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Chapter 2: Operations Strategy and Competitiveness

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Multiple Choice

1. Which of the following operations decisions did FedEx make to support its business strategy of competing on time and providing dependability of deliveries?
a) Have its own fleet of tractor trailers and use a sophisticated bar code technology.
b) Have its own fleet of tractor trailers and have a large warehouse in every state.
c) Have its own fleet of airplanes and have a large warehouse in every state.
d) Use a sophisticated bar code technology and have a large warehouse in every state.
e) Have its own fleet of airplanes and use a sophisticated bar code technology.

Answer: e
Solution: To provide spend of delivery, FedEx acquired its own fleet of airplanes. To provide dependability of deliveries, FedEx invested in a sophisticated bar-code technology to track all packages.
Section Ref: The Role of Operations Strategy
Sub Section Ref: Untitled Introduction
Level: Easy
Bloom's: Comprehension
Learning Objective 1: Explain the role of operations strategy in the organization.
AACSB: Knowledge
Time on Task: 1 min

2. Happy Donuts is a U.S.-based bakery company. Recently, the company opened its first store in China. Which of the following is MOST likely to be one of the reasons for this movement?
a) It helps the company to be a cost leader.
b) It helps the company to compete on differentiation.
c) It supports the company's business strategy.
d) It facilitates the implementation of TQM within the company.

Answer: c
Solution: Business strategy is a long-range plan for a business. Opening a store supports the company's long-range plan for its business.
Section Ref: The Role of Operations Strategy
Sub Section Ref: Untitled Introduction
Level: Medium
Bloom's: Application
Learning Objective 1: Explain the role of operations strategy in the organization.
AACSB: Analytic
Time on Task: 1 min

3. Operational efficiency is
a) driving the business strategy.
b) ensuring the right tasks are performed.

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c) decreasing the firm's input requirements.
d) increasing the firm's output.
e) performing operations tasks well

Answer: e
Solution: Operational efficiency is performing operations tasks well, even better than competitors.
Section Ref: The Role of Operations Strategy
Sub Section Ref: The Importance of Operations Strategy
Level: Easy
Bloom's: Knowledge
Learning Objective 1: Explain the role of operations strategy in the organization.
AACSB: Knowledge
Time on Task: 1 min

4. During the 1970s and 1980s, firms from which country provided the MOST serious competitive threat to U.S. companies?
a) Germany
b) Canada
c) Mexico
d) Japan
e) United Kingdom

Answer: d
Solution: During the 1970s and 1980s, Japanese companies began offering products of superior quality at lower cost, and the U.S. companies lost market share to their Japanese counterparts.
Section Ref: The Role of Operations Strategy
Sub Section Ref: The Importance of Operations Strategy
Level: Easy
Bloom's: Knowledge
Learning Objective 1: Explain the role of operations strategy in the organization.
AACSB: Knowledge
Time on Task: 1 min

5. Which of the following is FALSE of company mission statements?
a) They are unique to each company.
b) They define what the business is.
c) They consider the values of the business.
d) They are not customer focused.
e) They answer what business the company is in.

Answer: d
Solution: Mission statements consider the customer. They answer the question of who the customers will be, and what are the expected customer attributes.

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Section Ref: Developing a Business Strategy
Sub Section Ref: Mission
Level: Medium
Bloom's: Application
Learning Objective 2: Explain how a business strategy is developed.
AACSB: Analytic
Time on Task: 1 min

6. Environmental scanning helps organizations recognize
a) strengths and weaknesses.
b) strengths and opportunities.
c) opportunities and weaknesses.
d) opportunities and threats.
e) weaknesses and threats.

Answer: d
Solution: Environmental scanning allows a company to identify opportunities and threats.
Section Ref: Developing a Business Strategy
Sub Section Ref: Environmental Scanning
Level: Easy
Bloom's: Comprehension
Learning Objective 2: Explain how a business strategy is developed.
AACSB: Knowledge
Time on Task: 1 min

7. The process of monitoring the external environment is called what?
a) environmental examination
b) environmental inspection
c) environmental scrutiny
d) environmental perusal
e) environmental scanning

Answer: e
Solution: Environmental scanning is the process of monitoring the external environment for changes and trends to determine business opportunities and threats.
Section Ref: Developing a Business Strategy
Sub Section Ref: Environmental Scanning
Level: Easy
Bloom's: Knowledge
Learning Objective 2: Explain how a business strategy is developed.
AACSB: Knowledge
Time on Task: 1 min

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8. Environmental scanning would NOT provide information on
a) changes in customer wants and expectations.
b) the firm's internal inefficient distribution system.
c) opportunities and threats.
d) changes in information technology.
e) changes in global competition.

Answer: b
Solution: Environmental scanning looks at external environmental trends that can affect the business and allows a company to identify business opportunities and threats. It does not focus on a company's own strengths and weakness (e.g., the internal inefficient distribution system).
Section Ref: Developing a Business Strategy
Sub Section Ref: Environmental Scanning
Level: Easy
Bloom's: Comprehension
Learning Objective 2: Explain how a business strategy is developed.
AACSB: Knowledge
Time on Task: 1 min

9. Which of the following has used the Internet to conduct a fashion show in order to boost sales?
a) The Gap
b) Eddie Bauer
c) Fruit of the Loom
d) Victoria's Secret
e) Sears

Answer: d
Solution: Victoria's Secret uses the Internet to conduct fashion shows in order to boost sales.
Section Ref: Developing a Business Strategy
Sub Section Ref: Environmental Scanning
Level: Easy
Bloom's: Comprehension
Learning Objective 2: Explain how a business strategy is developed.
AACSB: Technology
Time on Task: 1 min

10. Which of the following is NOT described in the chapter as one of the major environmental trends that firms should monitor?
a) marketplace trends
b) global climate trends
c) economic trends
d) political trends
e) social trends

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Answer: b
Solution: Environmental scanning does not monitor global climate trends. It monitors trends in the market and some other types of trends that can affect business, such as economic, political, and social trends.
Section Ref: Developing a Business Strategy
Sub Section Ref: Environmental Scanning
Level: Easy
Bloom's: Comprehension
Learning Objective 2: Explain how a business strategy is developed.
AACSB: Knowledge
Time on Task: 1 min

11. Which of the following would NOT be considered a core competency that a company might have?
a) a highly trained workforce
b) an inefficient distribution system
c) skills in attracting and raising capital
d) use of information technology
e) quality control techniques

Answer: b
Solution: Core competencies are the unique strengths of an organization. The examples include special skills of workers, financial know-how, knowledge of production and information technology, etc. An inefficient distribution system is weakness of the business.
Section Ref: Developing a Business Strategy
Sub Section Ref: Core Competencies
Level: Easy
Bloom's: Comprehension
Learning Objective 2: Explain how a business strategy is developed.
AACSB: Knowledge
Time on Task: 1 min

12. Which of the following is NOT typically considered to be a core competency?
a) workforce
b) mission
c) market understanding
d) technology
e) facilities

Answer: b
Solution: Core competencies are the unique strengths of a business. A company may have core competencies in workforce, facilities, market understanding, financial know-how, and technology. Mission is a statement indicating what business the company is in.

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Section Ref: Developing a Business Strategy
Sub Section Ref: Core Competencies
Level: Easy
Bloom's: Comprehension
Learning Objective 2: Explain how a business strategy is developed.
AACSB: Knowledge
Time on Task: 1 min

13. What term describes the process of obtaining goods or services from an outside provider?
a) outproviding
b) transferization
c) outsourcing
d) subsourcing
e) supersourcing

Answer: c
Solution: Outsourcing is obtaining goods or services from an outside provider.
Section Ref: Developing a Business Strategy
Sub Section Ref: Core Competencies
Level: Easy
Bloom's: Knowledge
Learning Objective 2: Explain how a business strategy is developed.
AACSB: Knowledge
Time on Task: 1 min

14. Juan is a high school graduate entering a university. He is particularly good in verbal communication and persuasion but not as good in mathematics. Taking advantage of his core competencies means that Juan should major in
a) engineering.
b) science.
c) economics.
d) marketing.

Answer: d
Solution: Core competencies are the unique strengths of a business. Studying a major in marketing would give Juan an advantage, since his strengths, or core competencies, are verbal communications and persuasion.
Section Ref: Developing a Business Strategy
Sub Section Ref: Core Competencies
Level: Medium
Bloom's: Application
Learning Objective 2: Explain how a business strategy is developed.
AACSB: Analytic
Time on Task: 1 min

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15. A business strategy is focused on which of the following?
a) short-term plans
b) medium-term plans
c) long-term plans
d) all plans for the organization and is not time-bound
e) the long-term operational strategy

Answer: c
Solution: The business strategy defines the long-range plans of the company. The operations strategy is the plan that supports the long-range plan.
Section Ref: Developing a Business Strategy
Sub Section Ref: Putting It Together
Level: Easy
Bloom's: Comprehension
Learning Objective 2: Explain how a business strategy is developed.
AACSB: Knowledge
Time on Task: 1 min

16. Once a business strategy has been developed,
a) service prices must be established.
b) competition must be identified.
c) an operations strategy must be formulated.
d) contracting with external sources must begin.
e) insourcing will be conducted

Answer: c
Solution: Once a business strategy has been developed, an operation strategy must be formulated.
Section Ref: Developing an Operations Strategy
Sub Section Ref: Untitled Introduction
Level: Easy
Bloom's: Comprehension
Learning Objective 3: Describe how an operations strategy is developed.
AACSB: Knowledge
Time on Task: 1 min

17. Which of the following is NOT considered one of the four broad categories of competitive priorities?
a) technology
b) cost
c) quality
d) flexibility

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e) time

Answer: a
Solution: The four broad categories of competitive priorities: cost, quality, time, and flexibility.
Section Ref: Developing an Operations Strategy
Sub Section Ref: Competitive Priorities
Level: Easy
Bloom's: Comprehension
Learning Objective 3: Describe how an operations strategy is developed.
AACSB: Knowledge
Time on Task: 1 min

18. How does Federal Express maintain its ability to compete on time during peak demand periods?
a) It subcontracts overload to other firms.
b) It purchases more planes.
c) It schedules full-time employees to work overtime.
d) It uses a very flexible part-time workforce.
e) It purchases more vans.

Answer: d
Solution: FedEx relies on a very flexible part-time workforce, such as college students, to cover workforce requirements during peak periods without having to schedule full-time workers.
Section Ref: Developing an Operations Strategy
Sub Section Ref: Competitive Priorities – Time
Level: Easy
Bloom's: Comprehension
Learning Objective 3: Describe how an operations strategy is developed.
AACSB: Knowledge
Time on Task: 1 min

19. Which of the following competitive priorities typically requires the use of more general-purpose equipment?
a) technology
b) cost
c) quality
d) flexibility
e) time

Answer: d
Solution: Flexibility is a competitive priority focusing on offering a wide variety of products and services and meeting unique customer requirements. It typically requires the use of more general-purpose equipment that can be used to make many different kinds of products.
Section Ref: Developing an Operations Strategy

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Sub Section Ref: Competitive Priorities – Flexibility
Level: Easy
Bloom's: Comprehension
Learning Objective 3: Describe how an operations strategy is developed.
AACSB: Knowledge
Time on Task: 1 min

20. Highly skilled workers would be MOST needed by companies employing which of the following competitive priorities?
a) location
b) cost
c) flexibility
d) development speed
e) time

Answer: c
Solution: Workers in flexible companies tend to have higher skill levels and can often perform many different tasks in order to meet customer needs.
Section Ref: Developing an Operations Strategy
Sub Section Ref: Competitive Priorities – Flexibility
Level: Easy
Bloom's: Comprehension
Learning Objective 3: Describe how an operations strategy is developed.
AACSB: Knowledge
Time on Task: 1 min

21. Howard Plastics makes a variety of products out of plastics, ranging from plastic trays to body guards for cars. The company's claim is: "We are ready to meet your custom plastics needs." This is an example of a company that competes based on
a) time.
b) cost.
c) quality.
d) flexibility.
e) efficiency.

Answer: d
Solution: Lee Plastics competes based on flexibility, i.e., offering a wide variety of products and customize them to the unique customer requirements.
Section Ref: Developing an Operations Strategy
Sub Section Ref: Competitive Priorities – Flexibility
Level: Medium
Bloom's: Application
Learning Objective 3: Describe how an operations strategy is developed.
AACSB: Analytic

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Time on Task: 1 min

22. Fusion Gourmet Cookery is a restaurant offering a range of dishes from India and the Middle East. The slogan of the restaurant is "We will personalize any dish." This suggests that the restaurant competes based on
a) cost.
b) quality.
c) time.
d) flexibility.
e) efficiency.

Answer: d
Solution: The slogan suggests that the restaurant's competitive priority is flexibility. That is, it can offer a variety of foods to the customer specifications.
Section Ref: Developing an Operations Strategy
Sub Section Ref: Competitive Priorities – Flexibility
Level: Medium
Bloom's: Application
Learning Objective 3: Describe how an operations strategy is developed.
AACSB: Analytic
Time on Task: 1 min

23. When making competitive priority decisions the firm needs to
a) select the correct supply chain.
b) ensure the PWP is correctly established.
c) focus on the one competitive priority at the exclusion of all others.
d) make trade-off decisions.
e) isolate the competing internal departments.

Answer: d
Solution: The operation function must place emphasis on those priorities that directly support the business strategy. Thus, it needs to make trade-offs between the different priorities.
Section Ref: Developing an Operations Strategy
Sub Section Ref: The Need for Trade-Offs
Level: Easy
Bloom's: Comprehension
Learning Objective 3: Describe how an operations strategy is developed.
AACSB: Knowledge
Time on Task: 1 min

24. Order winners and qualifiers
a) are consistent between manufacturing and service organizations.
b) only matter when responding to formal competitive bid requests.

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c) remain constant over time.
d) change over time.
e) only apply to quasi-manufacturing firms.

Answer: d
Solution: Order winners and order qualifiers change over time.
Section Ref: Developing an Operations Strategy
Sub Section Ref: Order Winners and Qualifiers
Level: Easy
Bloom's: Comprehension
Learning Objective 3: Describe how an operations strategy is developed.
AACSB: Knowledge
Time on Task: 1 min

25. The competitive priorities that a company has to meet if it wants to do business in a particular market are referred to as
a) order qualifiers
b) order standards
c) order takers
d) order criteria
e) order winners

Answer: a
Solution: Order qualifiers are those competitive priorities that a company has to meet if it wants to do business in that particular market.
Section Ref: Developing an Operations Strategy
Sub Section Ref: Order Winners and Qualifiers
Level: Easy
Bloom's: Comprehension
Learning Objective 3: Describe how an operations strategy is developed.
AACSB: Knowledge
Time on Task: 1 min

26. Which of the following is an operations decision related to the structure of the production process?
a) organization of operations
b) facilities
c) worker pay
d) quality control measures
e) management policies

Answer: b

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Solution: The structure of the production process involves operations decisions related to the design of the production process, such as characteristics of facility used, selection of technology, and flow of goods and services through the facility.
Section Ref: Developing an Operations Strategy
Sub Section Ref: Translating Competitive Priorities into Production Requirements
Level: Easy
Bloom's: Comprehension
Learning Objective 3: Describe how an operations strategy is developed.
AACSB: Knowledge
Time on Task: 1 min

27. Which of the following is an operations decision related to the infrastructure of the production process?
a) quality control approaches
b) characteristics of facilities
c) robots
d) flow of goods and services through the facility
e) flexible manufacturing system (FMS) machines

Answer: a
Solution: The infrastructure of the production process involves operations decisions related to the planning and control systems of the operations, such as organization of the operations functions, skills and pay of workers, and quality control approaches.
Section Ref: Developing an Operations Strategy
Sub Section Ref: Translating Competitive Priorities into Production Requirements
Level: Easy
Bloom's: Comprehension
Learning Objective 3: Describe how an operations strategy is developed.
AACSB: Knowledge
Time on Task: 1 min

28. What are the three primary types of technology?
a) product technology, process technology, and information technology
b) product technology, process technology, and environmental technology
c) product technology, process technology, and safety technology
d) information technology, environmental technology, and safety technology
e) environmental technology, information technology, and process technology

Answer: a
Solution: The three primary types of technologies are: product technology, process technology, and information technology.
Section Ref: Strategic Role of Technology
Sub Section Ref: Types of Technologies
Level: Easy

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Bloom's: Knowledge
Learning Objective 4: Explain the strategic role of technology.
AACSB: Technology
Time on Task: 1 min

29. Teflon, the material used in no-stick fry pans, is an example of _____ technology.
a) process
b) information
c) environmental
d) safety
e) product

Answer: e
Solution: Product technology is any new technology developed by a firm. One example of this is Teflon, the material used in no-stick fry pans. Teflon became an emerging technology in the 1970s and is currently used in numerous applications.
Section Ref: Strategic Role of Technology
Sub Section Ref: Types of Technologies
Level: Easy
Bloom's: Comprehension
Learning Objective 4: Explain the strategic role of technology.
AACSB: Technology
Time on Task: 1 min

30. Computer-aided manufacturing (CAM) is an example of _____ technology.
a) process
b) information
c) environmental
d) safety
e) product

Answer: a
Solution: Process technology is the technology used to improve the process of creating goods and services. Computer-aided manufacturing (CAM) is a technology that uses computers to assist engineers in the way they manufacture products.
Section Ref: Strategic Role of Technology
Sub Section Ref: Types of Technologies
Level: Easy
Bloom's: Comprehension
Learning Objective 4: Explain the strategic role of technology.
AACSB: Technology
Time on Task: 1 min

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31. Which type of technology has had the greatest impact on business?
a) process technology
b) information technology
c) environmental technology
d) safety technology
e) product technology

Answer: b
Solution: Information technology enables communication, processing, and storage of information. It has grown rapidly over recent years and has had a profound impact on business.
Section Ref: Strategic Role of Technology
Sub Section Ref: Types of Technology
Level: Easy Bloom's: Comprehension
Learning Objective 4: Explain the strategic role of technology.
AACSB: Technology
Time on Task: 1 min

32. Deciding on the acquisition of technology is based on the premise that it
a) is fun.
b) keeps the employees happy.
c) doesn't cost very much.
d) always improves productivity.
e) supports the company's chosen competitive priorities.

Answer: e
Solution: The technology a company acquires should not be decided on randomly. Rather, the selected technology needs to support the organization's competitive priorities.
Section Ref: Strategic Role of Technology
Sub Section Ref: Technology as a Tool for Competitive Advantage
Level: Easy
Bloom's: Comprehension
Learning Objective 4: Explain the strategic role of technology.
AACSB: Technology
Time on Task: 1 min

33. Rapid technological change increases the risk of
a) inefficiency.
b) lack of quality.
c) cost overruns.
d) obsolescence.
e) None of the above choices are correct.

Answer: d

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Solution: Investing in technology can be costly and entail risks, such as overestimating the benefits of the technology or incurring the risk of obsolescence due to rapid new inventions.
Section Ref: Strategic Role of Technology
Sub Section Ref: Technology as a Tool for Competitive Advantage
Level: Easy
Bloom's: Comprehension
Learning Objective 4: Explain the strategic role of technology.
AACSB: Technology
Time on Task: 1 min

34. After identifying various types of technologies that her company could acquire, Lisa and her team list a set of key critical success factors to evaluate each. Which of the following is LEAST likely to be considered?
a) Gain a competitive advantage.
b) Improve current processes.
c) Maintain up-to-date standards.
d) Follow the latest trend.

Answer: d
Solution: The technology a company acquires should not be decided on randomly, such as following the latest fad or industry trend. Technology should be acquired to help gain a competitive advantage, maintain up-to-date technology, and improve processes.
Section Ref: Strategic Role of Technology
Sub Section Ref: Technology as a Tool for Competitive Advantage
Level: Medium
Bloom's: Application
Learning Objective 4: Explain the strategic role of technology.
AACSB: Analytic
Time on Task: 1 min

35. When does productivity increase?
a) Inputs increase while outputs remain the same.
b) Inputs decrease while outputs remain the same.
c) Outputs decrease while inputs remain the same.
d) Inputs and outputs increase proportionally.
e) Inputs and outputs decrease proportionally.

Answer: b
Solution: Productivity = Outputs / Inputs. Productivity increases when using less inputs to produce the same amount of outputs.
Section Ref: Productivity
Sub Section Ref: Measuring Productivity
Level: Medium
Bloom's: Analysis

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Learning Objective 5: Define productivity and identify productivity measures.
AACSB: Analytic
Time on Task: 1 min

36. Which of the following is a valid productivity measure?
a) multi-output productivity measure
b) partial productivity measure
c) multi-part productivity measure
d) multi-component productivity measure
e) imperfect productivity measure

Answer: b
Solution: Productivity measures include: total productivity measures, partial productivity measures, and multifactor productivity measures.
Section Ref: Productivity
Sub Section Ref: Measuring Productivity
Level: Easy
Bloom's: Knowledge
Learning Objective 5: Define productivity and identify productivity measures.
AACSB: Knowledge
Time on Task: 1 min

37. Consider a pizza parlor. Which of the following would NOT be a valid productivity measure?
a) pizzas produced / number of workers used
b) pizzas produced / number of ovens
c) pizzas produced / cost of workers and ingredients
d) pizzas produced / cost of all inputs used
e) labor hours / pizzas produced

Answer: e
Solution: Productivity = Outputs / Inputs. Labor hours / pizzas produced = Inputs / Outputs is not a valid productivity measure.
Section Ref: Productivity
Sub Section Ref: Measuring Productivity
Level: Medium
Bloom's: Application
Learning Objective 5: Define productivity and identify productivity measures.
AACSB: Analytic
Time on Task: 1 min

38. If inputs increase by 30% and outputs decrease by 15%, what is the percentage change in productivity?

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a) 100% decrease
b) 11.54% increase
c) 34.62% decrease
d) 15% increase
e) 15% decrease

Answer: c
Solution: P = O / I. New productivity = (1-0.15) / (1+0.3) = 0.85 / 1.3 = 0.6538, so the productivity is decreased by 1-0.6538 = 0.3462, or 34.63%.
Section Ref: Productivity
Sub Section Ref: Measuring Productivity
Level: Medium
Bloom's: Analysis
Learning Objective 5: Define productivity and identify productivity measures.
AACSB: Analytic
Time on Task: 3 mins

39. If inputs increase by 6% and outputs increase by 24%, what is the percentage increase in productivity?
a) 400.00%
b) 16.98%
c) 0.25%
d) 4.00%
e) 18.00%

Answer: b
Solution: P = O / I. New productivity = 1.24 / 1.06 = 1.1698. The productivity is increased by 1.1698 –1 = 0.1698 or 16.98%.
Section Ref: Productivity
Sub Section Ref: Measuring Productivity
Level: Medium
Bloom's: Analysis
Learning Objective 5: Define productivity and identify productivity measures.
AACSB: Analytic
Time on Task: 3 mins

40. An airline has determined that its baggage handlers can handle 12,000 bags when 3 baggage handlers are on shift. What is the baggage handler productivity?
a) 4,000 bags/shift
b) 4,000 bags/handler
c) 14,000 bags/shift
d) 12,000 bags/shift
e) 2,000 bags/handler

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Answer: b
Solution: P = O / I = 12000 / 3 = 4000 bags/handler
Section Ref: Productivity
Sub Section Ref: Measuring Productivity
Level: Medium
Bloom's: Application
Learning Objective 5: Define productivity and identify productivity measures.
AACSB: Analytic
Time on Task: 1.5 mins

41. If inputs increase by 10% and outputs increase by 4%, what is the percentage change in productivity?
a) 5.45% increase
b) 250.00% increase
c) 5.45% decrease
d) 5.77% increase
e) 5.77% decrease

Answer: c
Solution: P = O / I. New productivity = 1.04 / 1.10 = 0.9455. Since inputs were higher than outputs, this represents a loss or negative; the productivity is decreased by 1.00 –. 9455 = .0545, or 5.45%.
Section Ref: Productivity
Sub Section Ref: Measuring Productivity
Level: Medium
Bloom's: Analysis
Learning Objective 5: Define productivity and identify productivity measures.
AACSB: Analytic
Time on Task: 3 mins

42. If inputs increase by 10% and outputs increase by 5%, what is the percentage change in productivity?
a) 4.55% decrease
b) 4.55% increase
c) 4.76% increase
d) 4.76% decrease
e) 50.00% increase

Answer: a
Solution: P = O / I. New productivity = 1.05 / 1.10 = .9545. Since inputs were higher than outputs, this represents a loss or negative; the productivity is decreased by 1.00 –.9545 = .0455, or 4.55%.
Section Ref: Productivity
Sub Section Ref: Measuring Productivity

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Level: Medium
Bloom's: Analysis
Learning Objective 5: Define productivity and identify productivity measures.
AACSB: Analytic
Time on Task: 3 mins

43. If Joe's Diner serves 150 meals in one day using 3 kitchen staff, what is the kitchen staff daily productivity?
a) 40 meals/staff
b) 45 meals/staff
c) 50 meals/staff
d) 55 meals/staff
e) 60 meals/staff

Answer: c
Solution: P = O / I =150 / 3 = 50 meals per staff
Section Ref: Productivity
Sub Section Ref: Measuring Productivity
Level: Medium
Bloom's: Application
Learning Objective 5: Define productivity and identify productivity measures.
AACSB: Analytic
Time on Task: 1 min

44. If inputs increase by 30% and outputs increase by 15%, what is the percentage change in productivity?
a) 50.00% decrease
b) 88.46% increase
c) 88.46% decrease
d) 11.54% increase
e) 11.54% decrease

Answer: e
Solution: P = O / I. New productivity = 1.15 / 1.30 = .8846. Since inputs were higher than outputs, this represents a loss or negative. The productivity is decreased by 1.00 –.8846 = .1154, or 11.54%.
Section Ref: Productivity
Sub Section Ref: Measuring Productivity
Level: Medium
Bloom's: Analysis
Learning Objective 5: Define productivity and identify productivity measures.
AACSB: Analytic
Time on Task: 3 mins

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45. A firm produces 100 units using 800 labor hours. What is its labor productivity?
a) 0.125 units/hour
b) 8 units/hour
c) 100 units/hour
d) 800 units/hour
e) –0.125 units/hour

Answer: a
Solution: Labor productivity = O / I = 100 / 800 = .125 units/hr
Section Ref: Productivity
Sub Section Ref: Measuring Productivity
Level: Medium
Bloom's: Analysis
Learning Objective 5: Define productivity and identify productivity measures.
AACSB: Analytic
Time on Task: 1.5 mins

46. A firm produces 2000 products using 10 workers on an eight-hour shift. What is the labor productivity per worker?
a) 200 units/hour
b) 25 units/hour
c) 250 units/hour
d) 20 units/hour
e) 0.04 units/hour

Answer: b
Solution: Labor productivity = 2000 units / (10*8 hr) = 25 units/hr
Section Ref: Productivity
Sub Section Ref: Measuring Productivity
Level: Medium
Bloom's: Analysis
Learning Objective 5: Define productivity and identify productivity measures.
AACSB: Analytic
Time on Task: 1.5 mins

47. A machine shop produces metal frames on two different machines. The average daily production on machine 1 is 300 frames, and the average daily production on machine 2 is 180 frames. What is the daily machine productivity?
a) 480 frames/machine
b) 330 frames/machine
c) 240 frames/machine
d) 160 frames/machine
e) 300 frames/machine

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Answer: c
Solution: Daily machine productivity = (300 + 180) /2 = 240 frames/machine.
Section Ref: Productivity
Sub Section Ref: Measuring Productivity
Level: Medium
Bloom's: Analysis
Learning Objective 5: Define productivity and identify productivity measures.
AACSB: Analytic
Time on Task: 1.5 mins

48. A machine shop produces metal brackets on two different machines. Machine 1 can produce a bracket every 10 minutes. Machine 2 can produce a bracket every 4 minutes. What is the average productivity per machine?
a) 4.3 brackets/hour
b) 8.6 brackets/hour
c) 10.5 brackets/hour
d) 21.0 brackets/hour
e) 7.0 brackets/hour

Answer: c
Solution: Average machine productivity = (60 mins /10 mins + 60 mins /4 mins) / 2= 21 /2 = 10.5 brackets / hour per machine.
Section Ref: Productivity
Sub Section Ref: Measuring Productivity
Level: Medium
Bloom's: Analysis
Learning Objective 5: Define productivity and identify productivity measures.
AACSB: Analytic
Time on Task: 1.5 mins

49. A firm produces handbags using three workers. On Tuesday, Jane completed 60 bags in 6 hours, Ron completed 50 bags in 7 hours, and Mary completed 80 bags in 5 hours. What was the overall productivity of the firm?
a) 7.92 bags/hour
b) 11.05 bags/hour
c) 10.00 bags/hour
d) 10.56 bags/hour
e) 61.67 bags/hour

Answer: d
Solution: Overall labor productivity = Total bags / Total labor hours = (60 + 50 + 80) / (6 + 7+ 5) = 10.56 bags/hour.
Section Ref: Productivity

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Sub Section Ref: Measuring Productivity
Level: Medium
Bloom's: Analysis
Learning Objective 5: Define productivity and identify productivity measures.
AACSB: Analytic
Time on Task: 1.5 mins

50. Suppose that output is worth $400, and labor and materials costs are $200 and $100, respectively. What is the materials productivity?
a) 2.00
b) 1.33
c) 0.25
d) 0.75
e) 4.00

Answer: e
Solution: Materials productivity = 400 / 100 = 4.00.
Section Ref: Productivity
Sub Section Ref: Measuring Productivity
Level: Medium
Bloom's: Analysis
Learning Objective 5: Define productivity and identify productivity measures.
AACSB: Analytic
Time on Task: 1 min

51. A firm produces 500 units per day using five workers on a five-hour shift. On average, 15% of the units produced are defective and must be scrapped. What is the labor productivity for non-defective units?
a) 17 units/hour
b) 3 units/hour
c) 20 units/hour
d) 85 units/hour
e) 15 units/hour

Answer: a
Solution: Labor productivity = Nondefective units / Total labor hours = (500*0.85) / (5*5) = 17 units/hour.
Section Ref: Productivity
Sub Section Ref: Measuring Productivity
Level: Medium
Bloom's: Analysis
Learning Objective 5: Define productivity and identify productivity measures.
AACSB: Analytic
Time on Task: 1.5 mins

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52. Suppose that weekly output is worth $1000, and labor and materials costs are $300 and $200, respectively. What is the multifactor productivity ratio?
a) 1000
b) 8
c) 2
d) 3
e) 0.5

Answer: c
Solution: Multifactor productivity = 1000 / (300 + 200) = 1000 / 500 = 2.
Section Ref: Productivity
Sub Section Ref: Measuring Productivity
Level: Medium
Bloom's: Analysis
Learning Objective 5: Define productivity and identify productivity measures.
AACSB: Analytic
Time on Task: 1.5 mins

53. Each day a firm produces 50 products worth $40 each. Raw materials cost per unit are $12. The firm uses 4 workers on an eight-hour shift earning $10 per hour each. What is the multifactor productivity ratio?
a) 1.82
b) 0.77
c) 3.16
d) 0.12
e) 2.17

Answer: e
Solution: Multifactor productivity = Total outputs / Total inputs = (50 * 40) / (50 * 12 + 4 * 8 * 10) = 2.17.
Section Ref: Productivity
Sub Section Ref: Measuring Productivity
Level: Medium
Bloom's: Analysis
Learning Objective 5: Define productivity and identify productivity measures.
AACSB: Analytic
Time on Task: 2 mins

54. A bakery bakes bread in two different ovens. Oven 1 can bake a loaf every 30 minutes. Oven 2 can bake a loaf every 15 minutes. What is the average productivity per oven?
a) 6.00 loaves/hour
b) 3.00 loaves/hour

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c) 2.67 loaves/hour
d) 1.33 loaves/hour
e) 0.38 loaves/hour

Answer: b
Solution: Oven 1 can bake 2 per hour. Oven 2 can bake 4 per hour. Total 6 loaves per hr / 2 ovens = 3 loaves per hour.
Section Ref: Productivity
Sub Section Ref: Measuring Productivity
Level: Medium
Bloom's: Analysis
Learning Objective 5: Define productivity and identify productivity measures.
AACSB: Analytic
Time on Task: 1.5 mins

55. If the telecommunication company sold $10,000,000 of Internet service using $50,000 of labor, $25,000 of leased bandwidth, $45,000 service fees, and $80,000 or replacement parts, what is the telecommunication multifactor productivity?
a) 35
b) 40
c) 45
d) 50
e) 55

Answer: d
Solution: Multifactor productivity = 10,000,000 / (50k + 25k + 45k + 80k) = 10,000,000 / 200k = 50.
Section Ref: Productivity
Sub Section Ref: Measuring Productivity
Level: Medium
Bloom's: Analysis
Learning Objective 5: Define productivity and identify productivity measures.
AACSB: Analytic
Time on Task: 1.5 mins

56. Last week Jason painted 11 houses in 4 days. This week he painted 14 houses in 5 days. What was his percent productivity increase?
a) 1.82%
b) 1.79%
c) 27.27%
d) 25.00%
e) 5.00%

Answer: a

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Solution:
Last week: 11 / 4 = 2.75
This week: 14 / 5 = 2.8
2.8 / 2.75 = 1.01818.
The productivity was increased by 0.01818 or 1.82%.
Section Ref: Productivity
Sub Section Ref: Measuring Productivity
Level: Medium
Bloom's: Analysis
Learning Objective 5: Define productivity and identify productivity measures.
AACSB: Analytic
Time on Task: 1.5 mins

57. Last month a plant produced 10,000 units using 2000 labor hours. This month it produced 12,000 units using 3000 labor hours. What is the percent productivity decrease?
a) 200%
b) 100%
c) 50%
d) 25%
e) 20%

Answer: e
Solution:
Last month: 10000 / 2000 = 5
This month: 12000 / 3000 = 4
Percentage of productivity change = (4 – 5) / 5 = –0.2, or 20% decrease.
Section Ref: Productivity
Sub Section Ref: Measuring Productivity
Level: Medium
Bloom's: Analysis
Learning Objective 5: Define productivity and identify productivity measures.
AACSB: Analytic
Time on Task: 1.5 mins

58. On Tuesday George produced 100 units in 8 hours. On Wednesday he produced 120 units in 10 hours. What was his percent productivity change?
a) –0.50%
b) –4.17%
c) 4.17%
d) –4.00%
e) 4.00%

Answer: d
Solution:

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Tuesday: 100 / 8 = 12.5
Wednesday: 120 / 10 = 12
Percent productivity change = (12 – 12.5) / 12.5 = –0.04, or 4% decrease.
Section Ref: Productivity
Sub Section Ref: Measuring Productivity
Level: Medium
Bloom's: Application
Learning Objective 5: Define productivity and identify productivity measures.
AACSB: Analytic
Time on Task: 1.5 mins

59. Last month Stacy sold 10 houses while working 20 days. This month she sold the same number of houses in 22 days. What is her percent productivity change?
a) 10.00%
b) –9.1%
c) 9.1%
d) –10.00%
e) –4.55%

Answer: b
Solution:
Last month: 10 / 20 = 0.5
This month: 10 / 22 = 0.4545
Percent productivity change: (.4545 – 0.5) / 0.5 = –.0.091, or 9.1% decrease.
Section Ref: Productivity
Sub Section Ref: Measuring Productivity
Level: Medium
Bloom's: Application
Learning Objective 5: Define productivity and identify productivity measures.
AACSB: Analytic
Time on Task: 1.5 mins

60. Yesterday, John produced 100 units in 8 hours. Today he produced the same amount in 6 hours. What is his percent productivity change?
a) 33.33%
b) 0.00%
c) 25.55%
d) –25.00%
e) 4.67%

Answer: a
Solution:
Yesterday: 100 / 8 = 12.5
Today: 100 / 6 = 16.666

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Percent productivity change: (16.666 – 12.5) / 12.5 = 0.3333, or 33.33% productivity increase.
Section Ref: Productivity
Sub Section Ref: Measuring Productivity
Level: Medium
Bloom's: Application
Learning Objective 5: Define productivity and identify productivity measures.
AACSB: Analytic
Time on Task: 1.5 mins

61. A company used to produce 500 units every 2 days, but 10% of the units were defective. After installing a new process, defects have been eliminated while output has remained the same. What is the percent increase in productivity due to installing the new process?
a) 10.00%
b) 25.00%
c) 11.11%
d) 0.00%
e) 5.56%

Answer: c
Solution: Productivity = Outputs / Inputs
Old process: (500 * 0.9) / 2 = 225 units per day
New process: (500) / 2 = 250 units per day
Percent productivity increase = (250 – 225) / 225 = 0.111, or 11.11%.
Section Ref: Productivity
Sub Section Ref: Measuring Productivity
Level: Medium
Bloom's: Application
Learning Objective 5: Define productivity and identify productivity measures.
AACSB: Analytic
Time on Task: 2 mins

62. A company used to produce 300 units every day, but 20% of the units were defective. After installing a new process, the defect rate has been reduced to 5%, while output has remained the same. What is the percent increase in productivity due to installing the new process?
a) 15.79%
b) 0.00%
c) 15.00%
d) 18.75%
e) –75.00%

Answer: d
Solution:
Old process: Nondefective output = 300 – (20% x 300) = 240 units
New process: Nondefective output = 300 – (5% x 300) = 285 units

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With the same amount of inputs, the % productivity change = (285 – 240) / 240 = 0.1875, or 18.75% increase.
Section Ref: Productivity
Sub Section Ref: Measuring Productivity
Level: Medium
Bloom's: Application
Learning Objective 5: Define productivity and identify productivity measures.
AACSB: Analytic
Time on Task: 2 mins

63. Last month a plant produced 1200 units using 150 labor hours. This month it produced 1500 units using 300 labor hours. What is the percent productivity decrease?
a) 37.50%
b) 60.00%
c) 100.00%
d) 300.00%
e) 200.00%

Answer: a
Solution:
Last month: 1200 / 150 = 8 units/hour
This month: 1500 / 300 = 5 units/hour
Percent productivity decrease = (5 – 8) / 8 = –0.375, or 37.5%.
Section Ref: Productivity
Sub Section Ref: Measuring Productivity
Level: Medium
Bloom's: Application
Learning Objective 5: Define productivity and identify productivity measures.
AACSB: Analytic
Time on Task: 1.5 mins

64. Suppose that a plant manager is only evaluated based on the partial productivity measure: output / (number of employees). If she replaces 10% of the workforce with robots (one robot per replaced worker), and output remains the same, what will be the percent change in this measure of productivity?
a) 0% increase
b) 10% decrease
c) 11.1% increase
d) 11.1% decrease
e) no change in productivity

Answer: c
Solution: Partial labor productivity = O / I = 1 / (1*0.9) = 1.111, or 11.1% increase in labor productivity.

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Section Ref: Productivity
Sub Section Ref: Measuring Productivity
Level: Medium
Bloom's: Application
Learning Objective 5: Define productivity and identify productivity measures.
AACSB: Analytic
Time on Task: 1.5 mins

65. Productivity is essentially
a) something to fill out managers' reports.
b) a measure of resource effectiveness.
c) a scorecard of how efficiently resources are used.
d) a balance scorecard metric.
e) the current business fad.

Answer: c
Solution: Productivity is a measure of how efficiently an organization converts inputs into outputs.
Section Ref: Productivity
Sub Section Ref: Measuring Productivity
Level: Easy
Bloom's: Comprehension
Learning Objective 5: Define productivity and identify productivity measures.
AACSB: Knowledge
Time on Task: 1 min

66. The IT workshop at a state university is open from 9 a.m. to 5 p.m. Monday through Friday. It uses 4 part-time student technicians per day with each of them working a 4-hour shift. On average, the workshop solves 50 computer hardware- and software-related requests per day. What is the student productivity ratio?
a) 50 requests per day
b) 25 requests per shift
c) 6.25 requests per hour
d) 3.125 requests per hour
e) 1.5625 requests per hour

Answer: d
Solution: Student productivity = value of output / labor-hours of input = 50 / (4 * 4) = 3.125 requests per hour.
Section Ref: Productivity
Sub Section Ref: Measuring Productivity
Level: Medium
Bloom's: Application
Learning Objective 5: Define productivity and identify productivity measures.

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AACSB: Analytic
Time on Task: 2 mins

67. Suppose that on Monday the cost of inputs sums to $1000, and the value of outputs sums to $4000. For which of the following values on Tuesday would productivity increase?
a) inputs = $1100, outputs = $4000
b) inputs = $1100, outputs = $4200
c) inputs = $850, outputs = $3600
d) inputs = $1000, outputs = $3900
e) inputs = $2000, outputs = $8000

Answer: c
Solution: Calculate the P= O/I for each. “Inputs = $850 and outputs = $3,600” leads to the productivity of 3,600 / 850 = 4.235, which is the only one higher than the productivity on Monday (4000 / 1000 = 4).
Section Ref: Productivity
Sub Section Ref: Interpreting Productivity Measures
Level: Medium
Bloom’s: Application
Learning Objective 5: Define productivity and identify productivity measures.
AACSB: Analytic
Time on Task: 2 mins

68. Suppose that a plant has a daily productivity of 200 parts per employee. What can we conclude?
a) The daily productivity is excellent.
b) The plant can hire more workers and still earn profits.
c) The plant is not earning profits.
d) The plant must be highly automated.
e) No specific conclusion can be made.

Answer: e
Solution: No specific conclusion can be made. To interpret the meaning of a productivity measure, it must be compared with a similar productivity measure. The number by itself does not tell us very much.
Section Ref: Productivity
Sub Section Ref: Interpreting Productivity Measures
Level: Medium
Bloom’s: Application
Learning Objective 5: Define productivity and identify productivity measures.
AACSB: Analytic
Time on Task: 1.5 mins

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69. Suppose that a plant has a daily productivity of 0.85 parts per employee. What can we conclude?
a) The plant must be very labor-intensive.
b) The plant is not earning profits.
c) The plant must be highly automated.
d) The plant should lay off workers.
e) No specific conclusion can be made.

Answer: e
Solution: No specific conclusion can be made. To interpret the meaning of a productivity measure, it must be compared with a similar productivity measure. The number by itself does not tell us very much.
Section Ref: Productivity
Sub Section Ref: Interpreting Productivity Measures
Level: Medium
Bloom's: Application
Learning Objective 5: Define productivity and identify productivity measures.
AACSB: Analytic
Time on Task: 1.5 mins

70. Suppose that a plant has a total productivity measure of 0.85. What can we conclude?
a) The plant is not earning profits.
b) No specific conclusion can be made.
c) The plant should lay off workers.
d) The plant is highly automated.
e) The daily productivity is excellent.

Answer: a
Solution: Productivity = Outputs / Inputs. A plant cannot earn profit if its productivity is < 1 (i.e., inputs > outputs).
Section Ref: Productivity
Sub Section Ref: Interpreting Productivity Measures
Level: Medium
Bloom's: Application
Learning Objective 5: Define productivity and identify productivity measures.
AACSB: Analytic
Time on Task: 1.5 mins

71. Suppose that last month the cost of inputs summed to $100,000, and the value of outputs summed to $800,000. For which of the following values this month would productivity increase?
a) inputs = $110,000, outputs = $800,000
b) inputs = $50,000, outputs = $400,000
c) inputs = $200,000, outputs = $1,600,000
d) inputs = $100,000, outputs = $820,000

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e) inputs = $300,000, outputs = $1,600,000

Answer: d
Solution: Calculate the P= O/I for each; "inputs = $100,000, outputs = $820,000" is the only one higher than last month, i.e., 820,000 / 100,000 = 8.2 > 800,000 / 100,000 = 8, indicating a productivity increase.
Section Ref: Productivity
Sub Section Ref: Interpreting Productivity Measures
Level: Medium
Bloom's: Application
Learning Objective 5: Define productivity and identify productivity measures.
AACSB: Analytic
Time on Task: 2 mins

72. Suppose that in week 1 a company produced 1,000 units using 60 labor hours. For which of the following values in week 2 would labor productivity decrease?
a) units = 2,000, hours = 120
b) units = 1,500, hours = 95
c) units = 1,000, hours = 58
d) units = 500, hours = 30
e) units = 2,000, hours = 100

Answer: b
Solution: Calculate the P= O/I for each; "units = 1,500, hours = 95" is the only one with the productivity lower than week 1, i.e., 1,500 / 95 =15.789 < 1,000 / 60 = 16.67 units/hour, indicating a decrease in labor productivity.
Section Ref: Productivity
Sub Section Ref: Interpreting Productivity Measures
Level: Medium
Bloom's: Application
Learning Objective 5: Define productivity and identify productivity measures.
AACSB: Analytic
Time on Task: 2 mins

73. Suppose that on Wednesday the cost of inputs summed to $4,000, and the value of outputs summed to $10,000. For which of the following values on Thursday will productivity stay the same?
a) inputs = $2,000, outputs = $5,000
b) inputs = $5,000, outputs = $10,000
c) inputs = $4,000, outputs = $8,000
d) inputs = $10,000, outputs = $4,000
e) inputs = $12,000, outputs = $40,000

Answer: a

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Solution: Calculate the P= O/I for each; "inputs = $2,000 and outputs = $5,000" = 5000 / 2000 = 2.5 is the only one that equals to Wednesday's (10,000 / 4,000 = 2.5).
Section Ref: Productivity
Sub Section Ref: Interpreting Productivity Measures
Level: Medium
Bloom's: Application
Learning Objective 5: Define productivity and identify productivity measures.
AACSB: Analytic
Time on Task: 2 mins

74. Vericol, Inc. manufactures drugs using workers and automated machines. The firm has decided to replace two workers with a new machine, while the output per day is not expected to change. Which of the following CANNOT be true?
a) Labor productivity will increase.
b) Machine productivity will decrease.
c) Labor productivity will decrease.
d) Multifactor productivity will increase.
e) Multifactor productivity will decrease.

Answer: c
Solution: Labor productivity = Output / Labor. If replacing 2 workers with a new machine while keeping the same level of output, the labor productivity will increase (fewer hours used), not decrease. Since no further information about machines available, multifactor productivity and machine productivity cannot be computed, so no conclusive statements can be made. That is, they may increase or decrease.
Section Ref: Productivity
Sub Section Ref: Interpreting Productivity Measures
Level: Medium
Bloom's: Application
Learning Objective 5: Define productivity and identify productivity measures.
AACSB: Analytic
Time on Task: 3 mins

75. A manager has just replaced three workers with a machine that is cheaper to operate than the cost of the three replaced workers. Output is expected to remain the same. Which of the following is true?
a) Labor productivity will decrease.
b) Machine productivity will increase.
c) Multifactor productivity will decrease.
d) Multifactor productivity will increase.
e) The value of output will decrease.

Answer: d

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Solution: Total inputs will decrease since the machine is cheaper to operate. While the output remains the same, multifactor productivity will increase.
Section Ref: Productivity
Sub Section Ref: Interpreting Productivity Measures
Level: Medium
Bloom's: Application
Learning Objective 5: Define productivity and identify productivity measures.
AACSB: Analytic
Time on Task: 1.5 mins

76. Suppose that in January a company produced 5,000 units using 1,000 labor hours. For which of the following values in February would labor productivity decrease?
a) units = 5,000, hours = 900
b) units = 10,000, hours = 1,500
c) units = 10,000, hours = 2,000
d) units = 2,500, hours = 500
e) units = 5,000, hours = 1,100

Answer: e
Solution: Calculate the P= O/I for each; "units = 5,000, hours = 1,100" is the only one less than January, i.e., 5,000 / 1,100 = 4.54 < 5,000 / 1,000 = 5, indicating a labor productivity decrease.
Section Ref: Productivity
Sub Section Ref: Interpreting Productivity Measures
Level: Medium
Bloom's: Application
Learning Objective 5: Define productivity and identify productivity measures.
AACSB: Analytic
Time on Task: 2 mins

77. Suppose that in year 1 a company produced $100 million worth of outputs while inputs totaled $50 million. For which of the following values in year 2 would productivity decrease?
a) outputs = $90 million, inputs = $50 million
b) outputs = $400 million, inputs = $200 million
c) outputs = $250 million, inputs = $100 million
d) outputs = $50 million, inputs = $25 million
e) outputs = $60 million, inputs = $25 million

Answer: a
Solution: Calculate P= O/I for each; "output = $90 million, inputs = $50 million" is the only one less than year 1 (i.e., 90 / 50 = 1.8 < 100 / 50 = 2), indicating a productivity decrease.
Section Ref: Productivity
Sub Section Ref: Interpreting Productivity Measures
Level: Medium
Bloom's: Application

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Learning Objective 5: Define productivity and identify productivity measures.
AACSB: Analytic
Time on Task: 2 mins

78. Suppose that on Thursday a company produced 80 units using 160 labor hours. For which of the following values on Friday would daily labor productivity increase?
a) units = 70, hours = 160
b) units = 80, hours = 180
c) units = 240, hours = 500
d) units = 160, hours = 300
e) units = 40, hours = 100

Answer: d
Solution: Calculate the P= O/I for each; "units = 160, hours = 300" is the only one more than Thursday (160 / 300 = 0.5333 > 80 / 160 = 0.5), indicating a productivity increase.
Section Ref: Productivity
Sub Section Ref: Interpreting Productivity Measures
Level: Medium
Bloom's: Application
Learning Objective 5: Define productivity and identify productivity measures.
AACSB: Analytic
Time on Task: 2 mins

79. Johnny employs five painters. He collected the following data from last week.

Painter	Hours	Walls Completed
Julius	40	60
Margaret	32	68
Dave	50	78
Suzy	36	70
Fawn	44	74

Which painter was LEAST productive last week?
a) Julius
b) Margaret
c) Dave
d) Suzy
e) Fawn

Answer: a
Solution: Calculate by dividing walls completed by the hours; Julius was LEAST productive with 1.5 walls per hour.

Painter	Hours	Walls Completed	Walls per Hour
Julius	40	60	1.5
Margaret	32	68	2.125
Dave	50	78	1.56

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Suzy	36	70	1.94
Fawn	44	74	1.68

Section Ref: Productivity
Sub Section Ref: Interpreting Productivity Measures
Level: Medium
Bloom's: Application
Learning Objective 5: Define productivity and identify productivity measures.
AACSB: Analytic
Time on Task: 2 mins

80. A bakery uses five ovens to bake muffins. Yesterday's data are provided below.

Oven	**Hours**	**Muffins Baked**
Oven 1	5	600
Oven 2	10	1500
Oven 3	8	1280
Oven 4	8	800
Oven 5	6	780

Which oven was the MOST productive?
a) Oven 1
b) Oven 2
c) Oven 3
d) Oven 4
e) Oven 5

Answer: c
Solution: Calculate by dividing muffins baked by the hours; oven 3 was most productive with productivity of 160 muffins per hour.

Oven	**Hours**	**Muffins Baked**	**Muffins per Hour**
Oven 1	5	600	120
Oven 2	10	1500	150
Oven 3	8	1280	160
Oven 4	8	800	100
Oven 5	6	780	130

Section Ref: Productivity
Sub Section Ref: Interpreting Productivity Measures
Level: Medium
Bloom's: Application
Learning Objective 5: Define productivity and identify productivity measures.
AACSB: Analytic
Time on Task: 2 mins

81. The state government utilizes five workers to stamp license plates. Last month's data are provided below:

Worker	**Days Worked**	**Units Stamped**

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Pete	30	1440
Tommy	20	1600
Laura	24	2000
Julie	28	2100
Susan	29	1200

Which worker was the LEAST productive?
a) Pete
b) Tommy
c) Laura
d) Julie
e) Susan

Answer: e
Solution: Calculate by dividing units stamped by the days; Susan was least productive with productivity of 41.38 units per day.

Worker	Days Worked	Units Stamped	Units Stamped per Day
Pete	30	1440	48
Tommy	20	1600	80
Laura	24	2000	83.33
Julie	28	2100	75
Susan	29	1200	41.38

Section Ref: Productivity
Sub Section Ref: Interpreting Productivity Measures
Level: Medium
Bloom's: Application
Learning Objective 5: Define productivity and identify productivity measures.
AACSB: Analytic
Time on Task: 2 mins

82. A firm uses five plants to produce its products. Each final product has a value of $100. The following table provides last week's output, labor hours used (at $15 per hour), and materials cost per unit.

Plant	Output (in units)	Labor Hours	Materials Cost per Unit
Plant 1	2000	400	$20
Plant 2	5000	900	$18
Plant 3	9000	2000	$20
Plant 4	1000	150	$30
Plant 5	2000	440	$18

Which plant was MOST productive last week?
a) Plant 1
b) Plant 2
c) Plant 3
d) Plant 4
e) Plant 5

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Answer: b
Solution:
Plant 1 = 2000 / (400 x 15 + 20 x 2000) = .043
Plant 2 = 5000 / (900 x 15 + 18 x 2000) = .048
Plant 3 = 9000 / (2000 x 15 + 20 x 2000) = .042
Plant 4 = 1000 / (150 x 15 + 30 x 2000) = .031
Plant 5 = 2000 / (440 x 15 + 18 x 2000) = .047
Plant 2 was most productive with the highest productivity ratio of 0.048.
Section Ref: Productivity
Sub Section Ref: Interpreting Productivity Measures
Level: Medium
Bloom's: Application
Learning Objective 5: Define productivity and identify productivity measures.
AACSB: Analytic
Time on Task: 2 mins

83. A firm uses five plants to produce its products. Output value and total input cost for last week are provided below.

Plant	**Output Value**	**Total Cost**
Plant 1	$20,000	$25,000
Plant 2	$50,000	$60,000
Plant 3	$40,000	$42,000
Plant 4	$80,000	$99,000
Plant 5	$25,000	$29,000

Which plant was LEAST productive last week?
a) Plant 1
b) Plant 2
c) Plant 3
d) Plant 4
e) Plant 5

Answer: a
Solution:
Plant 1 = 20000 / 25000 = .800
Plant 2 = 50000 / 60000 = .833
Plant 3 = 40000 / 42000 = .952
Plant 4 = 80000 / 99000 = .808
Plant 5 = 25000 / 29000 = .862
Plant 1 was least productive with the lowest productivity ratio of 0.800.
Section Ref: Productivity
Sub Section Ref: Interpreting Productivity Measures
Level: Medium
Bloom's: Application
Learning Objective 5: Define productivity and identify productivity measures.
AACSB: Analytic

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Time on Task: 2 mins

84. The pandemic created disruptions for which of the following?
a) levels of demand
b) supply levels
c) buyers
d) manufacturers
e) all of the above

Answer: e
Section Ref: Productivity
Sub Section Ref: Productivity and Competiveness – Pandemic Effects
Level: Easy
Bloom's: Knowledge
Learning Objective 5: Define productivity and identify productivity measures.
AACSB: Knowledge
Time on Task: 1 min

85. The rate of growth and supply chain disruptions have caused companies to recognize the importance of
a) time management.
b) cost management.
c) flexibility.
d) overstocking inventory.
e) consumer demand.

Answer: c
Section Ref: Productivity
Sub Section Ref: Productivity and Competiveness – Pandemic Effects
Level: Easy
Bloom's: Knowledge
Learning Objective 5: Define productivity and identify productivity measures.
AACSB: Knowledge
Time on Task: 1 min

86. The pandemic has forced business leaders to realize that
a) disruption is temporary.
b) disruptions are now part of the global landscape.
c) disruptions should be prevented by only purchasing from local suppliers.
d) all disruptions can be prevented by increasing the amount of spending.
e) the most successful businesses in navigating disruptions are those that use global suppliers.

Answer: b

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Section Ref: Productivity
Sub Section Ref: Productivity and Competiveness – Pandemic Effects
Level: Easy
Bloom's: Knowledge
Learning Objective 5: Define productivity and identify productivity measures.
AACSB: Knowledge
Time on Task: 1 min

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True/False

87. An operations strategy covers a relatively short time horizon, whereas a business strategy covers a relatively long time horizon.

Answer: False
Solution: A business strategy is a long-range plan of a business. An operation strategy is a long-range plan for the operations function that specifies the design and use of resources to support the business strategy.
Section Ref: The Role of Operations Strategy
Sub Section Ref: Untitled Introduction
Level: Easy
Bloom's: Comprehension
Learning Objective 1: Explain the role of operations strategy in the organization.
AACSB: Knowledge
Time on Task: 0.5 mins

88. To provide speed of delivery, Federal Express invested in a sophisticated bar code technology.

Answer: False
Solution: To provide speed of delivery, FedEx acquired its own fleet of airplanes. To provide dependability of deliveries, FedEx invested in a sophisticated bar code technology to track all packages.
Section Ref: The Role of Operations Strategy
Sub Section Ref: Untitled Introduction
Level: Easy
Bloom's: Comprehension
Learning Objective 1: Explain the role of operations strategy in the organization.
AACSB: Knowledge
Time on Task: 0.5 mins

89. To provide dependability of deliveries, Federal Express acquired its own fleet of airplanes.

Answer: False
Solution: To provide dependability of deliveries, FedEx invested in a sophisticated bar code technology to track all packages. It acquired its own fleet of airplanes to ensure speed of delivery.
Section Ref: The Role of Operations Strategy
Sub Section Ref: Untitled Introduction
Level: Easy
Bloom's: Comprehension
Learning Objective 1: Explain the role of operations strategy in the organization.

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AACSB: Knowledge
Time on Task: 0.5 mins

90. Operations strategy is developed before the business strategy so the company knows what it will be producing before establishing a long range business strategy.

Answer: False
Solution: The operation strategy is a long-range plan developed for the operations function that specifies the design and use of resources to support the business strategy. It must be aligned with the company's business strategy and enable the company to achieve its long-term plan.
Section Ref: The Role of Operations Strategy
Sub Section Ref: Untitled Introduction
Level: Easy
Bloom's: Comprehension
Learning Objective 1: Explain the role of operations strategy in the organization.
AACSB: Knowledge
Time on Task: 0.5 mins

91. Marketing strategy defines marketing plans to support the business strategy.

Answer: True
Solution: Marketing strategy defines marketing plans to support the business strategy.
Section Ref: The Role of Operations Strategy
Sub Section Ref: Untitled Introduction
Level: Easy
Bloom's: Knowledge
Learning Objective 1: Explain the role of operations strategy in the organization.
AACSB: Knowledge
Time on Task: 0.5 mins

92. Victoria's Secret has used the Internet to conduct a fashion show in order to boost sales.

Answer: True
Solution: Victoria's Secret uses the Internet to conduct fashion shows in order to boost sales.
Section Ref: Developing a Business Strategy
Sub Section Ref: Environmental Scanning
Level: Easy
Bloom's: Comprehension
Learning Objective 2: Explain how a business strategy is developed.
AACSB: Technology
Time on Task: 0.5 mins

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93. Market research represents a type of environmental scanning.

Answer: True
Solution: Market research represents a type of environmental scanning that monitor marketplace trends, e.g., changes in customer wants and expectations and ways in which competitors are meeting those expectations.
Section Ref: Developing a Business Strategy
Sub Section Ref: Environmental Scanning
Level: Easy
Bloom's: Comprehension
Learning Objective 2: Explain how a business strategy is developed.
AACSB: Knowledge
Time on Task: 0.5 mins

94. Companies that compete on cost generally also allow a lot of product customization.

Answer: False
Solution: Companies that compete on cost usually offer a narrow range of products and product features and allow for little customization.
Section Ref: Developing an Operations Strategy
Sub Section Ref: Competitive Priorities – Cost
Level: Easy
Bloom's: Comprehension
Learning Objective 3: Describe how an operations strategy is developed.
AACSB: Knowledge
Time on Task: 0.5 mins

95. Firms that focus on quality as their primary competitive priority usually implement either product design quality or process quality, but not both.

Answer: False
Solution: Firms that compete on quality need to address both product design quality and process quality. The product must be designed to meet customer needs and the process must produce the product exactly as it is designed.
Section Ref: Developing an Operations Strategy
Sub Section Ref: Competitive Priorities – Quality
Level: Easy
Bloom's: Comprehension
Learning Objective 3: Describe how an operations strategy is developed.
AACSB: Knowledge
Time on Task: 0.5 mins

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96. To ensure speed of deliveries, Federal Express subcontracts its work overload to other firms during peak demand periods.

Answer: False
Solution: FedEx uses a very flexible part-time workforce, such as college students, to cover workforce requirements during peak periods.
Section Ref: Developing an Operations Strategy
Sub Section Ref: Competitive Priorities – Time
Level: Easy
Bloom's: Comprehension
Learning Objective 3: Describe how an operations strategy is developed.
AACSB: Knowledge
Time on Task: 0.5 mins

97. Companies that compete based on flexibility often CANNOT compete on cost.

Answer: True
Solution: A company that competes based on flexibility will likely not be able to compete on cost. It often takes more resources to customize a product or a service.
Section Ref: Developing an Operations Strategy
Sub Section Ref: The Need for Trade-Offs
Level: Easy
Bloom's: Comprehension
Learning Objective 3: Describe how an operations strategy is developed.
AACSB: Knowledge
Time on Task: 0.5 mins

98. As long as the firm meets the order qualifier classification it will always be competitive and win competitive bid opportunities.

Answer: False
Solution: Order qualifiers are the business standards that a company has to meet if it wants to do the business. Yet to be successful in the marketplace, the company must further focus on order winners, the competitive priorities that will differentiate the company from the others.
Section Ref: Developing an Operations Strategy
Sub Section Ref: Order Winners and Qualifiers
Level: Easy
Bloom's: Comprehension
Learning Objective 3: Describe how an operations strategy is developed.
AACSB: Knowledge
Time on Task: 0.5 mins

99. McDonald's and pizzerias compete on the same "order winners."

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Answer: False
Solution: McDonalds competes on consistency; pizzerias compete on homemade taste.
Section Ref: Developing an Operations Strategy
Sub Section Ref: Order Winners and Qualifiers
Level: Easy
Bloom's: Comprehension
Learning Objective 3: Describe how an operations strategy is developed.
AACSB: Knowledge
Time on Task: 0.5 mins

100. Facilities decisions are part of the production process infrastructure.

Answer: False
Solution: Facility decisions are related to the structure or the design of the production process.
Section Ref: Developing an Operations Strategy
Sub Section Ref: Translating Competitive Priorities into Production Requirements
Level: Easy
Bloom's: Comprehension
Learning Objective 3: Describe how an operations strategy is developed.
AACSB: Knowledge
Time on Task: 0.5 mins

101. Decisions regarding flow of goods and services through the facility are part of the production process structure.

Answer: True
Solution: The structure of the production process involves operations decisions related to the design of the production process, such as facilities, technology, and flow of goods and services through the facility.
Section Ref: Developing an Operations Strategy
Sub Section Ref: Translating Competitive Priorities into Production Requirements
Level: Easy
Bloom's: Comprehension
Learning Objective 3: Describe how an operations strategy is developed.
AACSB: Knowledge
Time on Task: 0.5 mins

102. Worker pay decisions are part of the production process structure.

Answer: False
Solution: Worker pay decisions are related to the infrastructure of the production process (the planning and control systems of the operations).

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Section Ref: Developing an Operations Strategy
Sub Section Ref: Translating Competitive priorities into Production Requirements
Level: Easy
Bloom's: Comprehension
Learning Objective 3: Describe how an operations strategy is developed.
AACSB: Knowledge
Time on Task: 0.5 mins

103. Quality control approaches are part of the production process infrastructure.

Answer: True
Solution: Quality control approaches are part of the production process infrastructure.
Section Ref: Developing an Operations Strategy
Sub Section Ref: Translating Competitive priorities into Production Requirements
Level: Easy
Bloom's: Comprehension
Learning Objective 3: Describe how an operations strategy is developed.
AACSB: Knowledge
Time on Task: 0.5 mins

104. Studies have shown that companies that invest in new technologies tend to improve their financial position over those that do not.

Answer: True
Solution: Studies have shown that companies that invest in new technologies tend to improve their financial position over those that do not.
Section Ref: Strategic Role of Technology
Sub Section Ref: Untitled Introduction
Level: Easy
Bloom's: Comprehension
Learning Objective 4: Explain the strategic role of technology.
AACSB: Technology
Time on Task: 0.5 mins

105. Operations management is only concerned with information technology applications within the firm.

Answer: False
Solution: The three primary types of technologies (product, process, and information) are differentiated based on their application, but all are important to operations managers.
Section Ref: Strategic Role of Technology
Sub Section Ref: Types of Technologies
Level: Easy

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Bloom's: Comprehension
Learning Objective 4: Explain the strategic role of technology.
AACSB: Technology
Time on Task: 0.5 mins

106. Process technology is the technology that has grown the MOST rapidly and has had the greatest impact on business.

Answer: False
Solution: Information technology has grown rapidly over recent years and has had a profound impact on business.
Section Ref: Strategic Role of Technology
Sub Section Ref: Types of Technology
Level: Easy
Bloom's: Comprehension
Learning Objective 4: Explain the strategic role of technology.
AACSB: Technology
Time on Task: 0.5 mins

107. A measure of how efficiently inputs are being converted into outputs is called utilization.

Answer: False
Solution: Productivity is a measure of how efficiently an organization converts inputs into outputs.
Section Ref: Productivity
Sub Section Ref: Measuring Productivity
Level: Easy
Bloom's: Knowledge
Learning Objective 5: Define productivity and identify productivity measures.
AACSB: Knowledge
Time on Task: 0.5 mins

108. Productivity = Input / Output

Answer: False
Solution: Productivity = Output / Input
Section Ref: Productivity
Sub Section Ref: Measuring Productivity
Level: Easy
Bloom's: Knowledge
Learning Objective 5: Define productivity and identify productivity measures.
AACSB: Knowledge
Time on Task: 0.5 mins

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109. Output / (all inputs used) is called total productivity.

Answer: True
Solution: Total productivity measure = Output produced / all inputs used
Section Ref: Productivity
Sub Section Ref: Measuring Productivity
Level: Easy
Bloom's: Knowledge
Learning Objective 5: Define productivity and identify productivity measures.
AACSB: Knowledge
Time on Task: 0.5 mins

110. Output / (labor + capital) is an example of a partial productivity measure.

Answer: False
Solution: Partial productivity is computed as a ratio of output to only one input (e.g., labor, materials, and machines).
Section Ref: Productivity
Sub Section Ref: Measuring Productivity
Level: Easy
Bloom's: Comprehension
Learning Objective 5: Define productivity and identify productivity measures.
AACSB: Knowledge
Time on Task: 0.5 mins

111. A nation's productivity is NOT directly related to its standard of living.

Answer: False
Solution: Increases in productivity are directly related to increases in a nation's standard of living.
Section Ref: Productivity
Sub Section Ref: Productivity and Competitiveness
Level: Easy
Bloom's: Comprehension
Learning Objective 5: Define productivity and identify productivity measures.
AACSB: Knowledge
Time on Task: 0.5 mins

112. Productivity gains in the service sector have been much lower than that of manufacturing.

Answer: True

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Solution: Employment in the service sector of the U.S. economy has grown rapidly. However, productivity gains in this sector have been much lower than those of manufacturing.
Section Ref: Productivity
Sub Section Ref: Productivity and the Service Sector
Level: Easy
Bloom's: Comprehension
Learning Objective 5: Define productivity and identify productivity measures.
AACSB: Knowledge
Time on Task: 0.5 mins

113. An operations strategy should NOT impact the firm's supply chain design.

Answer: False
Solution: Decisions regarding operations strategy directly impact decisions on organizational structure and infrastructure of the company. This includes the design of supply chain.
Section Ref: Operations Strategy Within OM: How It All Fits Together
Sub Section Ref: Untitled Introduction
Level: Easy
Bloom's: Comprehension
Learning Objective 5: Define productivity and identify productivity measures.
AACSB: Knowledge
Time on Task: 0.5 mins

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Problems

114. Contract an operations strategy from the business strategy.

Solution: Operations Strategy is a long-range plan for the design and use of resources to support the business strategy. Although they must be aligned, they are separate and distinct from one another.
Section Ref: The Role of Operations Strategy
Sub Section Ref: Untitled Introduction
Level: Medium
Bloom's: Application
Learning Objective 1: Explain the role of operations strategy in the organization.
AACSB: Knowledge
Time on Task: 1 min

115. Describe the difference between operational efficiency and strategy.

Answer: Operational efficiency is the ability to perform operations more efficiently than competitors. Strategy, on the other hand, is a plan for competing in the marketplace.
Section Ref: The Role of Operations Strategy
Sub Section Ref: The Importance of Operations Strategy
Level: Easy
Bloom's: Knowledge
Learning Objective 1: Explain the role of operations strategy in the organization.
AACSB: Knowledge
Time on Task: 3 mins

116. Explain what caused the focus to shift from mass produced standard products in the 1970s.

Solution: Operations strategy did not come to the forefront until the 1970s. Up to that time, U.S. companies emphasized mass production of standard product designs. There were no serious international competitors, and U.S. companies could pretty much sell anything they produced. However, that changed in the 1970s and 1980s. Japanese companies began offering products of superior quality at lower cost, and U.S. companies lost market share to their Japanese counterparts. In an attempt to survive, many U.S. companies copied Japanese approaches
Section Ref: The Role of Operations Strategy
Sub Section Ref: The Importance of Operations Strategy
Level: Medium
Bloom's: Application
Learning Objective 1: Explain the role of operations strategy in the organization.
AACSB: Knowledge
Time on Task: 5 min

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117. A mission statement answers what three overriding questions?

Answer: (1) What business is the organization in? (2) Who are the customers? (3) How will the company's core beliefs shape its business?
Section Ref: Developing a Business Strategy
Sub Section Ref: Mission
Level: Easy
Bloom's: Comprehension
Learning Objective 2: Explain how a business strategy is developed.
AACSB: Knowledge
Time on Task: 3 mins

118. Define "environmental scanning."

Answer: Environmental scanning is monitoring the external environment for changes and trends in the market, in the economic and political environment, and in society in order to determine business opportunities and threats.
Section Ref: Developing a Business Strategy
Sub Section Ref: Environmental Scanning
Level: Easy
Bloom's: Knowledge
Learning Objective 2: Explain how a business strategy is developed.
AACSB: Knowledge
Time on Task: 3 mins

119. What are some general technological trends in the marketplace?

Answer: point-of-sale scanners, automation, computer-assisted processing, electronic purchasing, electronic order tracking, and e-commerce
Section Ref: Developing a Business Strategy
Sub Section Ref: Environmental Scanning
Level: Easy
Bloom's: Comprehension
Learning Objective 2: Explain how a business strategy is developed.
AACSB: Knowledge
Time on Task: 3 mins

120. How have U.S. tobacco companies responded to public awareness of the dangers of smoking?

Answer: Many have changed their strategy to focus on customers overseas where smoking is still socially acceptable, or have diversified into other product lines.

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Section Ref: Developing a Business Strategy
Sub Section Ref: Environmental Scanning
Level: Easy
Bloom's: Comprehension
Learning Objective 2: Explain how a business strategy is developed.
AACSB: Knowledge
Time on Task: 3 mins

121. Suggest some core competencies that companies may have.

Answer: Examples may be: highly trained workforce, responsive in meeting customer needs, flexible in performing a variety of tasks, strong technical capability, creative in product design, flexible in producing a variety of products, technologically advanced, an efficient distribution system, skilled in understanding customer wants and predicting market trends, skilled in attracting and raising capital, use of latest production technology, use of information technology, and quality control techniques.
Section Ref: Developing a Business Strategy
Sub Section Ref: Core Competencies
Level: Easy
Bloom's: Knowledge
Learning Objective 2: Explain how a business strategy is developed.
AACSB: Knowledge
Time on Task: 3 mins

122. What outsourcing activities does Total Logistics Control perform for Meijer?

Answer: TLC is responsible for all deliveries, route scheduling, and all activities involved in maintaining a fleet of trucks, allowing Meijer to focus on its core competencies.
Section Ref: Developing a Business Strategy
Sub Section Ref: Core Competencies
Level: Easy
Bloom's: Comprehension
Learning Objective 2: Explain how a business strategy is developed.
AACSB: Knowledge
Time on Task: 3 mins

123. Why might a company choose to outsource noncore activities?

Solution: By outsourcing noncore activities, a company can focus on its core competencies.
Section Ref: Developing a Business Strategy
Sub Section Ref: Core Competencies
Level: Easy
Bloom's: Comprehension

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Learning Objective 2: Explain how a business strategy is developed.
AACSB: Knowledge
Time on Task: 1 min

124. Describe how Southwest Airlines competes on cost.

Answer: Facilities are streamlined: only one type of aircraft is used, and flight routes are generally short. This serves to minimize costs of scheduling crew changes, maintenance, inventories of parts, and many administrative costs. Unnecessary costs are completely eliminated: there are no meals, printed boarding passes, or seat assignments.
Section Ref: Developing an Operations Strategy
Sub Section Ref: Competitive Priorities – Cost
Level: Easy
Bloom's: Comprehension
Learning Objective 3: Describe how an operations strategy is developed.
AACSB: Knowledge
Time on Task: 3 mins

125. Explain why does the operations function need to make trade-offs?

Answer: Business strategy; trade-offs
Solution: The operations function must place emphasis on those priorities that directly support the business strategy. Therefore, it needs to make trade-offs between the different priorities.
Section Ref: Developing an Operations Strategy
Sub Section Ref: The Need for Trade-Offs
Level: Easy
Bloom's: Comprehension
Learning Objective 3: Describe how an operations strategy is developed.
AACSB: Knowledge
Time on Task: 3 min

126. Discuss how the operations strategy categories of structure and infrastructure determine the nature of the company's operations function.

Answer: Structure is the operations decisions related to the design of the production process while infrastructure is operations decisions related to the planning and control systems of the operations. Together they define how the firm will pursue its long range plan.
Section Ref: Developing an Operations Strategy
Sub Section Ref: Translating Competitive Priorities into Production Requirements
Level: Easy
Bloom's: Comprehension
Learning Objective 3: Describe how an operations strategy is developed.
AACSB: Knowledge

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Time on Task: 3 mins

127. Provide examples of technology used to improve the process of creating goods and services.

Solution: Process technology is used to improve the process of creating goods and services. Examples of this would include computer-aided design (CAD) and computer-aided manufacturing (CAM). These are technologies that use computers to assist engineers in the way they design and manufacture products. Another example is 3D Printing, a technology similar to inkjet and laser-jet printers where a solid object is created from a software design.
Section Ref: Strategic Role of Technology
Sub Section Ref: Types of Technology
Level: Easy
Bloom's: Knowledge
Learning Objective 4: Explain the strategic role of technology.
AACSB: Technology
Time on Task: 1 min

128. If a company's inputs for producing a certain product increase by 10% and the output increases by 25%, what is the percentage productivity increase for that product?

Answer: 13.6%
Solution: New productivity = Output / Input = (1 + 0.25) / (1+0.1) =1.136. This results in a productivity increase of 0.136, or 13.6%.
Section Ref: Productivity
Sub Section Ref: Measuring Productivity
Level: Medium
Bloom's: Application
Learning Objective 5: Define productivity and identify productivity measures.
AACSB: Analytic
Time on Task: 2 mins

129. If a company's inputs for producing a certain product increase by 50% and the output increases by 90%, what is the percentage productivity increase for that product?

Answer: 26.7%
Solution: New productivity = Output / Input = (1+0.9) / (1+0.5) = 1.267. This results in a productivity increase of 0.267, or 26.7%.
Section Ref: Productivity
Sub Section Ref: Measuring Productivity
Level: Medium
Bloom's: Application
Learning Objective 5: Define productivity and identify productivity measures.
AACSB: Analytic

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Time on Task: 2 mins

130. A firm produces 6,000 products using 12 workers on a nine-hour shift. What is the labor productivity per worker?

Answer: 55.6 units/hour
Solution: Labor productivity = 6,000 units / (12 workers x 9 hours) = 55.6 units/hour per worker
Section Ref: Productivity
Sub Section Ref: Measuring Productivity
Level: Medium
Bloom's: Application
Learning Objective 5: Define productivity and identify productivity measures.
AACSB: Analytic
Time on Task: 1.5 mins

131. A machine shop produces hangers on two different machines. Machine 1 can produce a hanger every 15 minutes. Machine 2 can produce a hanger every 10 minutes. What is the average productivity per machine?

Answer: 5 units/hour
Solution:
Total hourly outputs from 2 machines = 60 / 15 + 60 / 10 = 10 units
Average productivity = Total output in units / 2 machines = 10 / 2 = 5 units/hour per machine
Section Ref: Productivity
Sub Section Ref: Measuring Productivity
Level: Medium
Bloom's: Application
Learning Objective 5: Define productivity and identify productivity measures.
AACSB: Analytic
Time on Task: 2 mins

132. A firm produces shirts using three workers. On Wednesday, Madeline completed 110 shirts in 6 hours, Federico completed 90 shirts in 7 hours, and Susan completed 130 shirts in 9 hours. What was the overall productivity of the firm?

Answer: 15 shirts/hour
Solution: Total outputs = 110 + 90 + 130 = 330 shirts
Total inputs = 6 + 7 + 9 = 22 hours
Total productivity = Total outputs / Total inputs = 330 / 22 = 15 shirts / hour
Section Ref: Productivity
Sub Section Ref: Measuring Productivity
Level: Medium
Bloom's: Application

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Learning Objective 5: Define productivity and identify productivity measures.
AACSB: Analytic
Time on Task: 2 mins

133. A firm produces 1,500 units per day using four workers on a five-hour shift. On average, 12% of the units produced are defective and must be scrapped. What is the labor productivity for nondefective units?

Answer: 66 units/hour
Solution:
Total nondefective units = 1,500 * (1 – 0.12) = 1,320 units. Total input = 4*5 = 20 hours.
Labor productivity = 1,320 units / 20 hours = 66 units / hour.
Section Ref: Productivity
Sub Section Ref: Measuring Productivity
Level: Medium
Bloom's: Application
Learning Objective 5: Define productivity and identify productivity measures.
AACSB: Analytic
Time on Task: 2 mins

134. For what entities can productivity be measured?

Answer: individuals, inputs (e.g., labor, materials, machines, etc.), departments, organizations, industries, or even countries
Section Ref: Productivity
Sub Section Ref: Measuring Productivity
Level: Easy
Bloom's: Comprehension
Learning Objective 5: Define productivity and identify productivity measures.
AACSB: Knowledge:
Time on Task: 3 mins

135. The school's cafeteria has three service lines (pizza, salads, and sandwiches). The pizza line has one server and serves 90 pizzas per hour. The salad line has two servers and they handle 140 customers in 70 minutes. The sandwich line has three servers and they supply 360 sandwiches in 90 minutes. Which service line has the highest hourly productivity?

Answer: Pizza line at 90 pizzas/server/hour
Solution: Productivity = Output / Input
Productivity (Pizza line) = 90 pizzas / hour or 90 / 60 = 1.5 pizzas/server/min
Productivity (Salad line) = 140 / 70 / 2 = 1 salad/server/min
Productivity (Sandwich line) = 360 / 90 / 3 = 1.33 sandwiches/server/min
Pizza line has the highest productivity at 90 pizzas/server/hour.

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Section Ref: Productivity
Sub Section Ref: Interpreting Productivity Measures
Level: Medium
Bloom's: Application
Learning Objective 5: Define productivity and identify productivity measures.
AACSB: Analytic
Time on Task: 3 mins

136. A new milling machine can process 2,000 jobs in 8 hours. What is the productivity of the machine?

Answer: 250 jobs/hour
Solution: Machine productivity = 2,000 / 8 = 250 jobs/hour
Section Ref: Productivity
Sub Section Ref: Interpreting Productivity Measures
Level: Medium
Bloom's: Application
Learning Objective 5: Define productivity and identify productivity measures.
AACSB: Analytic
Time on Task: 1.5 mins

137. Last week George mowed 6 lawns in two days. This week he mowed 8 lawns in three days. In which week was George more productive?

Answer: last week
Solution: Productivity = Output / Input. Last week: 6 lawns / 2 days = 3 lawns/day. This week: 8 lawns / 3 days = 2.67 lawns/day. George was more productive last week.
Section Ref: Productivity
Sub Section Ref: Interpreting Productivity Measures
Level: Medium
Bloom's: Application
Learning Objective 5: Define productivity and identify productivity measures.
AACSB: Analytic
Time on Task: 2 mins

138. During week one, on average, the aircraft cleaning staff was able to totally clean an airplane in 45 minutes using 3 cleaners. During week two the average time to clean an aircraft went to 40 minutes with one of the cleaning staff off sick. Week two productivity changed in which direction and by how much?

Answer: Week two productivity is 20 minutes / staff; productivity decreased.
Solution:
Week 1: Average cleaning time per airplane = 45 minutes / 3 staff = 15 minutes / staff.

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Week 2: Average cleaning time per airplane = 40 minutes / 2 staff = 20 minutes / staff.
The percentage change in labor productivity = (20 – 15)/15 = 0.333, or a decrease of 33.3%.
Section Ref: Productivity
Sub Section Ref: Interpreting Productivity Measures
Level: Medium
Bloom's: Application
Learning Objective 5: Define productivity and identify productivity measures.
AACSB: Analytic
Time on Task: 3 mins

139. A company uses two plants to produce motorcycles. Plant A produces 200 per week using 20 workers and 4 machines. Plant B produces 250 per week using 10 workers and 10 machines.
a) Compute labor productivity ratios for Plant A and Plant B. Which one is more productive?
b) Computer machine productivity ratios for Plant A and Plant B. Which one is more productive?
c) Can the multifactor productivity ratios be computed to determine which plant is more productive? Why or why not?

Answer:
(a) Plant A has a lower labor productivity (10 units/worker) than Plan B (25 units/worker).
(b) Plant A has a higher machine productivity (50 units/machine) than Plant B (25 units/machine).
(c) The overall multifactor productivity ratios cannot be computed because the cost of labor and machines is needed.

Solution:
a) Labor productivity (A) = 200 / 20 = 10 units/worker per week.
Labor productivity (B) = 250 /10 = 25 units/worker per week.
b) Machine productivity (A) = 200 / 4 = 50 units/machine per week.
Machine productivity (B) = 250 / 10 = 25 units /machine per week.
c) Total productivity cannot be computed because costs of labor and machine are unknown.
Section Ref: Productivity
Sub Section Ref: Interpreting Productivity Measures
Level: Medium
Bloom's: Application
Learning Objective 5: Define productivity and identify productivity measures.
AACSB: Analytic
Time on Task: 5 mins

140. At the national level why is it important to measure productivity?

Answer: The economic success of a nation and the quality of life of its citizens are related to the competitiveness in the global marketplace. Increases in productivity are directly related to increases in a nation's standard of living. Understanding the nation's productivity helps to define how the nation is performing as a whole.
Section Ref: Productivity

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Sub Section Ref: Productivity and Competitiveness
Level: Easy
Bloom's: Comprehension
Learning Objective 5: Define productivity and identify productivity measures.
AACSB: Knowledge
Time on Task: 3 mins

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