**Chapter 14: Lean Operations and Supply Chains**

**Test Bank**

**Multiple Choice**

1. According to lean philosophy, we should eliminate any activity or process \_\_\_\_\_\_.

a. that does not add value to the product or service

b. that has a high carbon footprint

c. that is likely to be regulated by the government

d. that does not conform to ISO standards

Ans: A

Cognitive Domain: Comprehension (Understand)

Learning Objective: 14-2 Describe the philosophy of lean systems.

Answer Location: Introduction to Lean Operations

Difficulty Level: Easy

AACSB: Systems and processes in organizations, including planning and design, production/operations, supply chains, marketing, and distribution

2. Lean concepts were used \_\_\_\_\_\_.

a. in 1776 by Adam Smith

b. in the early 1900s by Henry Ford

c. during the industrial revolution

d. to help win World War II

Ans: B

Cognitive Domain: Comprehension (Understand)

Learning Objective: 14-2: Describe the philosophy of lean systems.

Answer Location: Introduction to Lean Operations

Difficulty Level: Easy

AACSB: Systems and processes in organizations, including planning and design,

production/operations, supply chains, marketing, and distribution

3. A just-in-time strategy \_\_\_\_\_\_.

a. reduces investment in inventory and reduces space requirements

b. increases investment in inventory but reduces space requirements

c. increases investment in inventory increases space requirements

d. reduces investment in inventory but increases space requirements

Ans: A

Cognitive Domain: Comprehension (Understand)

Learning Objective: 14-2: Describe the philosophy of lean systems.

Answer Location: Introduction to Lean Operations

Difficulty Level: Medium

AACSB: Application of knowledge (able to translate knowledge of business and management into practice)

4. Lean production and just-in-time concepts became important \_\_\_\_\_\_.

a. in the mid 1980s, thanks to Motorola

b. in the early 1940s, thanks to Ford

c. in the early 1970s, thanks to Toyota

d. in the mid 1980s, thanks to General Electric

Ans: C

Cognitive Domain: Comprehension (Understand)

Learning Objective: 14-2: Describe the philosophy of lean systems.

Answer Location: Introduction to Lean Operations

Difficulty Level: Medium

AACSB: Application of knowledge (able to translate knowledge of business and management into practice)

5. Which of the following is NOT a reason why global sourcing makes it considerably more difficult to implement lean?

a. lower inventory levels

b. longer global supply chains

c. poor accuracy of sales forecasts

d. longer lead times

Ans: A

Cognitive Domain: Application (Apply)

Learning Objective: 14-2: Describe the philosophy of lean systems.

Answer Location: Introduction to Lean Operations

Difficulty Level: Hard

AACSB: Application of knowledge (able to translate knowledge of business and management into practice)

6. The stability and flow of goods in global supply chains can be improved by \_\_\_\_\_\_.

a. increasing the carbon footprint

b. minimizing orders for changes in parts, assemblies, specifications, engineering drawings, and documents

c. producing products that are easy to manufacture

d. using only local resources

Ans: B

Cognitive Domain: Application (Apply)

Learning Objective: 14-3: Outline the elements of lean operations systems.

Answer Location: Introduction to Lean Operations

Difficulty Level: Medium

AACSB: Application of knowledge (able to translate knowledge of business and management into practice)

7. Which of the following is NOT one of the goals of lean health care?

a. improving the quality of care and patient experience

b. simplifying tasks for providers

c. better using resources to treat an expanding patient population without adding more doctors and nurses, beds, or equipment

d. ensuring all patients are treated in an identical manner

Ans: D

Cognitive Domain: Application (Apply)

Learning Objective: 14-3: Outline the elements of lean operations systems.

Answer Location: Introduction to Lean Operations

Difficulty Level: Easy

AACSB: Application of knowledge (able to translate knowledge of business and management into practice)

8. Principles of lean include \_\_\_\_\_\_.

a. willingness of managers to impose strict controls on workers

b. elimination of waste and inefficiency

c. avoiding government regulation

d. ensuring that only the most essential products are manufactured

Ans: B

Cognitive Domain: Application (Apply)

Learning Objective: 14-3: Outline the elements of lean operations systems.

Answer Location: The Philosophy of Lean Systems

Difficulty Level: Easy

AACSB: Application of knowledge (able to translate knowledge of business and management into practice)

9. Which of the following types of waste is correctly matched with its description?

a. muri—waste and decreased productivity resulting from poor system design

b. mura—tendency to increase the carbon footprint by using resources that are not lean

c. muda—an activity that adds high degree of value

d. poke yoke—product or service design that reduces production costs

Ans: A

Cognitive Domain: Application (Apply)

Learning Objective: 14-3: Outline the elements of lean operations systems.

Answer Location: The Philosophy of Lean Systems

Difficulty Level: Easy

AACSB: Application of knowledge (able to translate knowledge of business and management into practice)

10. Which of the following is not representative of muda?

a. any activity that does not add value

b. any activity that is unproductive

c. waste that occurs from any variation in output

d. any activity that impacts demand elasticity

Ans: D

Cognitive Domain: Application (Apply)

Learning Objective: 14-3: Outline the elements of lean operations systems.

Answer Location: The Philosophy of Lean Systems

Difficulty Level: Easy

AACSB: Application of knowledge (able to translate knowledge of business and management into practice)

11. A smooth and rapid flow of materials and work can be achieved by \_\_\_\_\_\_.

a. eliminating disruptions

b. maintaining a highly structured and rigid system

c. eliminating the carbon footprint

d. beating employees till morale improves

Ans: A

Cognitive Domain: Application (Apply)

Learning Objective: 14-3: Outline the elements of lean operations systems.

Answer Location: The Philosophy of Lean Systems

Difficulty Level: Easy

AACSB: Application of knowledge (able to translate knowledge of business and management into practice)

12. Which of the following terms is correctly paired with its description?

a. mura—waste from the underutilization of workers

b. muri—waste from producing products not truly required by society

b. poke yoke—design of product or service such that it is sustainable

b. heijunka—the uneven levels of production resulting from poor management

Ans: A

Cognitive Domain: Application (Apply)

Learning Objective: 14-3: Outline the elements of lean operations systems.

Answer Location: The Philosophy of Lean Systems

Difficulty Level: Easy

AACSB: Application of knowledge (able to translate knowledge of business and management into practice)

13. What is the correct order of the 5S?

a. sort, sweep, sustain, standardize, straighten

b. sort, straighten, sweep, sustain, standardize

c. straighten, sort, sweep, sustain, standardize

d. sort, straighten, shine, standardize, sustain

Ans: D

Cognitive Domain: Application (Apply)

Learning Objective: 14-3: Outline the elements of lean operations systems.

Answer Location: The Philosophy of Lean Systems

Difficulty Level: Medium

AACSB: Application of knowledge (able to translate knowledge of business and management into practice)

14. Incrementalism refers to \_\_\_\_\_\_.

a. making radical changes in one big fix

b. making small fixes in a steady stream of improvements

c. being regular in making annual improvements

d. fixing a problem each time it becomes a problem

Ans: B

Cognitive Domain: Application (Apply)

Learning Objective: 14-3: Outline the elements of lean operations systems.

Answer Location: The Philosophy of Lean Systems

Difficulty Level: Medium

AACSB: Application of knowledge (able to translate knowledge of business and management into practice)

15. Which of the following statements is true with regard to workflow?

a. Workflow is the sequence of connected steps or operations necessary to complete a task.

b. Dependence is the idea that adjustments to one element in the workflow have no implications for other elements.

c. Independence with regard to workflow is the idea that an element in the workflow is not subject to government regulation.

d. Throughput is a measure of speed applied to processes in the service industry.

Ans: A

Cognitive Domain: Application (Apply)

Learning Objective: 14-3: Outline the elements of lean operations systems.

Answer Location: The Philosophy of Lean Systems

Difficulty Level: Medium

AACSB: Application of knowledge (able to translate knowledge of business and management into practice)

16. Throughput is \_\_\_\_\_\_.

a. measured by the ratio of input to output

b. measured by the ratio of waste to output

c. a measure of how an order moves from receipt to delivery

d. a measure of those orders not regulated by the government

Ans: C

Cognitive Domain: Application (Apply)

Learning Objective: 14-3: Outline the elements of lean operations systems.

Answer Location: Workflow and Throughput

Difficulty Level: Medium

AACSB: Application of knowledge (able to translate knowledge of business and management into practice)

17. Which of the following is true with regard to push and pull systems?

a. Push systems are systems in which services or products are produced based on forecasts.

b. In pull systems, the product or service is produced because its production is mandated by a central planning organization.

c. In pull systems, the product or service is regulated by a government agency.

d. In push systems, inventory is completely eliminated.

Ans: A

Cognitive Domain: Application (Apply)

Learning Objective: 14-3: Outline the elements of lean operations systems.

Answer Location: Pull Systems Versus Push Systems

Difficulty Level: Medium

AACSB: Application of knowledge (able to translate knowledge of business and management into practice)

18. The lean philosophy is characterized by \_\_\_\_\_\_.

a. pull

b. push

c. assemble-in-anticipation-of-order

d. engineer-in-anticipation-of-order

Ans: A

Cognitive Domain: Application (Apply)

Learning Objective: 14-3: Outline the elements of lean operations systems.

Answer Location: Pull Systems Versus Push Systems

Difficulty Level: Medium

AACSB: Application of knowledge (able to translate knowledge of business and management into practice)

19. With push systems, \_\_\_\_\_\_.

a. good planning is necessary

b. there is potential for sustainable operations

c. there is no need to maintain inventory

d. government regulation is minimized

Ans: A

Cognitive Domain: Application (Apply)

Learning Objective: 14-3: Outline the elements of lean operations systems.

Answer Location: Pull Systems Versus Push Systems

Difficulty Level: Medium

AACSB: Application of knowledge (able to translate knowledge of business and management into practice)

20. Deciding whether to use a push or pull system depends upon \_\_\_\_\_\_.

a. an organization’s philosophy of sustainable operations

b. the type of industry in which the organization competes

c. the extent of regulation enforced by the government

d. the impact of ISO standards on the company’s operations

Ans: B

Cognitive Domain: Application (Apply)

Learning Objective: 14-3: Outline the elements of lean operations systems.

Answer Location: Pull Systems Versus Push Systems

Difficulty Level: Medium

AACSB: Application of knowledge (able to translate knowledge of business and management into practice)

21 Focused factories \_\_\_\_\_\_.

a. are specialized plants built and operated for a single purpose

b. require workers with a very broad range of skills

c. completely eliminate the need for inventory

d. are used extensively in the service industry

Ans: A

Cognitive Domain: Application (Apply)

Learning Objective: 14-3: Outline the elements of lean operations systems.

Answer Location: Focused Factories

Difficulty Level: Easy

AACSB: Application of knowledge (able to translate knowledge of business and management into practice)

22. Value stream mapping (VSM) \_\_\_\_\_\_.

a. is typically done once an organization has converted to a lean system

b. facilitates identifying sources and causes of waste

c. has the potential to increase the carbon footprint

d. is applied only in push production systems

Ans: B

Cognitive Domain: Application (Apply)

Learning Objective: 14-3: Outline the elements of lean operations systems.

Answer Location: Value Stream Mapping (VSM)

Difficulty Level: Easy

AACSB: Application of knowledge (able to translate knowledge of business and management into practice)

23. In value stream mapping, we create a visual map of the production process to show \_\_\_\_\_\_.

a. value added at each step in the process

b. time required to meet customer needs

c. whether customer specifications have been met

d. the extent of government supervision of this project

Ans: A

Cognitive Domain: Application (Apply)

Learning Objective: 14-3: Outline the elements of lean operations systems.

Answer Location: Value Stream Mapping (VSM)

Difficulty Level: Easy

AACSB: Application of knowledge (able to translate knowledge of business and management into practice)

24. Which of the following is NOT an attribute of VSM?

a. It a communication tool.

b. It is a business-planning tool.

c. It is a mechanism for managing process change.

d. It is a tool for reducing the carbon footprint.

Ans: D

Cognitive Domain: Application (Apply)

Learning Objective: 14-3: Outline the elements of lean operations systems.

Answer Location: Value Stream Mapping (VSM)

Difficulty Level: Easy

AACSB: Application of knowledge (able to translate knowledge of business and management into practice)

25. A VSM is \_\_\_\_\_\_.

a. much more narrowly defined in relation to a process flow

b. particularly useful for processes showing a high degree of variation

c. a communication tool

d. a tool for reducing the carbon footprint

Ans: C

Cognitive Domain: Application (Apply)

Learning Objective: 14-3: Outline the elements of lean operations systems.

Answer Location: Value Stream Mapping (VSM)

Difficulty Level: Easy

AACSB: Application of knowledge (able to translate knowledge of business and management into practice)

26. Which of the following is NOT one of the elements of total quality management?

a. worker responsibility for quality

b. statistical quality control

c. the use of fail-safe methods

d. reduction of carbon footprint

Ans: D

Cognitive Domain: Application (Apply)

Learning Objective: 14-3: Outline the elements of lean operations systems.

Answer Location: Quality and Lean Systems

Difficulty Level: Easy

AACSB: Application of knowledge (able to translate knowledge of business and management into practice)

27. Which of the following is true with regard to Lean and Six Sigma?

a. Lean approaches focus on reducing cost through optimization of the manufacturing process.

b. Six Sigma focuses on the production of those products and services considered to be truly essential to human existence.

c. Lean is relevant to manufacturing, while Six Sigma is relevant to the service industry.

d. Six Sigma refers to the number of deviant personnel involved in the production process.

Ans: A

Cognitive Domain: Application (Apply)

Learning Objective: 14-3: Outline the elements of lean operations systems.

Answer Location: Lean Six Sigma

Difficulty Level: Easy

AACSB: Application of knowledge (able to translate knowledge of business and management into practice)

28. The use of Lean Six Sigma has \_\_\_\_\_\_.

a. increased complacency in the workplace

b. created an organizational climate in which innovation has become instinctive

c. created a hostile work environment

d. eliminated the need for ISO standards

Ans: B

Cognitive Domain: Application (Apply)

Learning Objective: 14-3: Outline the elements of lean operations systems.

Answer Location: Lean Six Sigma

Difficulty Level: Easy

AACSB: Application of knowledge (able to translate knowledge of business and management into practice)

29. The Japanese word *jidoka*, or quality at the source, means \_\_\_\_\_\_.

a. doing it right the first time

b. terminating employees at the first sign of a problem

c. circumventing government audits of product quality

d. ensuring customer specifications are met on time even at the risk of poor quality

Ans: A

Cognitive Domain: Application (Apply)

Learning Objective: 14-3: Outline the elements of lean operations systems.

Answer Location: Quality at the Source

Difficulty Level: Easy

AACSB: Application of knowledge (able to translate knowledge of business and management into practice)

30. External logistics systems refer to \_\_\_\_\_\_.

a. the collection, transportation, and distribution of goods between suppliers and the plant

b. the flow of raw materials between steps in the manufacturing process

c. the dispatch of goods from plant to quality control center

d. the collection, transportation, and distribution of goods between different work stations inside one manufacturing facility

Ans: A

Cognitive Domain: Application (Apply)

Learning Objective: 14-3: Outline the elements of lean operations systems.

Answer Location: Plant Layouts That Balance Workflow

Difficulty Level: Easy

AACSB: Application of knowledge (able to translate knowledge of business and management into practice)

31. Which of the following is not a way to achieve a smooth and rapid flow of materials and work?

a. eliminating disruptions

b. keeping the system flexible

c. eliminating waste

d. improving sustainability

Ans: D

Cognitive Domain: Application (Apply)

Learning Objective: 14-5: Identify the characteristics of a lean supply chain.

Answer Location: The Philosophy of Lean Systems

Difficulty Level: Medium

AACSB: Application of knowledge (able to translate knowledge of business and management into practice)

32. Which of the following is not a way to accomplish schedule stability?

a. level schedules

b. frozen windows

c. underuse of capacity

d. uneven production quantities

Ans: D

Cognitive Domain: Application (Apply)

Learning Objective: 14-5: Identify the characteristics of a lean supply chain.

Answer Location: Stable Schedules

Difficulty Level: Medium

AACSB: Application of knowledge (able to translate knowledge of business and management into practice)

33. In a level schedule, materials are pulled through the assembly line at a \_\_\_\_\_\_.

a. steady rate

b. fluctuating rate

c. flexible rate

d. inconsistent rate

Ans: A

Cognitive Domain: Application (Apply)

Learning Objective: 14-5: Identify the characteristics of a lean supply chain.

Answer Location: Stable Schedules

Difficulty Level: Medium

AACSB: Application of knowledge (able to translate knowledge of business and management into practice)

34. Frozen windows are \_\_\_\_\_\_.

a. periods during which production levels can be revised

b. specific time periods in which production levels cannot be changed

c. time periods during which there are no quality inspections

d. periods during which employees are not given time off from work

Ans: B

Cognitive Domain: Application (Apply)

Learning Objective: 14-5: Identify the characteristics of a lean supply chain.

Answer Location: Stable Schedules

Difficulty Level: Medium

AACSB: Application of knowledge (able to translate knowledge of business and management into practice)

35. The Japanese term for leveling out the workload or smoothing production is \_\_\_\_\_\_.

a. kaizen

b. jidoka

c. poke yoke

d. heijunka

Ans: D

Cognitive Domain: Application (Apply)

Learning Objective: 14-5: Identify the characteristics of a lean supply chain.

Answer Location: Stable Schedules

Difficulty Level: Medium

AACSB: Application of knowledge (able to translate knowledge of business and management into practice)

36. Heijunka is used to \_\_\_\_\_\_.

a. reduce production costs

b. level out the workload

c. prevent errors before they occur

d. identify the weakest link in the production chain

Ans: B

Cognitive Domain: Application (Apply)

Learning Objective: 14-5: Identify the characteristics of a lean supply chain.

Answer Location: Stable Schedules

Difficulty Level: Medium

AACSB: Application of knowledge (able to translate knowledge of business and management into practice)

37. Takt\_\_\_\_\_\_.

a. is the French word for “production level”

b. represents the production cycle

c. represents the marketing cycle

d. represents the audit cycle

Ans: B

Cognitive Domain: Application (Apply)

Learning Objective: 14-5: Identify the characteristics of a lean supply chain.

Answer Location: Stable Schedules

Difficulty Level: Medium

AACSB: Application of knowledge (able to translate knowledge of business and management into practice)

38. Safety stock \_\_\_\_\_\_.

a. is the minimal level of inventory that a company seeks to maintain a buffer against the mismatch between forecasted and actual demand

b. is the level of finished products that a company maintains to take advantage of demand in new markets

c. is the level of finished products that a company maintains to ensure it is safe from government inspection

d. is the level of finished products that a company needs to manufacture to ensure the price is protected from increase or decrease

Ans: A

Cognitive Domain: Application (Apply)

Learning Objective: 14-5: Identify the characteristics of a lean supply chain.

Answer Location: Stable Schedules

Difficulty Level: Medium

AACSB: Application of knowledge (able to translate knowledge of business and management into practice)

39. A mixed-model production cycle \_\_\_\_\_\_.

a. refers to the production of the same mix of products every day in small quantities

b. was pioneered by General Electric

c. is synonymous with Henry Ford’s assembly line

d. makes use of the concept of interchangeable parts

Ans: A

Cognitive Domain: Application (Apply)

Learning Objective: 14-5: Identify the characteristics of a lean supply chain.

Answer Location: Stable Schedules

Difficulty Level: Medium

AACSB: Application of knowledge (able to translate knowledge of business and management into practice)

40. In a production process, internal setup requires \_\_\_\_\_\_.

a. machinery to be stopped

b. new raw materials

c. retraining of employees

d. adherence to price controls

Ans: C

Cognitive Domain: Application (Apply)

Learning Objective: 14-5: Identify the characteristics of a lean supply chain.

Answer Location: Faster Setup Times

Difficulty Level: Medium

AACSB: Application of knowledge (able to translate knowledge of business and management into practice)

41. Which of the following does not refer to external setups?

a. can be completed outside of the process

b. do not require machinery to be stopped

c. do not require the process to be shut down

d. do not require the retraining of employees

Ans: D

Cognitive Domain: Application (Apply)

Learning Objective: 14-5: Identify the characteristics of a lean supply chain.

Answer Location: Faster Setup Times

Difficulty Level: Medium

AACSB: Application of knowledge (able to translate knowledge of business and management into practice)

42. Group technology (GT) \_\_\_\_\_\_.

a. addresses the need for product variety

b. facilitates mass consumption

c. increases the cost per unit of product

d. eliminates the need for quality control

Ans: A

Cognitive Domain: Application (Apply)

Learning Objective: 14-5: Identify the characteristics of a lean supply chain.

Answer Location: Faster Setup Times

Difficulty Level: Medium

AACSB: Application of knowledge (able to translate knowledge of business and management into practice)

43. Kanban\_\_\_\_\_\_.

a. means level production

b. is a visual signal used to tell workers when it is time to get or make more of something

c. is a visual signal used to tell workers when it is time for lunch

d. is used in the push production system

Ans: B

Cognitive Domain: Application (Apply)

Learning Objective: 14-5: Identify the characteristics of a lean supply chain.

Answer Location: Faster Setup Times

Difficulty Level: Easy

AACSB: Application of knowledge (able to translate knowledge of business and management into practice)

44. The Kanban system \_\_\_\_\_\_.

a. can be used to coordinate suppliers and not just manufacturing plants

b. allows firms to control the flow of resources in a production process by anticipating demand for parts

c. is based on forecasting of demand

d. is based on forecasting of supply

Ans: A

Cognitive Domain: Application (Apply)

Learning Objective: 14-5: Identify the characteristics of a lean supply chain.

Answer Location: Faster Setup Times

Difficulty Level: Easy

AACSB: Application of knowledge (able to translate knowledge of business and management into practice)

45. During the backflush process, \_\_\_\_\_\_.

a. parts that go into each unit of the product are removed from inventory

b. parts that go into each unit of the product are scrapped or refurbished

c. workers make sure of part interchangeability

d. workers confirm that parts are within tolerances specified

Ans: A

Cognitive Domain: Application (Apply)

Learning Objective: 14-5: Identify the characteristics of a lean supply chain.

Answer Location: Kanban Systems

Difficulty Level: Easy

AACSB: Application of knowledge (able to translate knowledge of business and management into practice)

46. A prerequisite for setting up a Kanban control system is \_\_\_\_\_\_.

a. determining the number of Kanban cards and containers

b. determining the design of the Kanban cards

c. determining whether the Kanban card is going to be used with MTO or ETO

d. determining the color of the Kanban cards

Ans: A

Cognitive Domain: Application (Apply)

Learning Objective: 14-5: Identify the characteristics of a lean supply chain.

Answer Location: Kanban Systems

Difficulty Level: Easy

AACSB: Application of knowledge (able to translate knowledge of business and management into practice)

47. *Lot size* refers to \_\_\_\_\_\_.

a. the number of square feet occupied by the manufacturing facility

b. the predetermined quantity of an item that is purchased from a supplier

c. the location of the parking area within the manufacturing facility

d. the number of units ordered by a given customer

Ans: B

Cognitive Domain: Application (Apply)

Learning Objective: 14-5: Identify the characteristics of a lean supply chain.

Answer Location: Kanban Systems

Difficulty Level: Easy

AACSB: Application of knowledge (able to translate knowledge of business and management into practice)

48. In determining the correct number of Kanban containers, which of the following is NOT a relevant consideration?

a. processing time for the container

b. waiting time during production

c. transportation time to the shipping area

d. cost of storage of the finished product

Ans: D

Cognitive Domain: Application (Apply)

Learning Objective: 14-5: Identify the characteristics of a lean supply chain.

Answer Location: Kanban Systems

Difficulty Level: Easy

AACSB: Application of knowledge (able to translate knowledge of business and management into practice)

49. Which of the following is NOT the result of reducing inventory and its locations?

a. reducing waste

b. streamlining operations

c. simplifying the steps workers need to take

d. reducing sustainability

Ans: D

Cognitive Domain: Application (Apply)

Learning Objective: 14-5: Identify the characteristics of a lean supply chain.

Answer Location: Reduced Inventory

Difficulty Level: Easy

AACSB: Application of knowledge (able to translate knowledge of business and management into practice)

50. To achieve large inventory savings, you need \_\_\_\_\_\_.

a. an annual replenishment system

b. large shipments of purchased materials and components

c. frequent shipments of purchased materials and components

d. a smaller number of units to be produced and sold

Ans: C

Cognitive Domain: Application (Apply)

Learning Objective: 14-5: Identify the characteristics of a lean supply chain.

Answer Location: Reduced Inventory

Difficulty Level: Easy

AACSB: Application of knowledge (able to translate knowledge of business and management into practice)

51. Which of the following is NOT a factor that makes it easier to implement lean in a service delivery system?

a. the extent to which the service delivery system can be standardized

b. the frequency at which services are delivered

c. the consistency of services that are delivered

d. the cost of services that are delivered

Ans: D

Cognitive Domain: Application (Apply)

Learning Objective: 14-4: Apply lean ideas to service operations.

Answer Location: Lean Services

Difficulty Level: Easy

AACSB: Application of knowledge (able to translate knowledge of business and management into practice)

52. Which of the following is NOT one of the principles a service operation should follow to create a lean system?

a. Pinpoint the value of the service offer.

b. Identify the service’s value stream.

c. Improve the flow of the service.

d. Design process to meet customer requirements.

Ans: D

Cognitive Domain: Application (Apply)

Learning Objective: 14-4: Apply lean ideas to service operations.

Answer Location: Lean Services

Difficulty Level: Easy

AACSB: Application of knowledge (able to translate knowledge of business and management into practice)

53. Which of the following is NOT a type of flow common to all supply chains?

a. product and service flows

b. information flows

c. financial flows

d. product returns flows

Ans: D

Cognitive Domain: Application (Apply)

Learning Objective: 14-4: Apply lean ideas to service operations.

Answer Location: Characteristics of Lean Supply Chain

Difficulty Level: Easy

AACSB: Application of knowledge (able to translate knowledge of business and management into practice)

54. Features of lean relationships in supply chain management include \_\_\_\_\_\_.

a. fewer suppliers

b. increase in number of employees

c. reduced sustainability

d. increase in cash flows

Ans: A

Cognitive Domain: Application (Apply)

Learning Objective: 14-4: Apply lean ideas to service operations.

Answer Location: Full Collaboration Among the Supply Chain’s Partners

Difficulty Level: Easy

AACSB: Application of knowledge (able to translate knowledge of business and management into practice)

55. Information with regard to actual and forecasted customer demand, market opportunities, and responsibilities should be \_\_\_\_\_\_.

a. restricted

b. sold

c. transparent

d. subject to government regulation

Ans: C

Cognitive Domain: Application (Apply)

Learning Objective: 14-4: Apply lean ideas to service operations.

Answer Location: Transparent Information

Difficulty Level: Easy

AACSB: Application of knowledge (able to translate knowledge of business and management into practice)

56. In lean logistics, a milk run approach involves \_\_\_\_\_\_.

a. making right turns only when driving trucks

b. making multiple drop-offs

c. using full truckloads in transportation

d. avoiding of water transport

Ans: B

Cognitive Domain: Application (Apply)

Learning Objective: 14-4: Apply lean ideas to service operations.

Answer Location: Lean Logistics

Difficulty Level: Easy

AACSB: Application of knowledge (able to translate knowledge of business and management into practice)

57. Cross-docking \_\_\_\_\_\_.

a. can reduce handling and storage costs

b. reduce cycle times

c. increase requirements for intermediate storage

d. reduce sustainability

Ans: A

Cognitive Domain: Application (Apply)

Learning Objective: 14-4: Apply lean ideas to service operations.

Answer Location: Lean Logistics

Difficulty Level: Easy

AACSB: Application of knowledge (able to translate knowledge of business and management into practice)

58. VMI\_\_\_\_\_\_.

a. stands for vendor-managed inventory

b. is a process in which inventory is completely eliminated

c. incorporates the push concept

d. makes it easier to meet quality control requirements

Ans: A

Cognitive Domain: Application (Apply)

Learning Objective: 14-4: Apply lean ideas to service operations.

Answer Location: Lean Logistics

Difficulty Level: Easy

AACSB: Application of knowledge (able to translate knowledge of business and management into practice)

59. 3PL is associated with \_\_\_\_\_\_.

a. improving the efficiency of product flows

b. requiring the manufacturer to focus on its core competencies

c. improving the quality of manufactured products

d. the service industry only

Ans: A

Cognitive Domain: Application (Apply)

Learning Objective: 14-4: Apply lean ideas to service operations.

Answer Location: Lean Logistics

Difficulty Level: Easy

AACSB: Application of knowledge (able to translate knowledge of business and management into practice)

60. A supplier park \_\_\_\_\_\_,

a. is a solution to the physical separation of suppliers from the manufacturer

b. is particularly appropriate for areas with sparse populations

c. is one way to improve the quality of manufactured products

d. can lead to price increases

Ans: A

Cognitive Domain: Application (Apply)

Learning Objective: 14-4: Apply lean ideas to service operations.

Answer Location: Lean Logistics

Difficulty Level: Easy

AACSB: Application of knowledge (able to translate knowledge of business and management into practice)

61. Which of the following performance metrics is NOT correctly associated with its description?

a. time metrics—the amount of time to process an order, the transportation time, and similar variables

b. efficiency metrics—evaluate inventory turnover or days of inventory on hand, as well as capacity and capital usage

c. effectiveness metrics—evaluate the percentage of orders delivered on time and customer satisfaction metrics, such as number of customer complaints and percentage of returned items

d. liquidity metrics—employee turnover, absenteeism rates

Ans: D

Cognitive Domain: Application (Apply)

Learning Objective: 14-4: Apply lean ideas to service operations.

Answer Location: Performance Measurement and Continuous Improvement

Difficulty Level: Easy

AACSB: Application of knowledge (able to translate knowledge of business and management into practice)

62. Metrics often used to monitor the performance of lean supply chains include \_\_\_\_\_\_.

a. days of inventory on hand

b. return on investment

c. employee turnover

d. absenteeism rates

Ans: A

Cognitive Domain: Application (Apply)

Learning Objective: 14-4: Apply lean ideas to service operations.

Answer Location: Performance Measurement and Continuous Improvement

Difficulty Level: Easy

AACSB: Application of knowledge (able to translate knowledge of business and management into practice)

63. CTP\_\_\_\_\_\_.

a. stands for a cost-time-profile map

b. tracks whether value is added at each step in the production process

c. tracks the quality of production at each step in the production process

d. tracks the quantity of production at each step in the production process

Ans: A

Cognitive Domain: Application (Apply)

Learning Objective: 14-4: Apply lean ideas to service operations.

Answer Location: Performance Measurement and Continuous Improvement

Difficulty Level: Easy

AACSB: Application of knowledge (able to translate knowledge of business and management into practice)

64. Making global supply chains lean \_\_\_\_\_\_.

a. is difficult because it requires coordination to establish the rapid flow of goods and information

b. is easy because annual deliveries required for JIT inventory management are easy to achieve

c. is inexpensive because there is no need for safety stock

c. reduces the need for quality control

Ans: A

Cognitive Domain: Application (Apply)

Learning Objective: 14-6: Explain why it is so difficult to make global supply chains lean.

Answer Location: Lean Global Supply Chains

Difficulty Level: Easy

AACSB: Application of knowledge (able to translate knowledge of business and management into practice)

65. Which of the following statements is true with regard to JIT in global supply chains?

a. Shipping numerous small quantities of products is less cost-effective over long distances.

b. Communication is not as important as it is replaced by Kanban.

c. JIT can increase the number of suppliers.

d. JIT can decrease the quality of goods supplied.

Ans: A

Cognitive Domain: Application (Apply)

Learning Objective: 14-6: Explain why it is so difficult to make global supply chains lean.

Answer Location: Lean Global Supply Chains

Difficulty Level: Easy

AACSB: Application of knowledge (able to translate knowledge of business and management into practice)

66. Which of the following is not a consequence of incorporating lean in a global supply chain?

a. JIT and low inventories

b. reduction of defects

c. reduction of engineering change orders

d. following design-for-manufacturing principles

Ans: A

Cognitive Domain: Application (Apply)

Learning Objective: 14-6: Explain why it is so difficult to make global supply chains lean.

Answer Location: Lean Global Supply Chains

Difficulty Level: Easy

AACSB: Application of knowledge (able to translate knowledge of business and management into practice)

67. Which of the following is a consequence of having a global supply chain?

a. reduction in communication problems

b. increase in speed of delivery of supplies

c. better quality control because of easy supervision

d. longer lead times

Ans: D

Cognitive Domain: Application (Apply)

Learning Objective: 14-6: Explain why it is so difficult to make global supply chains lean.

Answer Location: Lean Global Supply Chains

Difficulty Level: Easy

AACSB: Application of knowledge (able to translate knowledge of business and management into practice)

68. Different activities in a global supply chain \_\_\_\_\_\_.

a. are of equal importance in the value they add

b. may need to be traded—one against the other—to help managers prioritize

c. can be avoided by doing all activities in-house

d. none of these

Ans: B

Cognitive Domain: Application (Apply)

Learning Objective: 14-6: Explain why it is so difficult to make global supply chains lean.

Answer Location: Lean Global Supply Chains

Difficulty Level: Easy

AACSB: Application of knowledge (able to translate knowledge of business and management into practice)

69. Environmentally sustainable practices \_\_\_\_\_\_.

a. are a natural extension of lean

b. are inconsistent with lean practices

c. increase the challenges in applying lean principles

d. are a substitute for lean practices

Ans: A

Cognitive Domain: Application (Apply)

Learning Objective: 14-6: Explain why it is so difficult to make global supply chains lean.

Answer Location: Sustainability Issues

Difficulty Level: Easy

AACSB: Application of knowledge (able to translate knowledge of business and management into practice)

70. Which of the following is a lean initiative that is consistent with sustainability practices?

a. increase in use of raw materials

b. avoiding overproduction

c. increased frequency of quality inspections

d. employing more quality control personnel

Ans: B

Cognitive Domain: Application (Apply)

Learning Objective: 14-6: Explain why it is so difficult to make global supply chains lean.

Answer Location: Sustainability Issues

Difficulty Level: Easy

AACSB: Application of knowledge (able to translate knowledge of business and management into practice)

71. Which of the following is a lean initiative that is consistent with sustainability practices?

a. increase in use of raw materials

b. reducing transportation requirements

c. increased frequency of quality inspections

d. employing more quality control personnel

Ans: B

Cognitive Domain: Application (Apply)

Learning Objective: 14-6: Explain why it is so difficult to make global supply chains lean.

Answer Location: Sustainability Issues

Difficulty Level: Easy

AACSB: Application of knowledge (able to translate knowledge of business and management into practice)

72. Which of the following is a lean initiative that is consistent with sustainability practices?

a. increase in waiting time

b. less excess inventory

c. increased frequency of quality inspections

d. employing more quality control personnel

Ans: B

Cognitive Domain: Application (Apply)

Learning Objective: 14-6: Explain why it is so difficult to make global supply chains lean.

Answer Location: Sustainability Issues

Difficulty Level: Easy

AACSB: Application of knowledge (able to translate knowledge of business and management into practice)

73. Which of the following is NOT consistent with lean practices?

a. reduced waiting

b. reducing transportation

c. minimizing overproduction

d. excess motion

Ans: D

Cognitive Domain: Application (Apply)

Learning Objective: 14-6: Explain why it is so difficult to make global supply chains lean.

Answer Location: Sustainability Issues

Difficulty Level: Easy

AACSB: Application of knowledge (able to translate knowledge of business and management into practice)

74. Which of the following is NOT true with regard to lean and sustainability?

a. Lean implementation supports a company’s desire to act in an ethically responsible manner.

b. Lean systems foster waste elimination.

c. Lean implementation can cause discomfort and stress among some employees.

d. Lean systems encourage continuous improvement.

Ans: C

Cognitive Domain: Application (Apply)

Learning Objective: 14-6: Explain why it is so difficult to make global supply chains lean.

Answer Location: Sustainability Issues

Difficulty Level: Easy

AACSB: Application of knowledge (able to translate knowledge of business and management into practice)

75. Implementing lean \_\_\_\_\_\_.

a. may lead to increase in payroll costs

b. may cause stress and discomfort for some employees

c. may lead to usage of additional materials and resources

d. may reduce production quality levels

Ans: B

Cognitive Domain: Application (Apply)

Learning Objective: 14-6: Explain why it is so difficult to make global supply chains lean.

Answer Location: Sustainability Issues

Difficulty Level: Easy

AACSB: Application of knowledge (able to translate knowledge of business and management into practice)

76. Possible ways by which a company can overcome the adverse impact of lean on employees include \_\_\_\_\_\_.

a. guaranteeing the jobs of those employees who are dedicated and willing to go through additional training to support lean implementation

b. assuring employees that their jobs will not be affected even if they are completely incompetent

c. threatening employees with government-approved sanctions

d. advising employees who remain that their salary will be doubled

Ans: A

Cognitive Domain: Application (Apply)

Learning Objective: 14-6: Explain why it is so difficult to make global supply chains lean.

Answer Location: Sustainability Issues

Difficulty Level: Easy

AACSB: Application of knowledge (able to translate knowledge of business and management into practice)

77. Lean operations \_\_\_\_\_\_.

a. include just-in-time (JIT) practices

b. is a philosophy of radical improvement

c. benefit all employees in an organization

d. are easy to implement in a global supply chain

Ans: A

Cognitive Domain: Application (Apply)

Learning Objective: 14-6: Explain why it is so difficult to make global supply chains lean.

Answer Location: Chapter Summary: 14.1. Define what lean operations are.

Difficulty Level: Easy

AACSB: Application of knowledge (able to translate knowledge of business and management into practice)

78. Lean operations \_\_\_\_\_\_.

a. have the goal of eliminating waste of any kind

b. impact manufacturing but not service organizations

c. produce only short-term benefits

d. are required for ISO certification

Ans: A

Cognitive Domain: Application (Apply)

Learning Objective: 14-6: Explain why it is so difficult to make global supply chains lean.

Answer Location: Chapter Summary 14.1. Define what lean operations are.

Difficulty Level: Easy

AACSB: Application of knowledge (able to translate knowledge of business and management into practice)

79. Which of the following is NOT one of the tenets of the philosophy of lean?

a. promoting respect for people

b. eliminating waste and inefficiency

c. commitment to the 5S model

d. terminating those employees who are below average in productivity

Ans: D

Cognitive Domain: Application (Apply)

Learning Objective: 14-6: Explain why it is so difficult to make global supply chains lean.

Answer Location: Chapter Summary 14.1. Describe the philosophy of lean systems.

Difficulty Level: Easy

AACSB: Application of knowledge (able to translate knowledge of business and management into practice)

80. Characteristics of a lean supply chain include \_\_\_\_\_\_.

a. full collaboration of all supply chain partners

b. reduction in the transparency of information pertaining to supply chain operations

c. increase in inspection of raw materials obtained

d. increase in number of employees

Ans: A

Cognitive Domain: Application (Apply)

Learning Objective: 14-6: Explain why it is so difficult to make global supply chains lean.

Answer Location: Chapter Summary 14.5. Identify the characteristics of a lean supply chain.

Difficulty Level: Easy

AACSB: Application of knowledge (able to translate knowledge of business and management into practice)

81. Characteristics of a lean supply chain include \_\_\_\_\_\_.

a. greater frequency of quality inspections

b. vendor-managed inventory

c. increased amount of rework

d. increased quantity of scrapped materials

Ans: B

Cognitive Domain: Application (Apply)

Learning Objective: 14-6: Explain why it is so difficult to make global supply chains lean.

Answer Location: Chapter Summary 14.5. Identify the characteristics of a lean supply chain.

Difficulty Level: Easy

AACSB: Application of knowledge (able to translate knowledge of business and management into practice)

82. The number of Kanbans should be such that \_\_\_\_\_\_.

a. expected demand during lead time plus safety stock requirements must be met

b. only expected demand during lead time must be met

c. only safety stock requirements must be met

d. ISO specifications are satisfied

Ans: A

Cognitive Domain: Application (Apply)

Learning Objective: 14-3: Outline the elements of lean operations systems.

Answer Location: Example 14.1 Solution

Difficulty Level: Easy

AACSB: Application of knowledge (able to translate knowledge of business and management into practice)

83. The firm’s best source for spotting problems and ensuring quality \_\_\_\_\_\_.

a. is its management

b. is the quality control inspector

c. line workers

d. third-party audits

Ans: C

Cognitive Domain: Application (Apply)

Learning Objective: 14-2: Describe the philosophy of lean systems.

Answer Location: The Philosophy of Lean Systems

Difficulty Level: Easy

AACSB: Application of knowledge (able to translate knowledge of business and management into practice)

84. The unreasonable work managers impose on people and machines because of the poor design of systems is known as \_\_\_\_\_\_.

a. muri

b. mura

c. muda

d. poke yoke

Ans: C

Cognitive Domain: Application (Apply)

Learning Objective: 14-2: Describe the philosophy of lean systems.

Answer Location: The Philosophy of Lean Systems

Difficulty Level: Easy

AACSB: Application of knowledge (able to translate knowledge of business and management into practice)

85. Unevenness in the production process, out-of-balance workflows, and uneven workloads are referred to as \_\_\_\_\_\_.

a. muri

b. mura

c. muda

d. heijunka

Ans: B

Cognitive Domain: Application (Apply)

Learning Objective: 14-2: Describe the philosophy of lean systems.

Answer Location: The Philosophy of Lean Systems

Difficulty Level: Easy

AACSB: Application of knowledge (able to translate knowledge of business and management into practice)

86. The waste that occurs from any variation in output as a result of poorly planned and designed systems is referred to as \_\_\_\_\_\_.

a. muri

b. mura

c. muda

d. kaizen

Ans: C

Cognitive Domain: Application (Apply)

Learning Objective: 14-2: Describe the philosophy of lean systems.

Answer Location: The Philosophy of Lean Systems

Difficulty Level: Easy

AACSB: Application of knowledge (able to translate knowledge of business and management into practice)

87. Examples of mura include \_\_\_\_\_\_.

a. production delays that waste the time of personnel

b. idle downstream resources when a product is not moving or being processed

c. unevenness in the production process, out-of-balance workflows, and uneven workloads

d. production required to meet government or ISO requirements

Ans: C

Cognitive Domain: Application (Apply)

Learning Objective: 14-2: Describe the philosophy of lean systems.

Answer Location: The Philosophy of Lean Systems

Difficulty Level: Easy

AACSB: Application of knowledge (able to translate knowledge of business and management into practice)

88. Delivery of inputs to storage facilities prior to their use \_\_\_\_\_\_.

a. can contribute to increased potential for damage to inputs

b. is an example of mura

c. reduces cost of production

d. can contribute to overproduction

Ans: A

Cognitive Domain: Application (Apply)

Learning Objective: 14-2: Describe the philosophy of lean systems.

Answer Location: The Philosophy of Lean Systems

Difficulty Level: Easy

AACSB: Application of knowledge (able to translate knowledge of business and management into practice)

89. Rework leads to additional inspection costs, yield losses, and the loss of goodwill on the part of customers. This is an example of \_\_\_\_\_\_.

a. mura

b. muda

c. heijunka

d. poke yoke

Ans: B

Cognitive Domain: Application (Apply)

Learning Objective: 14-2: Describe the philosophy of lean systems.

Answer Location: The Philosophy of Lean Systems

Difficulty Level: Easy

AACSB: Application of knowledge (able to translate knowledge of business and management into practice)

90. Overproduction\_\_\_\_\_\_.

a. contributes to unnecessary inventory

b. contributes to shorter lead times

c. is an example of eagerness to serve the market

d. supports the idea of sustainability

Ans: A

Cognitive Domain: Application (Apply)

Learning Objective: 14-2: Describe the philosophy of lean systems.

Answer Location: The Philosophy of Lean Systems

Difficulty Level: Easy

AACSB: Application of knowledge (able to translate knowledge of business and management into practice)

91. In which step of 5S do we “organize and arrange items in the work area into a logical pattern of work operations or simplified set of motions for the worker”?

a. sort

b. straighten

c. sustain

d. standardize

Ans: B

Cognitive Domain: Application (Apply)

Learning Objective: 14-2: Describe the philosophy of lean systems.

Answer Location: The Philosophy of Lean Systems

Difficulty Level: Easy

AACSB: Application of knowledge (able to translate knowledge of business and management into practice)

92. In the *standardize* step of 5S, we \_\_\_\_\_\_.

a. ensure that all activities conform to ISO specifications

b. eliminate variation from the workflow by establishing operating procedures

c. create a place for each item in the workplace

d. make extensive use of Red Tags

Ans: B

Cognitive Domain: Application (Apply)

Learning Objective: 14-2: Describe the philosophy of lean systems.

Answer Location: The Philosophy of Lean Systems

Difficulty Level: Easy

AACSB: Application of knowledge (able to translate knowledge of business and management into practice)

93. The Western saying “If it ain’t broke, don’t fix it” is the antithesis of \_\_\_\_\_\_.

a. jidoka

b. heijunka

c. kaizen

d. poke yoke

Ans: C

Cognitive Domain: Application (Apply)

Learning Objective: 14-2: Describe the philosophy of lean systems.

Answer Location: The Philosophy of Lean Systems

Difficulty Level: Easy

AACSB: Application of knowledge (able to translate knowledge of business and management into practice)

94. One tool to visually identify and pinpoint waste is \_\_\_\_\_\_.

a. a value stream map

b. a histogram

c. a process map

d. a Pareto chart

Ans: A

Cognitive Domain: Application (Apply)

Learning Objective: 14-2: Describe the philosophy of lean systems.

Answer Location: Value Stream Mapping (VSM)

Difficulty Level: Easy

AACSB: Application of knowledge (able to translate knowledge of business and management into practice)

95. Which of the following is considered to be both a communication tool and a business-planning tool?

a. a memorandum of understanding

b. a histogram

c. a value stream map

d. demand forecasting

Ans: C

Cognitive Domain: Application (Apply)

Learning Objective: 14-2: Describe the philosophy of lean systems.

Answer Location: Value Stream Mapping (VSM)

Difficulty Level: Easy

AACSB: Application of knowledge (able to translate knowledge of business and management into practice)

96. Which of the following is NOT a task involved in order processing and delivery?

a. supplier liaison

b. inventory management

c. reverse logistics

d. packaging and shipping

Ans: C

Cognitive Domain: Application (Apply)

Learning Objective: 14-2: Describe the philosophy of lean systems.

Answer Location: Value Stream Mapping (VSM)

Difficulty Level: Easy

AACSB: Application of knowledge (able to translate knowledge of business and management into practice)

97. Lean and Six Sigma \_\_\_\_\_\_.

a. are pretty much the same thing

b. are both required to reduce waste and add value

c. are now jointly referred to as Six Lean Sigma

d. evolved at the same time

Ans: B

Cognitive Domain: Application (Apply)

Learning Objective: 14-2: Describe the philosophy of lean systems.

Answer Location: Lean Six Sigma

Difficulty Level: Easy

AACSB: Application of knowledge (able to translate knowledge of business and management into practice)

98. Lean approaches \_\_\_\_\_\_.

a. focus on reducing cost

b. optimize the manufacturing process

c. eliminate waste

d. ensure conformity to ISO requirements

Ans: C

Cognitive Domain: Application (Apply)

Learning Objective: 14-2: Describe the philosophy of lean systems.

Answer Location: Lean Six Sigma

Difficulty Level: Easy

AACSB: Application of knowledge (able to translate knowledge of business and management into practice)

99. Six Sigma focuses on \_\_\_\_\_\_.

a. meeting customer requirements and stakeholder expectations

b. eliminating waste and improving process flow

c. identifying the value stream

d. the pull approach in manufacturing

Ans: A

Cognitive Domain: Application (Apply)

Learning Objective: 14-2: Describe the philosophy of lean systems.

Answer Location: Lean Six Sigma

Difficulty Level: Easy

AACSB: Application of knowledge (able to translate knowledge of business and management into practice)

100. Which of the following is NOT an area in which Lean Six Sigma has been applied?

a. the improvement of business operations

b. the introduction of product and process innovations

c. the improvement of business models

d. the implementation of creative thinking

Ans: D

Cognitive Domain: Application (Apply)

Learning Objective: 14-2: Describe the philosophy of lean systems.

Answer Location: Lean Six Sigma

Difficulty Level: Easy

AACSB: Application of knowledge (able to translate knowledge of business and management into practice)