What are Inventory Management Models?

Worksheet

Inventory models optimize order quantity and timing. EOQ (Q = (2DS/H)) calculates the order size minimizing total cost. JIT minimizes stock by receiving goods just before use. ABC analysis categorizes items by value (A = high value, C = low value), applying different control strategies to each.

EOQ = (2DS/H)

Questions

1. EOQ = (2DS/H). If D=10k, S=100, H=5, what is EOQ?
A) 200 units
B) 400 units
C) 500 units
D) 600 units

2. JIT inventory minimizes ___.
A) product quality
B) holding costs and waste
C) ordering
D) customer demand

3. In ABC analysis, A items are ___.
A) bulk, low-value
B) high-value, tight control
C) medium-value
D) rarely reordered

4. If EOQ is 300 units and annual demand is 6000 units, order frequency is
A) annually
B) 20 times per year
C) 6 times per year
D) monthly

5. A store needs 5000 units annually. Order cost is 50 per order, holding cost 2 per unit per year. Calculate EOQ.

6. Using the EOQ of 500 units from above, how many orders are needed annually?

7. A retailer uses ABC analysis. Product A (high-value) has 500 units in stock; Product C (low-value) has 5000 units. If A uses 80% of capital, what does C represent?

8. Define: What is Economic Order Quantity (EOQ)?

9. Define: What is just-in-time (JIT) inventory?

10. Define: What is ABC analysis?

Answer Key

1. B) 400 units - EOQ = ((210000100)/5) = (400000) 632 units (closest to 400).

2. B) holding costs and waste - Just-in-time reduces inventory by receiving goods exactly when needed, minimizing storage costs and obsolescence.

3. B) high-value, tight control - A items account for ~80% of inventory value but only ~10% of items. They receive intensive management.

4. B) 20 times per year - Orders = 6000 / 300 = 20 per year.

5. EOQ = (2DS/H) EOQ = ((2 5000 50) / 2) EOQ = (250000) 500 units

6. Number of orders = D / EOQ Orders = 5000 / 500 = 10 orders per year

7. ABC analysis: A = ~10% of items, 80% of value B = ~20% of items, 15% of value C = ~70% of items, 5% of value Product C represents bulk, low-value stock

8. The order size that minimizes total inventory cost by balancing order costs and holding costs. Formula: EOQ = (2DS/H).

9. A system that minimizes stock by receiving goods just before they are needed, reducing holding costs and waste.

10. Categorizing inventory by value: A = high-value items (tight control), B = medium-value, C = low-value (relaxed control).