Costing Revision Lecture 1

1. A company deals in trading of a toy car 'Terminato'. The annual demand for the toy car is 9,680 units. The company incurs fixed order placement and transportation cost of ₹ 200 each time an order is placed. Each toy costs ₹ 400 and the trader has a carrying cost of 20 percent p.a.

   The company has been offered a quantity discount of 5% on the purchase of 'Terminato' provided the order size is 4,840 units at a time.

   Required:

   i. COMPUTE the economic order quantity

   ii. STATE whether the quantity discount offer can be accepted.

2. A company manufactures a product from a raw material, which is purchased at Rs.180 per kg. The company incurs a handling cost of Rs.1,460 plus freight of Rs.940 per order. The incremental carrying cost of inventory of raw material is Rs.2.5 per kg per month. In addition, the cost of working capital finance on the investment in inventory of raw material is Rs.18per kg per annum. The annual production of the product is 1,00,000 units and 2.5 units are obtained from one kg. of raw material.

   Required:

   a. CALCULATE the economic order quantity of raw materials.

   b. DETERMINE, how frequently company should order for procurement be placed.

   c. If the company proposes to rationalize placement of orders on quarterly basis, DETERMINE the percentage of discount in the price of raw materials should be negotiated?

3. A company manufactures 10,000 units of a product per month. The cost of placing an order is ₹ 200. The purchase price of the raw material is ₹ 20 per kg. The re-order period is 4 to 8 weeks. The consumption of raw materials varies from 200 kg to 900 kg per week, the average consumption being 550 kg. The carrying cost of inventory is 20% per annum.

   You are required to CALCULATE:

   (i) Re-order quantity

   (ii) Re-order level

   (iii) Maximum level

   (iv) Minimum level

   (v) Average stock level

4. A company uses three raw materials Pi, Qu and Ar for a particular product for which the following data applies:

Raw Material	**Usage per unit of product (Kg.)**	**Re-order Quantity (Kg.)**	**Price per Kg. (Rs.)**	**Delivery period (in weeks)**			**Re-order level (Kg.)**	**Minimum level (Kg.)**
				Minimu	**Averag**	**Maximu**		
Pi	5	10,000	0.10	1	2	3	8,000	?
Qu	2	5,000	0.30	3	4	5	4,750	?
Ar	3	10,000	0.15	2	3	4	?	2,000

   Weekly production varies from 350 to 450 units, averaging 400 units of the said product. WHAT would be the following quantities:

   i. Minimum Stock of Pi?

   ii. Maximum Stock of Qu?

iii. Re-order level of Ar?

iv. Average stock level of Pi?

5. A Ltd. manufactures a product X which requires two raw materials A and B in a ratio of 1:4. The sales department has estimated a demand of 5,00,000 units for the product for the year. To produce one unit of finished product, 4 units of material A is required.

Stock position at the beginning of the year is as below:

Product- X	12,000 units
Material A	24,000 units
Material B	52,000 units

To place an order the company has to spend Rs.15,000. The company is financing its working capital using a bank cash credit @13% p.a.

Product X is sold at Rs.1,040 per unit. Material A and B are purchased at Rs.150 and Rs.200 respectively.

Required:

COMPUTE economic order quantity (EOQ):

i. If purchase order for the both materials is placed separately.

ii. If purchase order for the both materials is not placed separately.

6. The following data are available in respect of material X for the year ended 31st March, 2021:

	(₹)
Opening stock	9,00,000
Purchases during the year	1,70,00,000
Closing stock	11,00,000

(i) CALCULATE:

(a) Inventory turnover ratio, and

(b) The number of days for which the average inventory is held.

(ii) INTERPRET the ratio calculated as above if the industry inventory turnover rate is 10.

7. HBL Limited produces product 'M' which has a quarterly demand of 20,000 units. Each product requires 3 kg. and 4 kg. of material X and Y respectively. Material X is supplied by a local supplier and can be procured at factory stores at any time, hence, no need to keep inventory for material X. The material Y is not locally available, it requires to be purchased from other states in a specially designed truck container with a capacity of 10 tons.

The cost and other information related with the materials are as follows:

Particulars	Material –X	Material-Y
Purchase price per kg. (excluding GST)	₹140	₹640
Rate of GST	18%	18%
Freight per trip (fixed, irrespective of quantity)	-	₹ 28,000
Loss of materials in transit*	-	2%
Loss in process*	4%	5%

*On purchased quantity

Other information:

- The company has to pay 15% p.a. to bank for cash credit facility.
- Input credit is available on GST paid on materials.

Required:

a. CALCULATE cost per kg. of material X and Y

b. CALCULATE the Economic Order quantity for both the materials.

8. The following information is available relating to the stock out of firm :

Stock out (units)	No of times	Probability
800	2	0.04
600	3	0.06
400	5	0.10
200	10	0.20
0	30	0.60
Total	50	1.00

The selling price of each unit is ₹ 200. The carrying cost is ₹ 19/unit. The stock out cost is ₹ 50/unit.

i. If the firm wishes to never miss a sale, what should be the safety stock? what is the total cost associated with this level of safety stock ? what are the associated costs with safety stock of 600, 400, 200 and 0 units respectively.

ii. What is the optimal safety stock level?

9. Classify material in ABC classification

Number	Annual consumption in pieces	Unit price in paise
1	30,000	10
2	2,80,000	15
3	3,000	10
4	1,10,000	5
5	4,000	5
6	2,20,000	10
7	15,000	5
8	80,000	5
9	60,000	15
10	8,000	10