Sample Answers to In-Text Questions

# Chapter 16: Inventory Control

## Discussion Questions

1. In the EOQ model, how do we determine the optimum order quantity?

Answer: It is the lowest point in the total cost curve. We are balancing the carrying or holding costs with the purchase or setup costs to find the optimum quantity to order.

1. What are the major assumptions of the EOQ model, and how do they restrict the model’s applicability to real-life inventory issues?

Answer: The assumptions are stated in Table 16.1. In real life there are very few items for which demand is known and constant, lead time is constant, etc. Also in real life, the warehouse or stockroom might have space restrictions, because as transportation costs become more expensive, and carrying costs become cheaper, larger quantities would be ordered under the EOQ model.

1. How do the demand and the lead time affect reorder points in a continuous review system?

Answer: The demand during lead time becomes the ROP. D X LT = ROP

1. What are the differences between the EPQ and the EOQ model?

Answer: The EOQ model considers how much to order, when you order for an inventory. The EPQ model determines how much to produce, and when, if a company is simultaneously producing and selling the same item.

1. In the EPQ model, what would be the effect if production rate and the demand rate are equal?

Answer: Then you could probably produce at the rate of demand, after the ROP was achieved.

1. A U.S. company that orders brass couplings from a supplier in China noted that the cost of the couplings increases significantly at each reorder cycle. The company uses the EOQ model to determine its order quantity. What alternate approach would you advise the company to consider to determine the order quantity that will minimize the firm’s total inventory cost?

Answer: You could probably use the EOQ model with quantity discount, with a negative discount amount ??

1. When quantity discounts are offered, what factors other than price should be considered?

Answer: You would also consider the lowest total annual cost.

1. How is the service level related to safety stock?

The service level directly determines the safety stock amount by multiplying the Z factor times the service level probability.

1. Explain the relationship between the setup time and the average inventory level in the EPQ model. What would be the beneficial effect of reducing setup times?

Answer: As setup time increases, the average inventory level would increase. If you reduced the setup costs, you could make smaller runs, and be more flexible.

1. In a continuous review system, how does the variability in both the demand and the lead time affect the target inventory level?

Answer: An increase in variability of either one would increase the target Safety Stock.

1. In single-period inventory systems, how would high level of service affect the optimal stocking policy?

Answer: It would determine the optimal stocking level, so the high level would increase the stocking level.

**Critical Thinking Exercise**

# Read the article, “Five common inventory mistakes and how to avoid them,” at <https://www.entrepreneur.com/article/252704>

# Investigate the recent history of Adidas in light of these five common inventory errors. How has Adidas’ business suffered in recent years, especially relative to the industry leader, Nike, and how might better inventory management improve their competitive situation?

Answer: Student examples will vary based on which articles they research.