

CHAPTER 2

MATERIAL

Question 1

The average annual consumption of a material is 18,250 units at a price of Rs. 36.50 per unit. The storage cost is 20% on an average inventory and the cost of placing an order is Rs. 50. How much quantity is to be purchased at a time?

(May 2007, 2 Marks)

Answer

Quantity to be purchased

$$\sqrt{\frac{2 \times 18,250 \times 50}{20\% \text{ of } 36.50}} = \sqrt{2,50,000} = 500 \text{ units}$$

Question 2

Discuss the treatment of spoilage and defectives.

(May 2007, 3 Marks)

Answer

Treatment of spoilage and defectives:

Spoilage:

Normal spoilage are included in cost either by charging the loss to the production order or charging it to production overhead. The cost of abnormal spoilage is charged to costing profit and loss account.

Defectives:

Normal defectives can be recovered	:	charged to good production
	:	charged to general overhead
	:	charged to department.

If defectives are abnormal and are due to causes beyond the control of organization then they should be charged to profit and loss account.

Question 3

Explain, why the Last in First out (LIFO) has an edge over First in First out (FIFO) or any other method of pricing material issues.

(Nov 2007, 3 Marks)

Answer*LIFO has following advantages:*

- (a) The cost of the material issued will be reflecting the current market price.
- (b) The use of the method during the period of rising prices does not reflect undue high profit in the income statement.
- (c) In the case of falling price, profit tend to rise due to lower material cost, yet the finished goods appear to be more competitive and are at market price.
- (d) During the period of inflation, LIFO will tend to show the correct profit.

Question 4

ZED Company supplies plastic crockery to fast food restaurants in metropolitan city. One of its products is a special bowl, disposable after initial use, for serving soups to its customers. Bowls are sold in pack 10 pieces at a price of Rs. 50 per pack.

The demand for plastic bowl has been forecasted at a fairly steady rate of 40,000 packs every year. The company purchases the bowl direct from manufacturer at Rs. 40 per pack within a three days lead time. The ordering and related cost is Rs. 8 per order. The storage cost is 10% per cent per annum of average inventory investment.

Required:

- (i) *Calculate Economic Order Quantity.*
- (ii) *Calculate number of orders needed every year.*
- (iii) *Calculate the total cost of ordering and storage bowls for the year.*
- (iv) *Determine when should the next order to be placed. (Assuming that the company does maintain a safety stock and that the present inventory level is 333 packs with a year of 360 working days.*

(May 2008, 8 Marks)

Answer

- (i) Economic Order Quantity

$$EOQ = \sqrt{\frac{2 \times C \times O}{UI}}$$

$$= \sqrt{\frac{2 \times 40,000 \times 8}{4}}$$

$$= \sqrt{1,60,000} = 400 \text{ packs.}$$

(ii) Number of orders per year

$$\frac{\text{Annual requirements}}{\text{Economic order quantity}}$$

$$\frac{40,000}{400} = 100 \text{ order per year}$$

(iii) Ordering and storage costs

	Rs.
Ordering costs :- 100 orders $\times$ Rs. 8.00	800
Storage cost :- $(400/2) \times (10\% \text{ of } 40)$	<u>800</u>
Total cost of ordering & storage	<u>1,600</u>

(iv) Timing of next order

(a) Day's requirement served by each order.

$$\begin{aligned} \text{Number of days requirements} &= \frac{\text{No. of working days}}{\text{No. of order in a year}} \\ &= \frac{360}{100} = 3.6 \text{ days supply} \end{aligned}$$

This implies that each order of 400 packs supplies for requirements of 3.6 days only.

(b) Days requirement covered by inventory

$$\begin{aligned} &= \frac{\text{Units in inventory}}{\text{Economic order quantity}} \times (\text{Day requirement served by an order}) \\ \therefore \frac{333}{400} \times 3.6 \text{ days} &= 3 \text{ days requirement} \end{aligned}$$

(c) Time interval for placing next order

Inventory left for day's requirement – Lead time of delivery

3 day's requirements – 3 days lead time = 0

This means that next order for the replenishment of supplies has to be placed immediately.

Question 5

Discuss ABC analysis as a technique of inventory control.

(May 2008, 3 Marks)

Answer**ABC Analysis as a technique of Inventory Control:**

It is a system of inventory control. It exercises discriminating control over different items of stores classified on the basis of investment involved. Usually they are divided into three categories according to their importance, namely, their value and frequency of replenishment during a period.

'A' category of items consists of only a small percentage i.e. about 10% of total items handled by the stores but require heavy investment about 70% of inventory value, because of their high price or heavy requirement or both.

'B' category of items are relatively less important – 20% of the total items of material handled by stores and % of investment required is about 20% of total investment in inventories.

'C' category – 70% of total items handled and 10% of value.

For 'A' category items, stocks levels and EOQ are used and effective monitoring is done.

For 'B' category same tools as in 'A' category are applied.

For 'C' category of items, there is no need of exercising constant control. Orders for items in this group may be placed after 6 months or once in a year, after ascertaining consumption requirement.

Question 6

The annual carrying cost of material 'X' is Rs. 3.6 per unit and its total carrying cost is Rs. 9,000 per annum. What would be the Economic order quantity for material 'X', if there is no safety stock of material X ?

(Nov 2008, 2 Marks)

Answer**Calculation of Economic Order Quantity**

$$\begin{aligned} \text{Average Inventory} &= \frac{\text{Total Carrying Cost}}{\text{Carrying Cost per unit}} \\ &= \frac{\text{Rs. 9,000}}{\text{Rs. 3.60}} = 2,500 \text{ Units} \end{aligned}$$

$$\begin{aligned} \text{Economic Order Quantity} &= \text{Average Inventory} \times 2 \\ &= 2,500 \times 2 = 5,000 \text{ units.} \end{aligned}$$

Alternative Solution:

$$\text{Total Carrying Cost} = \frac{\text{Carrying cost per unit} \times \text{E.O.Q}}{2}$$

$$\text{or } 9,000 = \frac{3.6 \times \text{E.O.Q}}{2}$$

$$\text{or E.O.Q.} = \frac{9,000 \times 2}{3.6} = 5,000 \text{ unit}$$

Question 7

Differentiate between "scrap" and "defectives" and how they are treated in cost accounting.

(Nov 2007, 2 Marks)

Answer

Scrap: Scrap is incidental residue from certain type of manufacture, usually of small amount and low value, recoverable without further processing.

The cost of scrap is borne by good units and income scrap is treated as other income.

Defectives: Defectives are portion of production which can be rectified by incurring additional cost. Normal defectives can be avoided by quality control. Normal defectives are charged to good products.

Abnormal defectives are charged to Costing Profit and Loss Account.

Question 8

Following details relating to product X during the month of April, 2009 are available:

Standard cost per unit of X :

Materials : 50 kg @ Rs.40/kg

Actual production : 100 units

Actual material cost : Rs.42/kg

Material price variance : Rs.9,800 (Adverse)

Material usage variance : Rs.4,000 (Favourable)

Calculate the actual quantity of material used during the month April, 2009.

(May 2009, 2 Marks)

Answer

Standard cost of materials for actual output	Rs.
[(100 units × 50 kg) × Rs.40 per kg]	= 2,00,000
Material Usage Variance	<u>4,000 (F)</u>
	1,96,000
Material Price Variance	<u>9,800 (A)</u>
Actual cost of materials used	<u>2,05,800</u>

Actual material cost = Rs.42 per kg.

$$\therefore \text{Actual quantity of materials used during the month} = \frac{\text{Rs.2,05,800}}{42} = 4,900 \text{ kg.}$$

Alternative solution

Material price variance	= Rs. 9800 (A)
Actual price per kg.	= Rs. 42
Actual quantity of material used	= Rs. 9800/(42-40) = 4900 kg

Question 9

The following information relating to a type of Raw material is available:

<i>Annual demand</i>	<i>2000 units</i>
<i>Unit price</i>	<i>Rs.20.00</i>
<i>Ordering cost per order</i>	<i>Rs.20.00</i>
<i>Storage cost</i>	<i>2% p.a.</i>
<i>Interest rate</i>	<i>8% p.a.</i>
<i>Lead time</i>	<i>Half-month</i>

Calculate economic order quantity and total annual inventory cost of the raw material.

(November 2009, 3 Marks)

Answer

$$\text{EOQ} = \sqrt{\frac{2 \times \text{Annual Consumption} \times \text{Buying Cost per Order}}{\text{Storage Cost per unit}}}$$

$$= \sqrt{\frac{2 \times 2,000 \times 20}{\text{Rs.} 20 \times \left(\frac{2+8}{100}\right)}} = \sqrt{\frac{80,000}{2}} = 200 \text{ Units}$$

Total Annual Inventory Cost

Cost of 2,000 Units @ Rs.20 (2,000 × 20) = Rs.40,000

No. of Order $\frac{2000}{200}$ = Rs.10

Ordering Cost 10 × 20 = Rs.200

Carrying cost of Average Inventory $\frac{200}{2} \times 20 \times \frac{10}{100}$ = Rs.200

= Rs.40,400