Self-Assessment 10 Solutions

Q1. Which is not a pressure to hold more inventory?
Group of answer choices
a. It protects against spikes in demand
b. It protects against supply chain disruption
c. It reduces the number of orders one has to make
d. It is better for reducing holding cost

Ans. D; Holding more inventory leads to higher holding cost.

Q2. Which is not an assumption of the EOQ model?
a. No limit on the size of an order
b. Lead time can vary
c. Demand is known and Constant
d. Only relevant costs are ordering and inventory holding costs

Ans. B; There is no assumption for lead time.

Q3. The Reorder Point tell us, at what inventory level, should we place an order for more stock.
a. True
b. False

Ans. A. True; From the definition of Reorder Point.

Q4. A company that markets portable EKG machines to hospitals wants to rationalize its inventory costs using EOQ. Demand is 1,000 machines per year, and it costs $10 to place an order. Holding cost is $.50. What recommendation would you make?
a. Order 100 at a time
b. Order 500 at a time
c. Order 200 at a time
d. Order 300 at a time

Ans. C. Order 200 at a time
EOQ = Sqrt(2*D*S/H) = Sqrt(2*1000*10/0.5) = 200

Q5. The average demand for iPhones at the local Walmart is 15 units a day with a standard deviation of 5. It takes 2 days to get more once a new order is placed. The company has a no more than 10% stock out policy. What is the reorder point? (Take z-score of 90% as 1.28)
a. 20 iPhones
b. 29 iPhones
c. 30 iPhones
d. 39 iPhones

Ans. D. 39 iPhones;
ROP = Expected Demand + SS = d*LT + z*SD*sqrt(LT) = 15*2 + 1.28*5*sqrt(2) = 39
(Also solved in lecture videos)

Q6. Dahlonega Rehab Motors has an annual demand for motors of 1,400 units. The cost of a typical motor is $400. Carrying costs are estimated to be 20% of unit cost and the ordering cost is $25 per order. If Dahlonega Rehab orders in quantities of 300 or more, they get a 5% discount. If they are interested in minimizing told cost, should they take the discount?
a. Yes. Order 300 each time. Total cost with the discount is less than EOQ with no discount.
b. No. Order 30 each time. Total cost with the discount is more than EOQ with no discount.

Ans. A. Yes. Order 300 each time. Total cost with the discount is less than EOQ with no discount.
Compute Enhanced Total Cost for EOQ = 30 with P = $400 and EOQ = 300 with P = $380, then compare.
Enhanced Total Cost (ETC) = D/Q * S + Q/2 * H + P*D, H=I*P= 0.2*P
For EOQ = 30, ETC = (1400/30)*25 + (30/2)*80 + 400*1400 = 562366.67
For EOQ = 300, ETC = (1400/300)*25 + (300/2)*80 + 380*1400 = 544116.67; lesser than cost with EOQ=30.

Q7. Sam Flynn is in charge of maintaining motorcycles for Tron Inc. During the past year (250 working days), he replaced 1,000 tires a day (yes he is fast!) with a standard deviation of 100 tires/day. There is a 2 day lead time to get more and his boss Quorra wants a 97% service level. How much safety stock should he keep? (Take z-score of 97% as 1.88)
a. 222 tires
b. 244 tires
c. 266 tires
d. 288 tires

Ans. C. 266 tires
Safety stock = z*SD*sqrt(LT) = 1.88*100*sqrt(2) = 266

Q8. For the prior question, what is the reorder point?
a. ROP = 2,000 tires
b. ROP = 2,266 tires
c. ROP = 2,288 tires
d. ROP = 2,222 tires

Ans. B. 2266 tires.
ROP = Expected Demand + SS = 1000*2 + 266 = 2266 tires

Q9. Waffle Falafel Abode is a small diner in Atlanta that is open 300 days a year. They use high End Ostrich eggs in making breakfast. Demand for Ostrich eggs is constant at 6,000 units per year. It costs $30 on average to place an order. Inventory holding costs are $10 per egg per year. Orders always arrive in 4 days. They want to come up with an inventory policy for this environment.
What is EOQ?
a. 300 eggs
b. 224 eggs
c. 190 eggs
d. 168 eggs

Ans. C. 190 eggs
EOQ = sqrt(2*D*S/H) = sqrt(2*6000*30/10) = 190 eggs

Q10. Waffle Falafel Abode is a small diner in Atlanta that is open 300 days a year. They use high End Ostrich eggs in making breakfast. Demand for Ostrich eggs is constant at 6,000 units per year. It costs $30 on average to place an order. Inventory holding costs are $10 per egg per year. Orders always arrive in 4 days. They want to come up with an inventory policy for this environment.
What is the ROP?
a. 80 eggs
b. 30 eggs
c. 16 eggs
d. 25 eggs

Ans. A. 80 eggs
ROP = d*LT = (6000/300)*4 = 80 eggs