Question: 01:

Orchid Limited (OL) is a trading concern. It is planning to implement Economic Order Quantity model (EOQ) from 1 April 2019. OL deals in four products each of which is purchased from a different supplier. To compute EOQ for one of its products Beta, the following data has been gathered:

i. Actual data for the last year relating to Beta:

Annual Sales	Units	72,000
Safety Stocks	Units	2,000
Transit Losses as % of purchases		10%
Average Holding Cost per Month	Rs.	500,000
Average Holding Cost per Month per Unit	Rs.	80
Number of Purchase Order issued for Beta		40

ii. Total cost of purchase department for the last year amounted to Rs. 4,500,000 which included fixed cost of Rs. 1,350,000. A total of 100 purchase orders were issued during the last year.

iii. Projections for the next year:

Increase in Sales Volume		25%
Safety Stock	Units	2,500
Transit Losses as % of Purchase		6%
Impact of inflation on all costs		10%

iv. Closing inventory (excluding safety stock) varies in line with the sale volume.

Question: 02:

ABC has recently established a new unit in Multan. Its planning for the first year of operation depicts the following:

i.	Cash sales	600,000 units
ii.	Credit sales	1,200,000 units
iii.	Ending inventory	Equivalent to 15 days sales
iv.	Number of working days in the year	300
v.	Expected purchase price	Rs. 450 per unit

Manufacturer offers 2% discount on purchase of 500 units or more as bulk quantity discount. The company intends to avail this discount.

vi. Carrying costs include:

- Financial cost of investment in inventory @ 16% per annum.
- Godown rent of Rs. 10,000 per month.

vii. Ordering costs are Rs. 300 per order.

Question: 03:

Modern Distributors Limited (MDL) is a distributor of CALTIN which is used in various industries and its demand is evenly distributed throughout the year.

The related information is as follows:

- Annual demand in the country is 240,000 tons whereas MDL's share is 32.5% thereof.
- The average sale price is Rs. 22,125 per ton whereas the profit margin is 25% of cost.
- The annual variable costs associated with purchasing department are expected to be Rs. 4,224,000 during the current year. It has been estimated that 10% of the variable costs relate to purchasing of CALTIN.
- Presently, MDL follows the policy of purchasing 6,500 tons at a time.
- Carrying cost is estimated at 1% of cost of material.
- MDL maintains a buffer stock of 2,000 tons.

Question: 04:

Alpha Motors (Pvt.) Ltd. uses a special gasket for its automobiles which is purchased from a local manufacturer. The following information has been made available by the procurement department:

Annual requirement (no. of gaskets)	162,000
Cost per gasket (Rs.)	1,000
Ordering cost per order (Rs.)	27,000
Carrying cost per gasket (Rs.)	300

The gaskets are used evenly throughout the year. The lead time for an order is normally 11 days but it can take as much as 15 days. The delivery time and the probability of their occurrence are given below:

Delivery time (in days)	Probability of occurrence
11	68%
12	12%
13	10%
14	6%
15	4%

Calculate safety stock if the company is willing to take the risk of:

20% of being stock out.
10% of being stock out.