

## Economic Order Quantity

1. An auto industry purchases spark plugs at the rate of 25/- per piece. The annual demand of spark plug is 18000 units. If the ordering cost is 250/- per order and carrying cost is 25%. What would be the EOQ?

$$\text{Annual Demand (D)} = 18000 \text{ units}$$

$$\text{Unit Price (P)} = 25/-$$

$$\text{Ordering cost (C}_o\text{)} = 250/-$$

$$\text{Carrying charge } C_i = 25\%$$

$$\text{EOQ} = \sqrt{\frac{2DC_o}{PC_i}}$$

$$= \sqrt{\frac{2 \times 18000 \times 250}{25 \times 0.25}}$$

$$\boxed{\text{EOQ} = 1200 \text{ numbers}}$$

2. The ABC Tea Wholesaler Company buys 80,000 shipping containers per year. Price of each container is Rs. 0.40. Cost of purchase is Rs. 80/- per order. Bank rate of interest is 15% including a charge for taxes and insurance. Find EOQ.

$$\text{Annual Demand (D)} = 80,000 \text{ units}$$

$$\text{Unit Price (P)} = \text{Rs. } 0.40$$

$$\text{Ordering cost per order (C}_o\text{)} = \text{Rs. } 80/-$$

$$\text{Bank rate of interest} = 15\%$$

$$= \sqrt{\frac{2 \times 80,000 \times 80}{0.4 \times \frac{15}{100}}} = \sqrt{\frac{12800000}{0.06}}$$

$$EOQ = \frac{4605}{7000} \text{ units}$$

3. From the following data draw a ABC analysis graph after classifying A, B, C items.

Item	Unit Price	Annual Consumption (units)	Total Cost
1	200	3000	600000
2	2	60,000	120000
3	5000	20	100000
4	12.5	200	2500
5	9	350	3150
6	25	6000	150000
7	1000	40	40,000
8	70	300	21000
			1036650

Item	UP	Qty	Price	Cumulative	Category	Percent %
1	200	3000	600000	600000	A	25%
6	25	6000	150,000	750000		
2	2	60000	120,000	870000	B	25%
3	5000	20	100,000	970000		
7	1000	40	40,000	1010000		
8	70	300	21000	1031000	C	50%
5	9	350	3150	1034150		
4	125	200	2500	1036650		

quantity to  
units of  
demand  
including  
is 25%

10,000  
containers  
per  
including  
EOQ.

(A)  $\Rightarrow$   $\frac{1036650 \times 20}{100} = 207330$

(C)  $\Rightarrow (A+B) - 1036650$

A - 70% of total value

B - 20% "

C - 10% "

### Category A

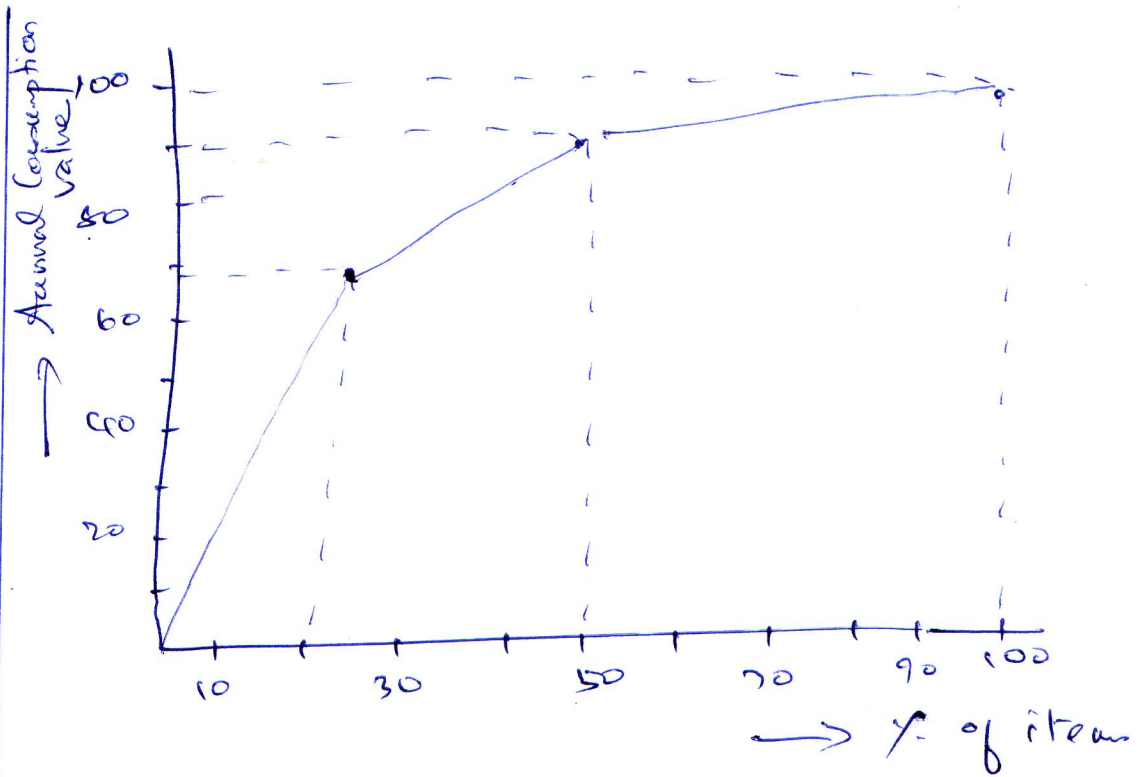
Item 1 and 6 are classified under A category which contributes more than 70% of total amount of consumption.

### Category B

Item 2 and 3  $\rightarrow$  which contribute 20% of consumption value.

### Category C

Item 4, 5, 7, 8  $\rightarrow$  which contribute 10% of consumption value.



④ A firm has several items of inventory. The average number of each of these items as well as its unit cost are given below.

Item No	Avg Inventory (units)	Avg cost (Rs)
1	5000	1.5
2	250	10
3	450	2.4
4	2000	17.5
5	25	200
6	20	160
7	300	6
8	200	170
9	3000	3
10	1500	2.5
11	5000	10
12	1600	2
13	3000	2.2
14	4500	4
15	800	1.2

Item A  
% of

contribution

X item account for 80% of total inv. value

Y " " 15%

Z " " 5%

Draw the XYZ graph.

①