

## UNIT-III

## MANAGEMENT OF INVENTORY



## 10.14 INVENTORY MANAGEMENT

Inventories constitute a major element of working capital. It is, therefore, important that investment in inventory is properly controlled. The objectives of inventory management are, to a great extent, similar to the objectives of cash management. Inventory management covers a large number of problems including fixation of minimum and maximum levels, determining the size of inventory to be carried, deciding about the issues, receipts and inspection procedures, determining the economic order quantity, proper storage facilities, keeping check over obsolescence and ensuring control over movement of inventories.

**Inventory Management have been discussed in details in chapter 2 (Material) Paper 3:Cost and Management Accounting.**

Some illustrations are given just for reference.

**ILLUSTRATION 12**

*A company's requirements for ten days are 6,300 units. The ordering cost per order is ₹ 10 and the carrying cost per unit is ₹ 0.26. You are required to CALCULATE the economic order quantity.*

**SOLUTION**

The economic order quantity is:

$$EOQ = \sqrt{\frac{2 \times 6,300 \times 10}{0.26}} = \sqrt{\frac{1,26,000}{0.26}} = 700 \text{ units (approx).}$$

**ILLUSTRATION 13**

*Marvel Limited uses a large quantity of salt in its production process. Annual consumption is 60,000 tonnes over a 50-week working year. It costs ₹ 100 to initiate and process an order and delivery follow two weeks later. Storage costs for the salt are estimated at ₹ 0.10 per tonne per annum. The current practice is to order twice a year when the stock falls to 10,000 tonnes. IDENTIFY an appropriate ordering policy for Marvel Limited, and contrast it with the cost of the current policy.*

**SOLUTION**

The recommended policy should be based on the EOQ model.

F = ₹ 100 per order

S = 60,000 tonnes per year

H = ₹ 0.10 per tonne per year

Substituting :  $EOQ = \sqrt{\frac{2 \times 100 \times 60,000}{0.10}} = 10,954$  tonnes per order

Number of orders per year =  $60,000/10,954 = 5.5$  orders

Re-order level =  $2 \times 60,000/50 = 2,400$  tonnes

Total cost of optimum policy = holding costs + ordering costs  
 =  $(0.1 \times 10954)/2 + (100 \times 60,000)/10,954$   
 =  $547.70 + 547.74 = ₹ 1,095$

To compare the optimum policy with the current policy, the average level of stock under the current policy must be found. An order is placed when stock falls to 10,000 tonnes, but the lead time is two weeks. The stock used in that time is  $(60,000 \times 2)/50 = 2,400$  tonnes. Before delivery, inventory has fallen to  $(10,000 - 2,400) = 7,600$  tonnes. Orders are made twice per year, and so the order size =  $60,000/2 = 30,000$  tonnes. The order will increase stock level to  $30,000 + 7,600 = 37,600$  tonnes. Hence the average stock level =  $7,600 + (30,000/2) = 22,600$  tonnes. Total costs of current policy =  $(0.1 \times 22,600) + (100 \times 2) = ₹ 2,460$  per year.

**Advise:** The recommended policy should be adopted as the costs (₹ 1,365 per year) are less than the current policy.

**ILLUSTRATION 14**

*Pureair Company is a distributor of air filters to retail stores. It buys its filters from several manufacturers. Filters are ordered in lot sizes of 1,000 and each order costs ₹ 40 to place. Demand from retail stores is 20,000 filters per month, and carrying cost is ₹ 0.10 a filter per month.*

- COMPUTE the optimal order quantity with respect to so many lot sizes?
- CALCULATE the optimal order quantity if the carrying cost were ₹ 0.05 a filter per month?
- COMPUTE the optimal order quantity if ordering costs were ₹ 10?

**SOLUTION**

$$(a) \quad EOQ^* = \sqrt{\frac{2(20)(40)}{100}} = 4$$

Carrying costs = ₹ 0.10 × 1,000 = ₹ 100. The optimal order size would be 4,000 filters, which represents five orders a month.

$$(b) \quad EOQ^* = \sqrt{\frac{2(20)(40)}{50}} = 5.66$$

Since the lot size is 1,000 filters, the company would order 6,000 filters each time. The lower the carrying cost, the more important ordering costs become relatively, and the larger the optimal order size.

$$(c) \quad EOQ^* = \sqrt{\frac{2(20)(10)}{100}} = 2$$

The lower the order cost, the more important carrying costs become relatively and the smaller the optimal order size.