**Chapter 16: Inventory Control Models**

**Test Bank**

**Multiple Choice**

1. A fundamental question in inventory management is \_\_\_\_\_\_.

a. how much to order or produce

b. what product features to offer

c. at what price the product should be sold

d. what sort of packaging is required

Ans: A

Cognitive Domain: Knowledge (Remember)

Learning Objective: 16-1. Describe the Basic Economic Order Quantity (EOQ) model, its assumptions, and use the model to solve problems.

Answer Location: Introduction

Difficulty Level: Easy

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

2. Which of the following is NOT a type of inventory control system?

a. continuous review systems

b. periodic review systems

c. single-period systems

d. constant replenishment systems

Ans: D

Cognitive Domain: Knowledge (Remember)

Learning Objective: 16-1. Describe the Basic Economic Order Quantity (EOQ) model, its assumptions, and use the model to solve problems.

Answer Location: Introduction

Difficulty Level: Easy

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

3. Independent demand items are \_\_\_\_\_\_.

a. products in demand in countries that have declared their independence

b. products whose demand does not depend on demand for other finished products

c. products that are in demand irrespective of the price of the product

d. products that are in demand irrespective of the quality of the product

Ans: B

Cognitive Domain: Knowledge (Remember)

Learning Objective: 16-1. Describe the Basic Economic Order Quantity (EOQ) model, its assumptions, and use the model to solve problems.

Answer Location: Introduction

Difficulty Level: Easy

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

4. Which of the following is NOT likely to have independent demand?

a. TVs

b. tires

c. cars

d. iPhones

Ans: B

Cognitive Domain: Knowledge (Remember)

Learning Objective: 16-1. Describe the Basic Economic Order Quantity (EOQ) model, its assumptions, and use the model to solve problems.

Answer Location: Introduction

Difficulty Level: Easy

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

5. If the production schedule calls for assembly of 500 motorcycles, then the 1,000 wheels and 1,000 tires that are required to produce the 500 motorcycles are \_\_\_\_\_\_.

a. classified as dependent demand items

b. classified as independent demand items

c. classified as inelastic demand items

d. classified as inelastic supply items

Ans: A

Cognitive Domain: Knowledge (Remember)

Learning Objective: 16-1. Describe the Basic Economic Order Quantity (EOQ) model, its assumptions, and use the model to solve problems.

Answer Location: Introduction

Difficulty Level: Easy

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

6. If we are ordering materials from an outside vendor, then the total inventory-related cost on an annual basis is given by the sum of \_\_\_\_\_\_.

a. total annual ordering cost, total annual holding cost, total annual stock-out cost, total annual materials purchase cost

b. total annual setup cost, total annual holding cost, total annual stock-out cost, total annual materials purchase cost

c. total annual ordering cost, total annual holding cost, total annual safety stock cost, total annual materials purchase cost

d. total annual setup cost, total annual holding cost, total annual safety stock cost, total annual materials purchase cost

Ans: A

Cognitive Domain: Knowledge (Remember)

Learning Objective: 16-1. Describe the Basic Economic Order Quantity (EOQ) model, its assumptions, and use the model to solve problems.

Answer Location: How Much to Order: Continuous Review Systems

Difficulty Level: Easy

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

7. Which of the following is NOT a model used to determine the best order size?

a. the economic order quantity (EOQ) model

b. the economic production quantity (EPQ) model

c. the annual stocking model

d. the quantity discount model

Ans: C

Cognitive Domain: Knowledge (Remember)

Learning Objective: 16-1. Describe the Basic Economic Order Quantity (EOQ) model, its assumptions, and use the model to solve problems.

Answer Location: How Much to Order: Continuous Review Systems

Difficulty Level: Easy

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

8. One of the assumptions of the EPQ (Economic Production Quantity) model is \_\_\_\_\_\_.

a. that there are several different products involved

b. that production runs to replenish inventory occur at regular intervals

c. that the lead time for the receipt of orders varies depending on the order

d. that there are large discounts available at higher volumes

Ans: B

Cognitive Domain: Knowledge (Remember)

Learning Objective: 16-2. Utilize the Economic Production Quantity (EPQ) to solve problems.

Answer Location: Economic Production Quantity (EPQ) Model

Difficulty Level: Medium

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

9. One of the assumptions of the EOQ (Economic Production Quantity) model is \_\_\_\_\_\_.

a. that there are several different products involved

b. that production runs to replenish inventory occur at regular intervals.

c. that the lead time for the receipt of orders varies depending on the order

d. that there are no quantity discounts available

Ans: D

Cognitive Domain: Knowledge (Remember)

Learning Objective: 16-2. Utilize the Economic Production Quantity (EPQ) to solve problems.

Answer Location: Economic Order Quantity (EOQ) Model

Difficulty Level: Medium

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

10. Which of the following is a difference between the EOQ and the EPQ models?

a. In the EOQ model, additional inventory is received all at once, but not in the EPQ model.

b. In the EOQ model, there are quantity discounts available, but not in the EPQ model.

c. In the EOQ model, lead time is known, but not in the EPQ model.

d. In the EOQ model, shortages are allowed, but not in the EPQ model.

Ans: A

Cognitive Domain: Knowledge (Remember)

Learning Objective: 16-2. Utilize the Economic Production Quantity (EPQ) to solve problems.

Answer Location: Economic Order Quantity (EPQ) Model

Difficulty Level: Hard

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

11. Independent demand items are typically \_\_\_\_\_\_.

a. finished products whose demand is determined by external marketing conditions

b. intermediate products whose demand depends on the demand for finished products

c. raw materials whose demand depends on the demand for finished products

d. semifinished products whose demand depends on the demand for finished products

Ans: A

Cognitive Domain: Knowledge (Remember)

Learning Objective: 16-1. Describe the Basic Economic Order Quantity (EOQ) model, its assumptions, and use the model to solve problems.

Answer Location: Introduction

Difficulty Level: Easy

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

12. Dependent demand items are \_\_\_\_\_\_.

a. those items whose demand depends on the demand for finished products

b. intermediate products whose demand depends on external marketing conditions

c. raw materials whose demand is determined by external marketing conditions

d. semifinished products whose demand is determined by external marketing conditions

Ans: A

Cognitive Domain: Knowledge (Remember)

Learning Objective: 16-1. Describe the Basic Economic Order Quantity (EOQ) model, its assumptions, and use the model to solve problems.

Answer Location: Introduction

Difficulty Level: Easy

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

13. If we are ordering materials from an outside vendor, then the total inventory-related cost on an annual basis is \_\_\_\_\_\_.

a. the sum of (total annual ordering cost) and (total annual holding cost) less the sum of (total annual stock-out cost) and (total annual materials purchase cost)

b. the ratio of the sum of total annual ordering cost and total annual holding cost to the sum of total annual stock-out cost and total annual materials purchase cost

c. the product of the sum of total annual ordering cost and total annual holding cost to the sum of total annual stock-out cost and total annual materials purchase cost

d. the sum of total annual ordering cost + total annual holding cost + total annual stock-out cost + total annual materials purchase cost

Ans: D

Cognitive Domain: Knowledge (Remember)

Learning Objective: 16-1. Describe the Basic Economic Order Quantity (EOQ) model, its assumptions, and use the model to solve problems.

Answer Location: How Much to Order: Continuous Review Systems

Difficulty Level: Easy

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

14. If we are producing the product or component in-house, then the total inventory-related cost on an annual basis is \_\_\_\_\_\_.

a. the sum of total annual setup cost and total annual holding cost less the sum of total annual stock-out cost and total annual materials purchase cost

b. the ratio of the sum of total annual setup cost and total annual holding cost to the sum of total annual stock-out cost and total annual materials purchase cost

c. total annual setup cost + total annual holding cost + total annual stock-out cost + total annual materials purchase cost

d. the product of the sum of total annual setup cost and total annual holding cost to the sum of total annual stock-out cost and total annual materials purchase cost

Ans: C

Cognitive Domain: Knowledge (Remember)

Learning Objective: 16-2. Utilize the Economic Production Quantity (EPQ) to solve problems.

Answer Location: How Much to Order: Continuous Review Systems

Difficulty Level: Easy

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

15. With regard to inventory management, EOQ stands for \_\_\_\_\_\_.

a. economic order quantity

b. easily ordered quantity

c. electronic ordering quantity

d. everlasting online quantity

Ans: A

Cognitive Domain: Knowledge (Remember)

Learning Objective: 16-2. Utilize the Economic Production Quantity (EPQ) to solve problems.

Answer Location: How Much to Order: Continuous Review Systems

Difficulty Level: Easy

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

16. Which of the following is an assumption of the economic order quantity model?

a. Multiple products are involved.

b. Demand is not known.

c. Shortages are allowed.

d. Quantity ordered is received all at once in a single delivery.

Ans: D

Cognitive Domain: Knowledge (Remember)

Learning Objective: 16-1. Describe the Basic Economic Order Quantity (EOQ) model, its assumptions, and use the model to solve problems.

Answer Location: How Much to Order: Continuous Review Systems

Difficulty Level: Easy

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

17. Which of the following is an assumption of the economic order quantity model?

a. Lead time for the receipt of orders is constant and known.

b. Quantity (or volume) discounts are available.

c. Multiple products are involved.

d. Demand is not known.

Ans: A

Cognitive Domain: Knowledge (Remember)

Learning Objective: 16-1. Describe the Basic Economic Order Quantity (EOQ) model, its assumptions, and use the model to solve problems.

Answer Location: How Much to Order: Continuous Review Systems

Difficulty Level: Easy

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

18. In the EOQ model, if shortages are not allowed, then \_\_\_\_\_\_.

a. stock-out costs do not exist

b. stock-out costs are high

c. stock-out costs are low

d. stock-out costs are acceptable

Ans: A

Cognitive Domain: Knowledge (Remember)

Learning Objective: 16-1. Describe the Basic Economic Order Quantity (EOQ) model, its assumptions, and use the model to solve problems.

Answer Location: How Much to Order: Continuous Review Systems

Difficulty Level: Easy

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

19. In the EOQ model, if no quantity discounts are allowed, then \_\_\_\_\_\_.

a. the unit purchase price of the materials is constant because it is unaffected by the quantity ordered

b. the unit purchase price of the materials varies according to the quantity ordered

c. the unit purchase price of the materials varies according to the quality of the materials

d. the unit purchase price of the materials varies depending on the period when materials are ordered

Ans: A

Cognitive Domain: Comprehension (Understand)

Learning Objective: 16-3. Solve problems using the EOQ model with quantity discounts.

Answer Location: How Much to Order: Continuous Review Systems

Difficulty Level: Easy

AACSB: Economic, political, regulatory, legal, technological, and social contexts of organizations in a global society

20. In the EOQ model, if neither shortages nor quantity discounts are allowed, then the total annual cost expression can be simplified to \_\_\_\_\_\_.

a. the product of total annual ordering cost and total annual holding cost

b. the sum of total annual ordering cost and total annual holding cost

c. the difference between total annual ordering cost and total annual holding cost

d. the ratio of total annual ordering cost to total annual holding cost

Ans: B

Cognitive Domain: Knowledge (Remember)

Learning Objective: 16-

Answer Location: How Much to Order: Continuous Review Systems

Difficulty Level: Easy

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

21. In the EOQ model, the optimal order quantity is the amount at which \_\_\_\_\_\_.

a. the total annual ordering costs are at a minimum

b. the total holding costs are at a minimum

c. the sum of the total annual ordering costs and the total annual holding costs is at a minimum

d. the difference between the total annual ordering costs and the total annual holding costs is at a maximum

Ans: C

Cognitive Domain: Knowledge (Remember)

Learning Objective: 16-1. Describe the Basic Economic Order Quantity (EOQ) model, its assumptions, and use the model to solve problems.

Answer Location: How Much to Order: Continuous Review Systems

Difficulty Level: Easy

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

22. In the EOQ model, the optimal order quantity is the amount at which \_\_\_\_\_\_.

a. ordering costs and holding costs are inversely related

b. ordering costs and holding costs are directly related

c. ordering costs and stock-out costs are directly related

d. ordering costs and stock-out costs are inversely related

Ans: A

Cognitive Domain: Knowledge (Remember)

Learning Objective: 16-1. Describe the Basic Economic Order Quantity (EOQ) model, its assumptions, and use the model to solve problems.

Answer Location: How Much to Order: Continuous Review Systems

Difficulty Level: Easy

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

23. In the EOQ model, determining the optimal order quantity requires us to \_\_\_\_\_\_.

a. increase number of orders along with quantity ordered at any time

b. strike a balance between quantity and quality of materials ordered

c. strike a balance between ordering and holding costs

d. increase number of orders depending on the volume discounts provided

Ans: C

Cognitive Domain: Knowledge (Remember)

Learning Objective: 16-1. Describe the Basic Economic Order Quantity (EOQ) model, its assumptions, and use the model to solve problems.

Answer Location: How Much to Order: Continuous Review Systems

Difficulty Level: Easy

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

24. The total annual holding cost is obtained by \_\_\_\_\_\_.

a. multiplying the average inventory level during the year by the average holding cost

b. multiplying the inventory level at the end of the year by the holding cost per unit per year

c. multiplying the inventory level at the beginning of the year by the holding cost per unit per year

d. multiplying the average inventory level during the year by the holding cost per unit per year

Ans: D

Cognitive Domain: Knowledge (Remember)

Learning Objective: 16-1. Describe the Basic Economic Order Quantity (EOQ) model, its assumptions, and use the model to solve problems.

Answer Location: How Much to Order: Continuous Review Systems

Difficulty Level: Easy

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

25. In the EOQ model, if our order quantity is greater than the economic order quantity, then \_\_\_\_\_\_.

a. the annual holding costs will be the same or lower than the annual ordering costs

b. the annual holding costs will be the same as the annual ordering costs

c. the annual holding costs will be higher than the annual ordering costs

d. the annual holding costs will be lower than the annual ordering costs

Ans: C

Cognitive Domain: Knowledge (Remember)

Learning Objective: 16-1. Describe the Basic Economic Order Quantity (EOQ) model, its assumptions, and use the model to solve problems.

Answer Location: How Much to Order: Continuous Review Systems

Difficulty Level: Easy

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

26. In the EOQ model, if our order quantity is less than the economic order quantity, then \_\_\_\_\_\_.

a. the annual ordering costs will be the same or lower than the annual holding costs

b. the annual ordering costs will be the same as the annual holding costs

c. the annual ordering costs will be higher than the annual holding costs

d. the annual ordering costs will be lower than the annual holding costs

Ans: C

Cognitive Domain: Knowledge (Remember)

Learning Objective: 16-1. Describe the Basic Economic Order Quantity (EOQ) model, its assumptions, and use the model to solve problems.

Answer Location: How Much to Order: Continuous Review Systems

Difficulty Level: Easy

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

27. According to the economic order quantity model, if the holding costs are high, then \_\_\_\_\_\_.

a. our order quantities will be smaller to keep our annual holding costs low

b. our order quantities will be higher to keep our annual holding costs low

c. this is an indication that the quantity held in inventory is too high

d. this is an indication of poor inventory management

Ans: A

Cognitive Domain: Knowledge (Remember)

Learning Objective: 16-1. Describe the Basic Economic Order Quantity (EOQ) model, its assumptions, and use the model to solve problems.

Answer Location: How Much to Order: Continuous Review Systems

Difficulty Level: Easy

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

28. Assume that the order quantity is 1000 units, and the holding costs are $5 a unit per year. In this case, \_\_\_\_\_\_.

a. the average inventory level is 500 units, and the total annual holding costs are $2,500

b. the average inventory level is 1,000 units, and the total annual holding costs are $5,000

c. the average inventory level is 0 units, and the total annual holding costs are $5

d. the average inventory level is 500 units, and the total annual holding costs are $5,000

Ans: A

Cognitive Domain: Knowledge (Remember)

Learning Objective: 16-1. Describe the Basic Economic Order Quantity (EOQ) model, its assumptions, and use the model to solve problems.

Answer Location: How Much to Order: Continuous Review Systems

Difficulty Level: Easy

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

29. Assume that the annual demand is 10,000 units and the order quantity per order is 1,000 units, then \_\_\_\_\_\_.

a. there are 10 orders during the year

b. there is one order placed as soon as existing inventory is consumed

c. there is one order placed at the end of each month

d. this is an indicator that this is not a lean operation

Ans: A

Cognitive Domain: Knowledge (Remember)

Learning Objective: 16-1. Describe the Basic Economic Order Quantity (EOQ) model, its assumptions, and use the model to solve problems.

Answer Location: How Much to Order: Continuous Review Systems

Difficulty Level: Easy

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

30. A local distributor for a Belgian chocolate manufacturer expects to sell 12,000 cases of chocolate truffles next year. The annual holding costs for the truffles are $16 per case per year. The ordering cost is $60 per order. The distributor operates 320 days a year. Then \_\_\_\_\_\_.

a. the EOQ is 200

b. the EOQ is 300

c. the EOQ is 400

d. the EOQ is 500

Ans: B

Cognitive Domain: Knowledge (Remember)

Learning Objective: 16-1. Describe the Basic Economic Order Quantity (EOQ) model, its assumptions, and use the model to solve problems.

Answer Location: How Much to Order: Continuous Review Systems

Difficulty Level: Easy

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

31. A local distributor for a Belgian chocolate manufacturer expects to sell 12,000 cases of chocolate truffles next year. The annual holding costs for the truffles are $16 per case per year. The ordering cost is $60 per order. The distributor operates 320 days a year. Then \_\_\_\_\_\_.

a. there will be three orders per month

b. there will be 40 orders per year

c. there will be one order every week

d. there will be two orders every month

Ans: B

Cognitive Domain: Knowledge (Remember)

Learning Objective: 16-1. Describe the Basic Economic Order Quantity (EOQ) model, its assumptions, and use the model to solve problems.

Answer Location: How Much to Order: Continuous Review Systems

Difficulty Level: Easy

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

32. The economic order quantity is given by \_\_\_\_\_\_.

a. the square root of ((2 times demand times ordering costs) divided by holding costs)

b. the square root of (holding costs divided by (2 times demand times ordering costs))

c. the square of ((2 times demand times ordering costs) divided by holding costs)

d. the square of (holding costs divided by (2 times demand times ordering costs))

Ans: A

Cognitive Domain: Knowledge (Remember)

Learning Objective: 16-1. Describe the Basic Economic Order Quantity (EOQ) model, its assumptions, and use the model to solve problems.

Answer Location: How Much to Order: Continuous Review Systems

Difficulty Level: Easy

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

33. In the economic order quantity model, the time between orders is \_\_\_\_\_\_.

a. given by dividing the number of orders by the number of working days in the year

b. given by dividing the demand by the economic order quantity

c. called the length of the order cycle

d. given by the product the number of orders and the number of working days in the year

Ans: C

Cognitive Domain: Knowledge (Remember)

Learning Objective: 16-1. Describe the Basic Economic Order Quantity (EOQ) model, its assumptions, and use the model to solve problems.

Answer Location: How Much to Order: Continuous Review Systems

Difficulty Level: Easy

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

34. In the economic order quantity model, ordering at the economic order quantity level implies that \_\_\_\_\_\_.

a. the total ordering and holding costs are equal

b. the total ordering costs are higher than the total holding costs

c. the total ordering costs are lower than the total holding costs

d. the total ordering costs are not equal to the total holding costs

Ans: A

Cognitive Domain: Knowledge (Remember)

Learning Objective: 16-1. Describe the Basic Economic Order Quantity (EOQ) model, its assumptions, and use the model to solve problems.

Answer Location: How Much to Order: Continuous Review Systems

Difficulty Level: Easy

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

35. A local distributor for a Belgian chocolate manufacturer expects to sell 12,000 cases of chocolate truffles next year. The annual holding costs for the truffles are $16 per case per year. The ordering cost is $60 per order. The distributor operates 320 days a year. In this example, \_\_\_\_\_\_.

a. the total holding costs are given by 12,000 divided by $16

b. the total holding costs are given by 150 times $16

c. the total holding costs are given by 12,000 times $16

d. the total holding costs are given by 300 divided by $16

Ans: B

Cognitive Domain: Knowledge (Remember)

Learning Objective: 16-1. Describe the Basic Economic Order Quantity (EOQ) model, its assumptions, and use the model to solve problems.

Answer Location: How Much to Order: Continuous Review Systems

Difficulty Level: Easy

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

36. Kraus Department Store, located in Chicago, sells 1,700 coffeemakers per year. The purchase price of each coffeemaker is $70. The ordering cost is $90 per order. The holding cost is 30% of the unit purchase price. In this example, the economic order quantity is given by \_\_\_\_\_\_.

a. the square root of ((2 \* 1700 \* 90) / 90))

b. the square root of ((2 \* 1700 \* 90) / 21))

c. the square of ((2 \* 1700 \* 90) / 90))

d. the square of ((2 \* 1700 \* 90) / 21))

Ans: B

Cognitive Domain: Knowledge (Remember)

Learning Objective: 16-1. Describe the Basic Economic Order Quantity (EOQ) model, its assumptions, and use the model to solve problems.

Answer Location: How Much to Order: Continuous Review Systems

Difficulty Level: Easy

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

37. Kraus Department Store, located in Chicago, sells 1,700 coffeemakers per year. The purchase price of each coffeemaker is $70. The ordering cost is $90 per order. The holding cost is 30% of the unit purchase price. In this example, the holding costs are \_\_\_\_\_\_.

a. approximately $2,167

b. approximately $2,535

c. approximately $4,628

d. none of these

Ans: D

Cognitive Domain: Knowledge (Remember)

Learning Objective: 16-1. Describe the Basic Economic Order Quantity (EOQ) model, its assumptions, and use the model to solve problems.

Answer Location: How Much to Order: Continuous Review Systems

Difficulty Level: Easy

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

38. The total cost in the EOQ is \_\_\_\_\_\_.

a. insensitive to minor deviations in the order quantity from the EOQ amount

b. sensitive to minor deviations in the order quantity from the EOQ amount

c. insensitive to major deviations in the order quantity from the EOQ amount

d. sensitive to deviations in the order quantity from the EOQ amount by more than 20%

Ans: A

Cognitive Domain: Knowledge (Remember)

Learning Objective: 16-1. Describe the Basic Economic Order Quantity (EOQ) model, its assumptions, and use the model to solve problems.

Answer Location: How Much to Order: Continuous Review Systems

Difficulty Level: Easy

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

39. Which of the following statements is true with regard to EPQ and EOQ?

a. The economic production quantity (EPQ) model was developed in the 1960s.

b. In the EOQ model, the assumption is that the company will produce the items.

c. The EPQ model assumes that the company will order the items from an outside vendor.

d. The EPQ model is an extension of the EOQ model.

Ans: D

Cognitive Domain: Knowledge (Remember)

Learning Objective: 16-1. Describe the Basic Economic Order Quantity (EOQ) model, its assumptions, and use the model to solve problems.

Answer Location: Economic Production Quantity (EPQ) Model

Difficulty Level: Easy

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

40. Which of the following assumptions is true of the EPQ model?

a. The quantity ordered is delivered all at once.

b. There is considerable variation in the lead time.

c. There are no quantity discounts.

d. The lead time is not known.

Ans: C

Cognitive Domain: Knowledge (Remember)

Learning Objective: 16-2. Utilize the Economic Production Quantity (EPQ) to solve problems.

Answer Location: Economic Production Quantity (EPQ) Model

Difficulty Level: Easy

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

41. Which of the following assumptions is FALSE in the EPQ model?

a. Production runs to replenish inventory occur on a continuous basis.

b. Many products are involved.

c. The demand is known and occurs uniformly and continuously throughout the year.

d. Shortages are allowed.

Ans: C

Cognitive Domain: Knowledge (Remember)

Learning Objective: 16-2. Utilize the Economic Production Quantity (EPQ) to solve problems.

Answer Location: Economic Production Quantity (EPQ) Model

Difficulty Level: Easy

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

42. In the EPQ model, if all the assumptions are true, then the total annual cost associated with the inventory is \_\_\_\_\_\_.

a. the sum of total annual setup cost and the total annual holding cost

b. the sum of total annual setup cost and the total annual ordering cost

c. the sum of total production cost and the total annual ordering cost

d. the sum of total production cost and the total annual holding cost

Ans: A

Cognitive Domain: Knowledge (Remember)

Learning Objective: 16-2. Utilize the Economic Production Quantity (EPQ) to solve problems.

Answer Location: Economic Production Quantity (EPQ) Model

Difficulty Level: Easy

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

43. In the EPQ model, setup costs refer to \_\_\_\_\_\_.

a. the labor costs related to preparing the necessary equipment, changing tools and fixtures on the equipment, cleaning, and so forth

b. the labor costs related to ordering materials, receiving materials, and payment on invoices for materials received

c. the labor costs related to transporting and warehousing materials received

d. the labor costs related to inspecting the quality of materials received

Ans: A

Cognitive Domain: Knowledge (Remember)

Learning Objective: 16-2. Utilize the Economic Production Quantity (EPQ) to solve problems.

Answer Location: Economic Production Quantity (EPQ) Model

Difficulty Level: Easy

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

44. In the EPQ model, \_\_\_\_\_\_.

a. the larger the quantity produced from each production setup, the fewer production runs are needed to meet demand

b. the smaller the quantity produced from each production setup, the fewer production runs are needed to meet demand

c. the larger the quantity produced from each production setup, the fewer production runs are needed to avoid stock outs

d. the smaller the quantity produced from each production setup, the fewer production runs are needed to avoid stock outs

Ans: A

Cognitive Domain: Knowledge (Remember)

Learning Objective: 16-2. Utilize the Economic Production Quantity (EPQ) to solve problems.

Answer Location: Economic Production Quantity (EPQ) Model

Difficulty Level: Easy

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

45. The setup cost to make carpets is $20 per setup. The holding cost is $1.75 per yard per year, and the annual demand is 12,000 yards of carpet per year. The manufacturing facility operates 300 days, and 120 yards of the carpet are produced per day. In this example, \_\_\_\_\_\_.

a. the daily demand rate is 12,000/365

b. the daily demand rate is 12,000/300

c. the daily production rate is 12,000/300

d. the daily production rate is 12,000/300

Ans: B

Cognitive Domain: Knowledge (Remember)

Learning Objective: 16-2. Utilize the Economic Production Quantity (EPQ) to solve problems.

Answer Location: Economic Production Quantity (EPQ) Model

Difficulty Level: Easy

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

46. The economic order quantity (EOQ) model assumes that \_\_\_\_\_\_.

a. the unit purchase price of the item remains constant

b. the unit purchase price of the item varies according to quantity ordered

c. the total purchase costs of items ordered varies according to quantity ordered

d. the average purchase costs of items ordered varies according to quantity ordered

Ans: A

Cognitive Domain: Knowledge (Remember)

Learning Objective: 16-1. Describe the Basic Economic Order Quantity (EOQ) model, its assumptions, and use the model to solve problems.

Answer Location: EOQ Model with Quantity Discounts

Difficulty Level: Easy

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

47. The EOQ formula considers the \_\_\_\_\_\_.

a. ordering costs, holding costs, and quantity discounts

b. holding costs and quantity discounts

c. ordering costs and quantity discounts

d. ordering costs and holding costs

Ans: D

Cognitive Domain: Knowledge (Remember)

Learning Objective: 16-1. Describe the Basic Economic Order Quantity (EOQ) model, its assumptions, and use the model to solve problems.

Answer Location: EOQ Model with Quantity Discounts

Difficulty Level: Easy

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

48. For a certain product, ordering costs are $30 per order, and the holding cost is $15 per case of this product per year. If the projected annual demand is 900 cases, what is the economic order quantity?

a. 40 cases

b. 50 cases

c. 60 cases

d. 70 cases

Ans: C

Cognitive Domain: Knowledge (Remember)

Learning Objective: 16-3. Solve problems using the EOQ model with quantity discounts.

Answer Location: How Much to Order: Continuous Review Systems

Difficulty Level: Easy

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

49. For a particular product, the annual demand is 12,000, the number of working days in the year is 320, and the EOQ is 300. Given this information, which of the following statements is true?

a. The total number of orders per year is 40.

b. The total number of orders per year is 30.

c. The total number of orders per year is 80.

d. The total number of orders per year cannot be calculated.

Ans: A

Cognitive Domain: Analysis (Analyze)

Learning Objective: 16-1. Describe the Basic Economic Order Quantity (EOQ) model, its assumptions, and use the model to solve problems.

Answer Location: How Much to Order: Continuous Review Systems

Difficulty Level: Hard

AACSB: Analytical thinking (able to analyze and frame problems)

50. For a particular product, the annual demand is 12,000, the number of working days in the year is 320, and the EOQ is 300. Given this information, which of the following statements is true?

a. The time between orders is 6.

b. The time between orders is 7.

c. The time between orders is 8.

d. The time between orders cannot be calculated.

Ans: C

Cognitive Domain: Analysis (Analyze)

Learning Objective: 16-1. Describe the Basic Economic Order Quantity (EOQ) model, its assumptions, and use the model to solve problems.

Answer Location: How Much to Order: Continuous Review Systems

Difficulty Level: Hard

AACSB: Analytical thinking (able to analyze and frame problems)

51. For a particular product, the total number of orders per year is 40, the number of working days in the year is 320, and the EOQ is 300. Given this information, which of the following statements is true?

a. The time between orders cannot be calculated.

b. The time between orders is 7.

c. The annual demand is 12,000.

d. The annual demand cannot be calculated.

Ans: C

Cognitive Domain: Analysis (Analyze)

Learning Objective: 16-1. Describe the Basic Economic Order Quantity (EOQ) model, its assumptions, and use the model to solve problems.

Answer Location: How Much to Order: Continuous Review Systems

Difficulty Level: Hard

AACSB: Analytical thinking (able to analyze and frame problems)

52. One of the assumptions of the EPQ model is that:

a. The demand varies throughout the year.

b. Shortages are allowed.

c. Quantity discounts vary over time.

d. The quantity ordered is produced incrementally.

Ans: D

Cognitive Domain: Knowledge (Remember)

Learning Objective: 16-2. Utilize the Economic Production Quantity (EPQ) to solve problems.

Answer Location: Economic Production Quantity (EPQ) Model

Difficulty Level: Easy

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

53. The setup cost to make carpets is $20 per setup. The holding cost is $1.75 per yard per year, and the annual demand is 12,000 yards of carpet per year. The manufacturing facility operates 300 days, and 120 yards of the carpet are produced per day. What is the total annual holding cost under the economic production quantity policy?

a. $374.17

b. $458.26

c. $561.25

d. $1,122.50

Ans: A

Cognitive Domain: Analysis (Analyze)

Learning Objective: 16-2. Utilize the Economic Production Quantity (EPQ) to solve problems.

Answer Location: Economic Production Quantity (EPQ) Model

Difficulty Level: Easy

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

54. The setup cost to make carpets is $20 per setup. The holding cost is $1.75 per yard per year, and the annual demand is 12,000 yards of carpet per year. The manufacturing facility operates 300 days, and 120 yards of the carpet are produced per day. What is the total annual setup cost under the economic production quantity policy?

a. $374.17

b. $458.26

c. $561.25

d. $1,122.50

Ans: A

Cognitive Domain: Analysis (Analyze)

Learning Objective: 16-2. Utilize the Economic Production Quantity (EPQ) to solve problems.

Answer Location: Economic Production Quantity (EPQ) Model

Difficulty Level: Easy

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

55. The optimal order quantity is an amount that minimizes \_\_\_\_\_\_.

a. the sum of the total annual ordering costs and the total annual holding costs

b. the total annual holding costs

c. the total annual ordering costs

d. the difference between the total annual ordering costs and the total annual holding costs

Ans: A

Cognitive Domain: Analysis (Analyze)

Learning Objective: 16-1. Describe the Basic Economic Order Quantity (EOQ) model, its assumptions, and use the model to solve problems.

Answer Location: Figure 16.1: Inventory Replenishment and Depletion Cycle Patterns Over Time

Difficulty Level: Easy

AACSB: Analytical thinking (able to analyze and frame problems)

56. Which of the following statements is true with regard to the order quantity?

a. If the order quantity in each order is large, then fewer orders will be placed, which will result in lower annual holding costs and annual ordering costs.

b. If the order quantity in each order is small, then more orders will be placed, which will result in lower annual holding costs but higher annual ordering costs.

c. If the order quantity in each order is large, then fewer orders will be placed, which will result in higher annual ordering costs and annual holding costs.

d. If the order quantity in each order is small, the fewer orders will be placed, which will result in lower annual ordering costs but higher holding costs.

Ans: B

Cognitive Domain: Analysis (Analyze)

Learning Objective: 16-1. Describe the Basic Economic Order Quantity (EOQ) model, its assumptions, and use the model to solve problems.

Answer Location: Figure 16.1: Inventory Replenishment and Depletion Cycle Patterns Over Time

Difficulty Level: Medium

AACSB: Analytical thinking (able to analyze and frame problems)

57. Which of the following statements is true with regard to the order quantity?

a. If the order quantity in each order is large, then fewer orders will be placed, which will result in lower annual ordering costs.

b. If the order quantity in each order is small, then more orders will be placed, which will result in lower annual ordering costs.

c. If the order quantity in each order is large, then fewer orders will be placed, which will result in higher annual ordering costs.

d. If the order quantity in each order is small, the fewer orders will be placed, which will result in lower annual ordering costs.

Ans: A

Cognitive Domain: Analysis (Analyze)

Learning Objective: 16-1. Describe the Basic Economic Order Quantity (EOQ) model, its assumptions, and use the model to solve problems.

Answer Location: Figure 16.1: Inventory Replenishment and Depletion Cycle Patterns Over Time

Difficulty Level: Medium

AACSB: Analytical thinking (able to analyze and frame problems)

58. The total annual cost is given by the sum of ordering costs and holding costs. At the lowest total annual cost, \_\_\_\_\_\_.

a. the total annual ordering cost is less than the total annual holding cost

b. the total annual ordering cost is equal to the total annual holding cost

c. the total annual ordering cost is more than the total annual holding cost

d. the total annual ordering cost is twice the total annual holding cost

Ans: B

Cognitive Domain: Analysis (Analyze)

Learning Objective: 16-1. Describe the Basic Economic Order Quantity (EOQ) model, its assumptions, and use the model to solve problems.

Answer Location: Figure 16.3: The Effect of Quantity Ordered on Ordering and Holding Costs

Difficulty Level: Medium

AACSB: Analytical thinking (able to analyze and frame problems)

59. If the order quantity is greater than the EPQ, then \_\_\_\_\_\_.

a. the annual holding costs will be higher than the annual setup costs

b. the annual holding costs will be equal to the annual ordering costs

c. the annual holding costs will be lower than the annual ordering costs

d. the annual holding costs will be twice the annual setup costs

Ans: B

Cognitive Domain: Analysis (Analyze)

Learning Objective: 16-2. Utilize the Economic Production Quantity (EPQ) to solve problems.

Answer Location: Economic Production Quantity (EPQ) Model

Difficulty Level: Medium

AACSB: Analytical thinking (able to analyze and frame problems)

60. The equation for economic order quantity shows that if the holding costs are high, then \_\_\_\_\_\_.

a. order quantities will be smaller to keep annual holding costs low

b. order quantities will be larger to keep our annual holding costs low

c. order frequency will be smaller to keep our annual holding costs low

d. order frequency will remain the same, as it is not dependent on holding costs

Ans: A

Cognitive Domain: Analysis (Analyze)

Learning Objective: 16-1. Describe the Basic Economic Order Quantity (EOQ) model, its assumptions, and use the model to solve problems.

Answer Location: Figure 16.3: The Effect of Quantity Ordered on Ordering and Holding Costs

Difficulty Level: Medium

AACSB: Analytical thinking (able to analyze and frame problems)

61. Holding costs are a linear function of quantity ordered. This means that \_\_\_\_\_\_.

a. these costs increase if the quantity ordered increases and decrease as the quantity ordered decreases

b. these costs increase if the quantity ordered decreases and decrease as the quantity ordered increases

c. these costs remain unchanged as the quantity ordered changes

d. these costs have no relationship with quantity ordered

Ans: A

Cognitive Domain: Analysis (Analyze)

Learning Objective: 16-1. Describe the Basic Economic Order Quantity (EOQ) model, its assumptions, and use the model to solve problems.

Answer Location: Figure 16.3: The Effect of Quantity Ordered on Ordering and Holding Costs

Difficulty Level: Medium

AACSB: Analytical thinking (able to analyze and frame problems)

62. If the order quantity is 1,000 units, and the holding costs are $5 a unit per year, then \_\_\_\_\_\_.

a. the average inventory level will be 500

b. the total annual holding cost would be $5,000

c. the average inventory level will be 2,500

d. the total annual holding cost would be $500

Ans: A

Cognitive Domain: Analysis (Analyze)

Learning Objective: 16-1. Describe the Basic Economic Order Quantity (EOQ) model, its assumptions, and use the model to solve problems.

Answer Location: Figure 16.3: The Effect of Quantity Ordered on Ordering and Holding Costs

Difficulty Level: Hard

AACSB: Analytical thinking (able to analyze and frame problems)

63. If the order quantity per order is 2,000 units, annual demand is 10,000, and cost per order is $50, then which of the following statements is true?

a. There are five orders in the year.

b. The total annual ordering cost is $2,500.

c. The holding cost per unit is $2.50.

d. The total annual holding costs are $25,000 (= $2.50 \* 10,000).

Ans: A

Cognitive Domain: Analysis (Analyze)

Learning Objective: 16-1. Describe the Basic Economic Order Quantity (EOQ) model, its assumptions, and use the model to solve problems.

Answer Location: Figure 16.3: The Effect of Quantity Ordered on Ordering and Holding Costs

Difficulty Level: Hard

AACSB: Analytical thinking (able to analyze and frame problems)

64. If the order quantity per order is 2,000 units, annual demand is 10,000, and cost per order is $50, then which of the following statements is true?

a. There are 50 orders in the year.

b. The total annual ordering cost is $250.

c. The holding cost per unit is $2.50.

d. The total annual holding costs are $25,000 (= $2.50 \* 10,000).

Ans: B

Cognitive Domain: Analysis (Analyze)

Learning Objective: 16-1. Describe the Basic Economic Order Quantity (EOQ) model, its assumptions, and use the model to solve problems.

Answer Location: Figure 16.3: The Effect of Quantity Ordered on Ordering and Holding Costs

Difficulty Level: Hard

AACSB: Analytical thinking (able to analyze and frame problems)

65. If the order quantity per order is 2,000 units, annual demand is 10,000, and cost per order is $50, then which of the following statements is true?

a. There are 15 orders in the year.

b. The average inventory is 1,000 units.

c. The holding cost per unit is $2.50.

d. The total annual holding costs are $25,000 (= $2.50 \* 10000).

Ans: B

Cognitive Domain: Analysis (Analyze)

Learning Objective: 16-1. Describe the Basic Economic Order Quantity (EOQ) model, its assumptions, and use the model to solve problems.

Answer Location: Figure 16.3: The Effect of Quantity Ordered on Ordering and Holding Costs

Difficulty Level: Hard

AACSB: Analytical thinking (able to analyze and frame problems)

66. If you have total annual cost (TAC), total annual setup cost (TASC), total annual holding cost (TAHC), and total annual materials purchase cost (TAMPC), then you can calculate total annual stock-out cost (TASOC) by this formula.

a. TASOC = TAC – TASC – TAHC – TAMPC

b. TASOC = TAC + TASC – TAHC – TAMPC

c. TASOC = TAC + TASC + TAHC – TAMPC

d. TASOC = TAC + TASC – TAHC + TAMPC

Ans: A

Cognitive Domain: Analysis (Analyze)

Learning Objective: 16-1. Describe the Basic Economic Order Quantity (EOQ) model, its assumptions, and use the model to solve problems.

Answer Location: Figure 16.3: The Effect of Quantity Ordered on Ordering and Holding Costs

Difficulty Level: Hard

AACSB: Analytical thinking (able to analyze and frame problems)

67. At the optimal order quantity (EOQ), the total annual inventory cost (TC) is given by \_\_\_\_\_\_.

a. TC = (Annual demand/EOQ) × Ordering cost per order/2 + (EOQ) × Holding cost per unit per year

b. TC = (Annual demand/EOQ) × Ordering cost per order + (EOQ/2) × Holding cost per unit per year

c. TC = (Annual demand/EOQ) × Ordering cost per order/2 + (EOQ/2) × Holding cost per unit per year

d. TC = (Annual Demand/EOQ) × Ordering cost per order + (EOQ) × Holding cost per unit per year

Ans: B

Cognitive Domain: Analysis (Analyze)

Learning Objective: 16-1. Describe the Basic Economic Order Quantity (EOQ) model, its assumptions, and use the model to solve problems.

Answer Location: Figure 16.3: The Effect of Quantity Ordered on Ordering and Holding Costs

Difficulty Level: Hard

AACSB: Analytical thinking (able to analyze and frame problems)

68. At the optimal order quantity (EOQ), the total annual ordering cost is given by \_\_\_\_\_\_.

a. (Annual demand \* EOQ) / Ordering cost per order

b. (Annual demand + EOQ) \* Ordering cost per order

c. (Annual demand – EOQ) – Ordering cost per order

d. (Annual demand / EOQ) \* Ordering cost per order

Ans: D

Cognitive Domain: Analysis (Analyze)

Learning Objective: 16-1. Describe the Basic Economic Order Quantity (EOQ) model, its assumptions, and use the model to solve problems.

Answer Location: Figure 16.3: The Effect of Quantity Ordered on Ordering and Holding Costs

Difficulty Level: Hard

AACSB: Analytical thinking (able to analyze and frame problems)

69. At the optimal order quantity (EOQ), the average inventory level during the year is given by \_\_\_\_\_\_.

a. EOQ – 2

b. EOQ / 2

c. EOQ + 2

d. 2 x EOQ

Ans: B

Cognitive Domain: Analysis (Analyze)

Learning Objective: 16-1. Describe the Basic Economic Order Quantity (EOQ) model, its assumptions, and use the model to solve problems.

Answer Location: Figure 16.3: The Effect of Quantity Ordered on Ordering and Holding Costs

Difficulty Level: Hard

AACSB: Analytical thinking (able to analyze and frame problems)

70. Which of the following statements is FALSE with regard to holding costs?

a. The holding cost per unit per period is expressed as a percentage of the purchase price (P).

b. The holding cost per unit per period is called the carrying rate.

c. The holding cost per unit per period is called the holding rate.

d. The holding cost per unit per period is expressed as a percentage of ordering costs.

Ans: D

Cognitive Domain: Analysis (Analyze)

Learning Objective: 16-1. Describe the Basic Economic Order Quantity (EOQ) model, its assumptions, and use the model to solve problems.

Answer Location: Figure 16.3: The Effect of Quantity Ordered on Ordering and Holding Costs

Difficulty Level: Easy

AACSB: Analytical thinking (able to analyze and frame problems)

71. In the calculation for the economic order quantity, \_\_\_\_\_\_.

a. both ordering costs and holding costs are exact values

b. the ordering costs are approximate, but the holding costs are exact values

c. the ordering costs are exact values, but the holding costs are approximate

d. both ordering costs and holding costs are approximate

Ans: D

Cognitive Domain: Analysis (Analyze)

Learning Objective: 16-1. Describe the Basic Economic Order Quantity (EOQ) model, its assumptions, and use the model to solve problems.

Answer Location: Figure 16.3: The Effect of Quantity Ordered on Ordering and Holding Costs

Difficulty Level: Easy

AACSB: Analytical thinking (able to analyze and frame problems)

72. Which of the following statements with regard to the economic production quantity (EPQ) model is FALSE?

a. It was developed in 1918.

b. The EOQ model is based on the EPQ model.

c. It assumes that the company will produce the items.

d. It assumes that lead time is known and is constant.

Ans: B

Cognitive Domain: Analysis (Analyze)

Learning Objective: 16-1. Describe the Basic Economic Order Quantity (EOQ) model, its assumptions, and use the model to solve problems.

Answer Location: Figure 16.3: The Effect of Quantity Ordered on Ordering and Holding Costs

Difficulty Level: Easy

AACSB: Analytical thinking (able to analyze and frame problems)

73. The EPQ model assumes units are received incrementally because \_\_\_\_\_\_.

a. the supplier is sending units incrementally

b. the company follows a just-in-time strategy for delivery of supplies

c. the units are being produced incrementally

d. items are produced all at once to build up the inventory instantaneously

Ans: C

Cognitive Domain: Analysis (Analyze)

Learning Objective: 16-2. Utilize the Economic Production Quantity (EPQ) to solve problems.

Answer Location: Figure 16.4: The Economic Production Quantity Model

Difficulty Level: Easy

AACSB: Analytical thinking (able to analyze and frame problems)

74. According to the EPQ model, the larger the quantity produced from each production setup \_\_\_\_\_\_.

a. the fewer production runs are needed to meet demand requirements and the smaller will be the total annual setup cost

b. the more production runs are needed to meet the demand requirements and the smaller will be the total annual setup cost

c. the fewer production runs are needed to meet the demand requirements and the higher will be the total annual setup cost

d. the more production runs are needed to meet demand requirements and the higher will be the total annual setup cost

Ans: A

Cognitive Domain: Analysis (Analyze)

Learning Objective: 16-2. Utilize the Economic Production Quantity (EPQ) to solve problems.

Answer Location: Figure 16.4: The Economic Production Quantity Model

Difficulty Level: Easy

AACSB: Analytical thinking (able to analyze and frame problems)

75. According to the EPQ model, if the production run size is *Q* and the production rate is *p*, then the number days of production run is given by \_\_\_\_\_\_.

a. Q \* p

b. Q / p

c. p / Q

d. p \* Q

Ans: B

Cognitive Domain: Analysis (Analyze)

Learning Objective: 16-2. Utilize the Economic Production Quantity (EPQ) to solve problems.

Answer Location: Figure 16.4: The Economic Production Quantity Model

Difficulty Level: Hard

AACSB: Analytical thinking (able to analyze and frame problems)

76. Which of the following statements is FALSE if the production run size is *Q*, the production rate is *p*, and the demand or usage rate is *d*?

a. The number days of production run is given by Q/p.

b. Inventory used up at the end of the production cycle is given by (Q/p) × d.

c. Inventory used up at the end of the production cycle is given by (p/Q) × d.

d. The maximum inventory is given by Q x (1-d/p).

Ans: C

Cognitive Domain: Analysis (Analyze)

Learning Objective: 16-2. Utilize the Economic Production Quantity (EPQ) to solve problems.

Answer Location: Figure 16.4: The Economic Production Quantity Model

Difficulty Level: Hard

AACSB: Analytical thinking (able to analyze and frame problems)

77. Given that the production run size is *Q*, the production rate is *p*, and the usage rate is *d*, then the inventory used up or depleted at the end of the production cycle can be calculated as \_\_\_\_\_\_.

a. (Q/p) × d

b. (Q/p)

c. (Q/d) × p

d. (Q/d)

Ans: A

Cognitive Domain: Analysis (Analyze)

Learning Objective: 16-2. Utilize the Economic Production Quantity (EPQ) to solve problems.

Answer Location: Figure 16.4: The Economic Production Quantity Model

Difficulty Level: Hard

AACSB: Analytical thinking (able to analyze and frame problems)

78. Given that the production run size is *Q*, the production rate is *p*, and the usage rate is *d*, then the inventory remaining in stock at the end of the production run is \_\_\_\_\_\_.

a. [Q – (Q/d) × p]

b. [Q – (Q/p) × d]

c. [Q + (Q/p) × d]

b. [Q + (Q/p) × p]

Ans: B

Cognitive Domain: Analysis (Analyze)

Learning Objective: 16-2. Utilize the Economic Production Quantity (EPQ) to solve problems.

Answer Location: Figure 16.4: The Economic Production Quantity Model

Difficulty Level: Hard

AACSB: Analytical thinking (able to analyze and frame problems)

79. In the EPQ model, the maximum inventory level is given by \_\_\_\_\_\_.

a. [Q – (Q/d) × p]

b. [Q – (Q/p) × d]

c. [Q + (Q/p) × d]

b. [Q + (Q/p) × p]

Ans: B

Cognitive Domain: Analysis (Analyze)

Learning Objective: 16-2. Utilize the Economic Production Quantity (EPQ) to solve problems.

Answer Location: Figure 16.4: The Economic Production Quantity Model

Difficulty Level: Hard

AACSB: Analytical thinking (able to analyze and frame problems)

80. Average inventory is calculated as the (maximum inventory + minimum inventory) / 2 in \_\_\_\_\_\_.

a. only the EPQ model

b. only the EOQ model

c. both EPQ and EOQ models

d. neither EPQ nor EOQ models

Ans: C

Cognitive Domain: Analysis (Analyze)

Learning Objective: 16-2. Utilize the Economic Production Quantity (EPQ) to solve problems.

Answer Location: Figure 16.4: The Economic Production Quantity Model

Difficulty Level: Easy

AACSB: Analytical thinking (able to analyze and frame problems)

81. In the EPQ model, if the annual demand in units is *D*, the cost per setup is *K*, and the optimal or economic production quantity is *Q*, then the total annual setup costs are given by \_\_\_\_\_\_.

a. (D/Q) × K

b. (Q/D) × K

c. (K/Q) + D

d. (D/K) + Q

Ans: A

Cognitive Domain: Analysis (Analyze)

Learning Objective: 16-2. Utilize the Economic Production Quantity (EPQ) to solve problems.

Answer Location: Figure 16.4: The Economic Production Quantity Model

Difficulty Level: Easy

AACSB: Analytical thinking (able to analyze and frame problems)

82. In the EPQ model, the total annual cost equation is minimized at \_\_\_\_\_\_.

a. the point of intersection of the total production and holding cost curves

b. the point of intersection of the total setup and holding cost curves

c. the point of intersection of the total ordering and holding cost curves

d. the point of intersection of the total production and setup cost curves

Ans: B

Cognitive Domain: Analysis (Analyze)

Learning Objective: 16-2. Utilize the Economic Production Quantity (EPQ) to solve problems.

Answer Location: Figure 16.4: The Economic Production Quantity Model

Difficulty Level: Easy

AACSB: Analytical thinking (able to analyze and frame problems)

83. In the EPQ model, given that *Q* is the optimal production quantity, *d* is the demand rate, *p* is the production rate, and *H* is the holding cost per unit per year, the total annual holding cost equation is given by \_\_\_\_\_\_.

a. [Q/2 × ((d-p)/p)]

b. [Q × ((p-d)/p)] × H

c. [Q/2 × ((p-d)/p)] × H

d. Q/2 x H

Ans: C

Cognitive Domain: Analysis (Analyze)

Learning Objective: 16-2. Utilize the Economic Production Quantity (EPQ) to solve problems.

Answer Location: Figure 16.4: The Economic Production Quantity Model

Difficulty Level: Hard

AACSB: Analytical thinking (able to analyze and frame problems)

84. The setup cost to make carpet is $20 per setup. The holding cost is $2.00 per yard per year, and the annual demand is 12,000 yards. The manufacturing facility operates 300 days, and 120 yards of the carpet are produced per day. Given this information, which of the following statements is true?

a. The daily demand rate is 40.

b. The daily demand rate is 32.8.

c. The daily demand rate is 120.

d. The daily demand rate is 12,000.

Ans: A

Cognitive Domain: Analysis (Analyze)

Learning Objective: 16-2. Utilize the Economic Production Quantity (EPQ) to solve problems.

Answer Location: Figure 16.4: The Economic Production Quantity Model

Difficulty Level: Medium

AACSB: Analytical thinking (able to analyze and frame problems)

85. The setup cost to make a carpet is $20 per setup. The holding cost is $2.00 per yard per year, and the annual demand is 12,000 yards. The manufacturing facility operates 300 days, and 120 yards of the carpet are produced per day. Given this information, which of the following statements is true?

a. The optimal production quantity is 600.

b. The optimal production quantity is 500.

c. The optimal production quantity is 400.

d. The optimal production quantity is 300.

Ans: A

Cognitive Domain: Analysis (Analyze)

Learning Objective: 16-2. Utilize the Economic Production Quantity (EPQ) to solve problems.

Answer Location: Figure 16.4: The Economic Production Quantity Model

Difficulty Level: Medium

AACSB: Analytical thinking (able to analyze and frame problems)

86. The setup cost to make a carpet is $20 per setup. The holding cost is $2.00 per yard per year, and the annual demand is 12,000 yards. The manufacturing facility operates 300 days, and 120 yards of the carpet are produced per day. Given this information, which of the following statements is true?

a. With an optimum order quantity of 600, the length of the production run in days is 5.

b. With an optimum order quantity of 500, the length of the production run in days is 6.

c. With an optimum order quantity of 400, the length of the production run in days is 7.

d. With an optimum order quantity of 300, the length of the production run in days is 8.

Ans: A

Cognitive Domain: Analysis (Analyze)

Learning Objective: 16-2. Utilize the Economic Production Quantity (EPQ) to solve problems.

Answer Location: Figure 16.4: The Economic Production Quantity Model

Difficulty Level: Hard

AACSB: Analytical thinking (able to analyze and frame problems)

87. The setup cost to make a carpet is $20 per setup. The holding cost is $2.00 per yard per year, and the annual demand is 12,000 yards. The manufacturing facility operates 300 days, and 120 yards of the carpet are produced per day. Given this information, which of the following statements is true?

a. The maximum inventory is 600.

b. The maximum inventory is 500.

c. The maximum inventory is 400.

d. The maximum inventory is 300.

Ans: C

Cognitive Domain: Analysis (Analyze)

Learning Objective: 16-2. Utilize the Economic Production Quantity (EPQ) to solve problems.

Answer Location: Figure 16.4: The Economic Production Quantity Model

Difficulty Level: Hard

AACSB: Analytical thinking (able to analyze and frame problems)

88. The setup cost to make a carpet is $20 per setup. The holding cost is $2.00 per yard per year, and the annual demand is 12,000 yards. The manufacturing facility operates 300 days, and 120 yards of the carpet are produced per day. Given this information, what is total annual set up cost?

a. $600

b. $500

c. $400

d. $300

Ans: C

Cognitive Domain: Analysis (Analyze)

Learning Objective: 16-2. Utilize the Economic Production Quantity (EPQ) to solve problems.

Answer Location: Figure 16.4: The Economic Production Quantity Model

Difficulty Level: Hard

AACSB: Analytical thinking (able to analyze and frame problems)

89. The setup cost to make a carpet is $20 per setup. The holding cost is $2.00 per yard per year, and the annual demand is 12,000 yards. The manufacturing facility operates 300 days, and 120 yards of the carpet are produced per day. Given this information, what is total annual carrying cost?

a. $600

b. $500

c. $400

d. $300

Ans: C

Cognitive Domain: Analysis (Analyze)

Learning Objective: 16-2. Utilize the Economic Production Quantity (EPQ) to solve problems.

Answer Location: Figure 16.4: The Economic Production Quantity Model

Difficulty Level: Hard

AACSB: Analytical thinking (able to analyze and frame problems)

90. In the EPQ model, the total annual setup costs are given by \_\_\_\_\_\_.

a. (Annual demand / EPQ) \* Setup cost

b. (Annual demand \* EPQ) \* Setup cost

c. (Annual demand \* EPQ) / Setup cost

d. (Annual demand / EPQ) / Setup cost

Ans: A

Cognitive Domain: Analysis (Analyze)

Learning Objective: 16-2. Utilize the Economic Production Quantity (EPQ) to solve problems.

Answer Location: Figure 16.4: The Economic Production Quantity Model

Difficulty Level: Medium

AACSB: Analytical thinking (able to analyze and frame problems)

91. In the EOQ model, if quantity discounts are offered, then \_\_\_\_\_\_.

a. the EOQ may not result in the lowest total annual cost

b. it does not make any difference, as the EOQ will always result in the lowest total annual cost

c. the EOQ model with the quantity discounts will always give a lower total annual cost than the EOQ model without quantity discounts

d. the quantity discounts should be taken

Ans: A

Cognitive Domain: Analysis (Analyze)

Learning Objective: 16-1. Describe the Basic Economic Order Quantity (EOQ) model, its assumptions, and use the model to solve problems.

Answer Location: Table 16.4: An Example of a Quantity Discount Schedule

Difficulty Level: Hard

AACSB: Analytical thinking (able to analyze and frame problems)

92. In the EOQ model, if quantity discounts are offered, buying a larger quantity just because of the lower per-unit purchase price \_\_\_\_\_\_.

a. might not result in the minimum total annual cost because the holding costs are likely to increase

b. will result in the minimum total annual cost

c. might not result in the minimum total annual cost because the ordering costs are likely to increase

d. will result in the highest total annual cost

Ans: A

Cognitive Domain: Analysis (Analyze)

Learning Objective: 16-1. Describe the Basic Economic Order Quantity (EOQ) model, its assumptions, and use the model to solve problems.

Answer Location: Table 16.4: An Example of a Quantity Discount Schedule

Difficulty Level: Hard

AACSB: Analytical thinking (able to analyze and frame problems)

93. The overall goal for the buyer is to choose the order quantity that will minimize total annual cost, which is \_\_\_\_\_\_.

a. the sum of the yearly holding, ordering, and purchase costs

b. the sum of the yearly holding and ordering, less purchase costs

c. the sum of the yearly holding, ordering, and purchase costs less quantity discounts

d. the sum of the yearly holding, ordering, less quantity discounts

Ans: A

Cognitive Domain: Analysis (Analyze)

Learning Objective: 16-1. Describe the Basic Economic Order Quantity (EOQ) model, its assumptions, and use the model to solve problems.

Answer Location: Economic Order Quantity (EOQ) Model

Difficulty Level: Easy

AACSB: Analytical thinking (able to analyze and frame problems)

94. The level to which the inventory of an item should fall before the firm places a new order to replenish inventory is called \_\_\_\_\_\_.

a. the reorder point

b. the holding point

c. the safety stock point

d. the stock-out point

Ans: A

Cognitive Domain: Analysis (Analyze)

Learning Objective: 16-1. Describe the Basic Economic Order Quantity (EOQ) model, its assumptions, and use the model to solve problems.

Answer Location: When to Order: Reorder Point for Continuous Review Systems (EOQ Model)

Difficulty Level: Easy

AACSB: Analytical thinking (able to analyze and frame problems)

95. With continuous review systems \_\_\_\_\_\_.

a. the order quantity depends on the safety stock

b. the order quantity is variable

c. the order quantity is fixed

d. the order quantity is seasonal

Ans: C

Cognitive Domain: Analysis (Analyze)

Learning Objective: 16-1. Describe the Basic Economic Order Quantity (EOQ) model, its assumptions, and use the model to solve problems.

Answer Location: When to Order: Reorder Point for Continuous Review Systems (EOQ Model)

Difficulty Level: Easy

AACSB: Analytical thinking (able to analyze and frame problems)

96. If the order quantity is fixed, as in a continuous review system, the decision of when to place the order is determined by \_\_\_\_\_\_.

a. the daily demand rate and the lead time

b. the daily demand rate and the safety stock

c. the safety stock and the lead time

d. the safety stock and the purchase price

Ans: A

Cognitive Domain: Analysis (Analyze)

Learning Objective: 16-1. Describe the Basic Economic Order Quantity (EOQ) model, its assumptions, and use the model to solve problems.

Answer Location: When to Order: Reorder Point for Continuous Review Systems (EOQ Model)

Difficulty Level: Easy

AACSB: Analytical thinking (able to analyze and frame problems)

97. If both demand and lead time are constant, then to determine the inventory level at which to reorder, we need to know \_\_\_\_\_\_.

a. the average demand rate and the lead time

b. the average demand rate and the purchase price

c. the purchase price and the safety stock

d. the safety stock and the lead time

Ans: A

Cognitive Domain: Analysis (Analyze)

Learning Objective: 16-1. Describe the Basic Economic Order Quantity (EOQ) model, its assumptions, and use the model to solve problems.

Answer Location: Reorder Point Model for Constant Demand and Constant Lead Time

Difficulty Level: Hard

AACSB: Analytical thinking (able to analyze and frame problems)

98. If the average daily demand rate is 50 units per day and the lead time is 3 days, then the reorder point is \_\_\_\_\_\_.

a. 50 / 3 (i.e., about 17 units)

b. 50 \* 3 (i.e., 150 units)

c. 50 ^ 3 (i.e., 125,000 units)

d. 50 units

Ans: A

Cognitive Domain: Analysis (Analyze)

Learning Objective: 16-1. Describe the Basic Economic Order Quantity (EOQ) model, its assumptions, and use the model to solve problems.

Answer Location: Reorder Point Model for Constant Demand and Constant Lead Time

Difficulty Level: Hard

AACSB: Analytical thinking (able to analyze and frame problems)

99. The normal distribution curve is \_\_\_\_\_\_.

a. skewed to the left of the mean

b. skewed to the right of the mean

c. symmetrical about the mean

d. linear

Ans: C

Cognitive Domain: Application (Apply)

Learning Objective: 16-1. Describe the Basic Economic Order Quantity (EOQ) model, its assumptions, and use the model to solve problems.

Answer Location: Figure 16.8: Reorder Point When the Service Level Desired Is 95%

Difficulty Level: Medium

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

100. If demand during lead time is normally distributed, and if the standard deviation of demand during the lead time is 50 units, then to provide an additional 34% service level, the number of additional units that should be held in inventory is \_\_\_\_\_\_.

a. 50 (= 50 times 1 standard deviation)

b. 17 (= 50 \* 34%)

c. 1,700 (= 50 \* 34)

d. 150 (= 50 times 3 standard deviations)

Ans: A

Cognitive Domain: Application (Apply)

Learning Objective: 16-1. Describe the Basic Economic Order Quantity (EOQ) model, its assumptions, and use the model to solve problems.

Answer Location: Figure 16.8: Reorder Point When the Service Level Desired Is 95%

Difficulty Level: Hard

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