

Normal usage 60 units per week.  
 Minimum usage 30 units per week  
 Maximum usage 90 units per week  
 Delivery period 4 to 6 weeks.

Compute from the above (a) Re-order Quantity, (b) Reorder Level, (c) Minimum Level, (d) Maximum Level and (e) Average Level [C.A., Inter.]

(b) A manufacturing Company consumes an average 300 units of an item of raw materials per month. The cost per unit of raw materials is Rs. 25. The cost of placing an order is Rs. 250. The costs of carrying one unit of inventory per year are :

- (i) Rent, taxes, insurance etc. Rs. 2.50 and
- (ii) Interest on investment in inventory @ 10%

Calculate economic order quantity.

[B.U.B.Com. (H) 2001]

L4. Anil Company buys its annual requirement of 36,000 units in 6 instalments. Each unit costs Re. 1 and the ordering cost is Rs. 25. The inventory carrying cost is estimated at 20% of nit value.

Find out the total annual cost of the existing inventory policy. How much money can be saved by economic order quantity ? [C.A. Final]

L5. A publishing house purchases 2,000 units of a particular item per year at a unit cost of Rs. 20. The ordering cost per order is Rs. 50 and the inventory carrying cost is 25%. Find the optimal order quantity and the minimum total cost including purchase cost.

If a 3% discount is offered by the supplier for purchases in lots of 1,000 or more, should the publishing house accept the order. [I.C.W.A., Final]

L6. Sachin Ltd. furnishes the following information : (i) Consumption — 300 units per quarter; (ii) Cost per unit Rs. 40; (iii) Cost of processing an order Rs 600; (iv) Obsolescence 15%; (v) Insurance on inventory 25%.

Compute (a) Economic Order Quantity (b) No of Orders per year (c) Time between two consecutive Orders.

A supplier offers a discount of 2% on a purchase of 600 units. Should it be accepted ?

[C.U. B.Com. Hons.1998]

L7. The following data are available in respect of a material used in a factory for the year 2001 :

Annual Usage 2,000 quintals.  
 Cost per quintal Rs. 100  
 Ordering Cost per order Rs. 400  
 Carrying Cost per annum 10%

- (a) Calculate EOQ and Frequency of Orders p.a.
- (b) Evaluate the proposal of buying 1,000 quintals in each lot if discount is available @ 2%.
- (c) Also evaluate the proposal of buying 2,000 quintals in a lot if discount is available @ 3%.

L8. From the following particulars, calculate the best quantity to be ordered :

Ordering Quantity (in K.g.)	Price per kg. (Rs.)
Less than 500	10.00
500 and less than 1,600	9.60
1,600 and less than 4,000	9.40
4,000 and less than 8,000	9.20
8,000 and above	9.00

The annual requirement of the material is 8,000 kg. Stock holding (carrying) costs is 20% of material cost per annum. Ordering (reordering) cost per order is Rs. 10.

[C.U.B.Com. Hon. 1992]

L6 and L8 both sums are very important and generally comes in BCOM Exam

See solution below.

Ans L6

$EOQ = \frac{\sqrt{2AO}}{\sqrt{C}}$  A = Annual Demand, O = Ordering Cost C = Carrying Cost as a % of cost/purchase price. 40% = 15% + 25%

$$EOQ = \sqrt{(2 \times 300 \times 4 \times 600 / 40 \times 40\%)} = \sqrt{(1440000 / 16)} = \sqrt{90000} = 300 \text{ units}$$

$$\text{No of orders per year} = A/EOQ = 1200/300 = 4 \text{ times}$$

$$\text{Time between two consecutive orders} = 12 \text{ months} / 4 \text{ times} = 3 \text{ months}$$

### COMPARATIVE TOTAL ANNUAL INVENTORY COST

	Case I (EOQ = 300 u) (Rs)	Case II (EOQ = 600 u) (Rs)
Material Cost (1200*40)	48000	
(1200*40*98%)		47040
Ordering Cost (4*600)	2400	
(2*600)		1200
Carrying Cost = (EOQ/2)* Carrying Cost		
(300/2)* 16	2400	
(600/2)* (40*98%*40%)		4704
	52800	52944

As the total annual inventory cost in discount offer is higher than the original offer, therefore discount offer is not acceptable.

Ans L8

Ordering Quantity (Kg) (i)	Material Cost (Rs) (ii)	Ordering Cost (iii)	Carrying Cost (iv)	Total Cost = ii+iii+iv
400	8000*10 = 80000	(8000/400)* 10 = 200	(400/2)*(10*20%) = 400	80600
500	8000*9.6 = 76800	(8000/500)* 10 = 160	(500/2)*(9.6*20%) = 480	77440
1600	8000*9.4 = 75200	(8000/1600)* 10 = 50	(1600/2)*(9.4*20%) = 1504	76754
4000	8000*9.2 = 73600	(8000/4000)* 10 = 20	(4000/2)*(9.2*20%) = 3680	77300
8000	8000*9 = 72000	(8000/8000)* 10 = 10	(8000/2)*(9*20%) = 7200	79210

As the total cost is lowest, when the order size is 1600 kgs, therefore the optimal EOQ will be 1600 kgs.