

Time - 3 hours

Full mark - 80

Answer any five questions including Q No.1 which is compulsory. Figures in the right hand margin indicate marks

1. Answer any four of the following :- [7½ x 4]

- Define Linear Programming.
- What do you mean by Inventory management?
- Explain EOQ with the help of diagram.
- Point out the difference between PERT & CPM.
- What do you mean by safety stock?
- Describe the Objective function of Linear Programming with an example.
- What do you mean by Investment Analysis?
- Formulate the following problem in LPP :-

A chocolate manufacturing company produces only two types of chocolate - A & B. Both the chocolates require the following quantities:-

- Each unit of A requires 1 unit of Milk and 3 units of choco
- Each unit of B requires 1 unit of milk and 2 units of choco.

The company has a total of 5 units of milk and 12 units of choco. On each sale, the company makes a profit of:-

- Rs. 6 per unit A sold
- Rs. 5 per unit B sold.

Now the company wishes to maximize its profit. How many units of A and B should it produce respectively?

2. What are the various methods used to adjust risk in capital budgeting decisions? [12 1/2]

3. Solve the following LPP using simplex method :-

$$\text{Maximize } Z = 7x_1 + 6x_2$$

[12 1/2]

$$\text{Subject to, } x_1 + x_2 \leq 4;$$

$$2x_1 + x_2 \leq 6;$$

$$\text{where } x_1, x_2 \geq 0$$

4. What do you mean by transportation problem? Discuss various methods of obtaining an initial feasible solution to a transportation problem. [12 1/2]

5. A marketing manager has 5 salesmen and 5 sales territories. Considering the capacities of salesmen & the nature of the sales territories, the manager estimates that sales per month (in '000 Rs) for each salesman in each territory would be as follows:

[12 1/2]

	L	I	P	V	N
F	32	32	40	28	40
A	40	24	28	21	36
C	41	27	33	30	37
O	22	38	41	36	36
R	29	33	40	35	39

Find the assignment of salesman to the territories that would minimize the sales.

6. What do you mean by Inventory Control? Discuss various techniques of inventory control.

7. Annotate in brief the graphic and simplex methods of solving an LPP. Is simplex method superior to graphic method? If so in what way?

8. A project schedule has the following characteristics:

Activity	1-2	1-3	2-4	3-4	3-5	4-9	5-6	5-7	6-8	7-8	8-10	9-10
Time (days)	4	1	1	1	6	5	4	8	1	2	5	7

1. Construct Network Diagram.
2. Compute the earliest event time and latest event time.
3. Determine the critical path and total project duration.

9. Determine the basic feasible solution to the following transportation problem using north-west corner rules.

Cost matrix

TO \ FROM	W_1	W_2	W_3	W_4	Units Available
F_1	6	4	1	5	14
F_2	8	9	2	7	16
F_3	4	3	6	2	5
Units Required	6	10	15	4	35