to purchase new equipment, cash outflow for working capital, and after-tax cash inflow from disposal of the old equipment
D) cash outflow to purchase new equipment, cash outflow for working capital, and depreciation on new equipment
Answer: C
Diff: 3
Objective: 5
AACSB: Analytical thinking

12) The income taxes saved as a result of depreciation deductions are irrelevant because they decrease cash outflows.
Answer: FALSE
Explanation: The income taxes saved as a result of depreciation deductions are relevant because they decrease cash outflows.
Diff: 2
Objective: 5
AACSB: Analytical thinking

13) Tax deductions for depreciation result in tax savings that partially offset the cost of acquiring the capital asset.
Answer: TRUE
Diff: 2
Objective: 5
AACSB: Analytical thinking

14) The use of an accelerated method of depreciation for tax purposes would usually decrease the present value of the investment.
Answer: FALSE
Explanation: The use of an accelerated method of depreciation for tax purposes would usually increase the present value of the investment.
Diff: 3
Objective: 5
AACSB: Analytical thinking

15) Net initial investment in the project includes the acquisition of assets and any associated additions to working capital, minus the after-tax cash flow from the disposal of existing assets.
Answer: TRUE
Diff: 2
Objective: 5
AACSB: Analytical thinking

16) Relevant cash flows are expected future cash flows that differ among the alternative uses of investment funds.
Answer: TRUE
Diff: 2
Objective: 5
AACSB: Analytical thinking

17) Deducting depreciation from operating cash flows would result in counting the initial investment twice in a discounted cash flow analysis.
Answer: TRUE
Diff: 2
Objective: 5
AACSB: Analytical thinking

18) In determining whether to keep a machine or replace it, the original cost of the machine is a sunk cost and is NOT a relevant factor.
Answer: TRUE
Diff: 1
Objective: 5
AACSB: Analytical thinking

19) In the net present value (NPV) method, pre-tax cash flows should be used instead of after-tax cash flows.
Answer: FALSE
Explanation: In the net present value (NPV) method, after-tax cash flows should be used instead of pre-tax cash flows
Diff: 2
Objective: 5
AACSB: Analytical thinking

20) In calculating the net initial investment cash flows, any increase in working capital required for the project should be included.
Answer: TRUE
Diff: 1
Objective: 5
AACSB: Analytical thinking

21) A loss on the disposal of a replacement asset is an irrelevant fact when estimating relevant cash flows of a capital asset decision.
Answer: FALSE
Explanation: A loss would result in tax savings equal to the loss x the firm's income tax rate which would be a relevant tax savings (cash inflow) as a result of the capital asset investment decision
Diff: 2
Objective: 5
AACSB: Analytical thinking

22) A commitment to a new capital project will always result in an increase in net working capital.
Answer: FALSE
Explanation: Some projects will reduce the need for working capital.
Diff: 2
Objective: 5
AACSB: Analytical thinking

23) While calculating terminal recovery of working capital there are no tax consequences as there is no gain or loss on working capital.
Answer: TRUE
Diff: 2
Objective: 5
AACSB: Analytical thinking

24) Depreciation results in income tax cash savings that are equal to the depreciation expense multiplied by the company's income tax rate.
Answer: TRUE
Diff: 2
Objective: 5
AACSB: Analytical thinking

25) Explain why the term tax shield is used in conjunction with depreciation.
Answer: Depreciation tax deductions result in tax savings which offset the cost of acquiring the capital equipment. The more rapid for tax purposes an asset's costs can be written off for tax purposes, the earlier the reductions in taxes can be realized. The term tax shield refers to the reduction in the tax payments owed. Thus the faster the depreciation, the earlier the reductions in taxes and the greater the net present value of the tax shield.
Diff: 2
Objective: 5
AACSB: Analytical thinking

26) What are the relevant cash inflows and outflows for capital budgeting decisions?
Answer: Relevant cash inflows and outflows in a DCF analysis are the differences in expected future cash flows as a result of making the investment. Only cash inflows and outflows matter; accrual accounting concepts are irrelevant for DCF methods. For example, the income taxes saved as a result of depreciation deductions are relevant because they decrease cash outflows, but the depreciation itself is a noncash item.
Diff: 2
Objective: 5
AACSB: Analytical thinking

21.6 Objective 21.6

1) Which of the following statements is true of a post-investment audit?
A) It encourages managers to overstate the expected cash inflows from projects and accept projects they should reject.
B) It helps managers avoid optimistic estimate errors.
C) It does not help senior management to recognize problems in the implementation of the project.
D) It provides managers with feedback about the performance of a project to determine if any variance from expectations were the result of the overly optimistic estimates of because of implementation issues.
Answer: D
Diff: 3
Objective: 6
AACSB: Analytical thinking

2) Comparison of the actual results for a project to the costs and benefits expected at the time the project was selected is referred to as ________.
A) the audit trail
B) management control
C) a post-investment audit
D) a cost-benefit analysis
Answer: C
Diff: 2
Objective: 6
AACSB: Analytical thinking

3) Post-investment audits ________.
A) result in managers to overstate the expected cash inflows from projects and accept projects they should reject
B) provide management with feedback about the performance of a project
C) include obtaining appropriation requests so that the funding will be authorized to purchase the equipment
D) are usually not feasible in a large project because the cost accounting system does not collect actual costs at the same level of detail as the initial plans had
Answer: B
Diff: 3
Objective: 6
AACSB: Analytical thinking

4) The reason to have a post-investment audit is ________.
A) they encourage mid-level managers to make overly optimistic estimates during the early stages of the capital budgeting process
B) they help alert senior management to problems in the implementation of projects
C) they analyze by calculating contribution-margin
D) they help in calculating present value
Answer: B
Diff: 3
Objective: 6
AACSB: Analytical thinking

5) As a discounted cash flow method does not report good operating income results in the project's early years, managers are tempted to not use discounted cash flow methods even though the decisions based on them would be in the best interests of the company as a whole over the long run.
Answer: TRUE
Diff: 2
Objective: 6
AACSB: Analytical thinking

6) Post-investment audits prevent managers from overstating the expected cash inflows from projects and accepting projects they should reject.
Answer: TRUE
Diff: 2
Objective: 6
AACSB: Analytical thinking

7) What conflicts can arise between using discounted cash flow methods for capital budgeting decisions and accrual accounting for performance evaluation? How can these conflicts be reduced?
Answer: Using accrual accounting to evaluate the performance of a manager may create conflicts with using discounted cash flow (DCF) methods for capital budgeting because frequently a project using a DCF method will not report strong operating income results in the early years of the project under accrual accounting. If this is the case, a manager might be tempted not to use DCF methods even though the

decisions based on them might be in the best interests of the company over the long run. The conflict can be reduced by evaluating managers on a project-by-project basis and by looking at their ability to achieve the amounts and timing of forecasted cash flows.
Diff: 3
Objective: 6
AACSB: Analytical thinking

21.7 Objective 21.7

1) NPV methods can be used to estimate the present value of a customer to a business so that strategic decisions can be made to retain customers and lower churn rates.
Answer: TRUE
Diff: 2
Objective: 7
AACSB: Analytical thinking

2) The higher the probability of customer churn, the higher the NPV of a customer.
Answer: FALSE
Explanation: The higher the probability that a customer will switch to a different provider , the lower the NPV for that customer.
Diff: 2
Objective: 7
AACSB: Application of knowledge

3) Discuss a range of factors that managers may have to consider when making capital budgeting decisions that are strategic in nature.
Answer: The introduction of new technology into the product line offerings of a company will likely contain many elements of uncertainty. Will the customers value it? What will the price structure be? Also, when managers introduce automation into the workplace, it may be difficult to assess the impact it will have on the existing workforce.The managers must develop and insert a great deal of judgement and sometimes intuition when trying to incorporate and quantify their effects as part of the capital budgeting process.
Diff: 2
Objective: 7
AACSB: Analytical thinking

21.8 Objective 21.A

1) The real approach to incorporating inflation into the net present value method predicts ________.
A) cash inflows and outflows in real monetary units and uses a real rate as the required rate of return
B) cash inflows and outflows in real monetary units and uses a nominal rate as the required rate of return
C) cash inflows and outflows in nominal monetary units and uses a real rate as the required rate of return
D) cash inflows and outflows in monetary units that are adjusted for inflation and uses a real rate as the required rate of return
Answer: D
Diff: 2
Objective: A
AACSB: Analytical thinking

2) The nominal approach to incorporating inflation into the net present value method predicts cash inflows in real monetary units and uses a real rate as the required rate of return.
Answer: FALSE
Explanation: This is the definition of the real approach.
Diff: 2
Objective: A
AACSB: Analytical thinking

3) In nominal rate of return, the inflation element is the premium above the real rate.
Answer: TRUE
Diff: 2
Objective: A
AACSB: Analytical thinking

4) The nominal rate of return is made up of a risk-free element when there is no expected inflation, a business-risk element, and an inflation element.
Answer: TRUE
Diff: 2
Objective: A
AACSB: Analytical thinking

5) What is the difference between nominal approach and real approach to incorporating inflation into the net present value method?
Answer: Nominal approach predicts cash inflows and outflows in nominal monetary units and uses a nominal rate as the required rate of return. Real approach predicts cash inflows and outflows in real monetary units and uses a real rate as the required rate of return.
Diff: 3
Objective: A
AACSB: Analytical thinking

6) How is inflation related to capital budgeting? Discuss.
Answer: When using the net present value method (the definitive method for evaluating alternative options in capital budgeting), it is important to understand what elements are included in the rate of return percentage. In general, it is expected that there will always be a decline in the general purchasing power of whatever monetary units are in use (dollar, etc.). The real rate of return consists of a risk free element as well as a business risk element but excludes the inflation element. The nominal rate of return includes all three components: the risk free element, business risk element, and inflation element.

It is acceptable to use either the real rate of return or the nominal rate of return when performing capital budgeting analysis using the net present value concepts. The main caveat is to understand which one is being used and to make sure that there is internal consistency within the analysis such that all cash flows (in and out) are using the same approach
Diff: 2
Objective: A
AACSB: Analytical thinking