QUESTION BANK :OR

1 what are the requirements of LP programming.

2. Enumerate the various decision processes.

3 What are the characteristics of OR

4 Enumerate the limitations of OR.

5 Give the mathematical formulation of LP programming.

6 What do you understand by deterministic and probabilistic

Models in LP.

7 What do you understand by objective function and constraints in an LP problem.

8 Two types of aircraft are available for bombing mission.The following data is available.

Aircraft type	fuel consumption	no.of aircraft available	bomb load
A	100 gallon/mission	26	2 Tons
B	200 gallon/mission	15	3 Tons

9 What is a convex set.

10 Solve graphically-

Maximize $Z = 5 x_1 + 3 x_2$

Subject to,

$3x_1 + 5x_2 \leq 15$

$5x_1 + 3x_2 \leq 10$and $x_1 , x_2 \geq 0$

11. Solve by simplex method-

Minimize $Z = 5x_1 + 3x_2$

Subject to

$2x_1 + 4x_2 \leq 12$

$2x_1 + 2x_2 = 10$

$5x_1 + 2x_2 \geq 10$

$x_1, x_2 \geq 0$

12 What is sensitivity analysis.

13. Write the dual of the following primal LP.

Maximize $Z = 20 x_1+17x_2+18x_3+12x_4$

Subject to:

$4x_1 - 3x_2 +8x_3 +3x_4 \leq 60$

$x_1+x_2+x_3 = 25$

QUESTION BANK :OR

$-x_2 + 4x_3 + 7x_4 \geq 35$

$x_1, x_2, x_3 \geq 0$ and x_4 is unrestricted in sign

14 What is degeneracy in a transportationmodel.

15 Solve the following transportation model :

	D1	D2	D3	D4	aı
S1	2	3	11	7	6
S2	1	0	6	1	1
S3	5	8	15	9	10
bj	7	5	3	2	

16what is Linear Programming and why is it called linear.

17. How is an LP problem formulated.Give the various steps

18. Give classification of OR models

19. What do you understand by deterministic and probabilistic models.

20. What is the relationship between primal and dual in LP problems.

21. What is degeneracy in a transport model.

22. Obtain the optimum cost of transportation;

		A	B	Supply
	X	7	2	30
Source	Y	9	5	30
	Z	3	7	30
Requirement		28	50	

23.Find below the cost matrix;

	S1	S2	S3	S4	S5
1	5	0	8	10	11

QUESTION BANK :OR

Sales zones	2	0	6	15	10	3
	3	8	5	0	0	0
	4	0	4	2	0	5
	5	3	5	6	0	8

Find assigned zones of sales persons,so that cost is maximum

24.Solve the following LP graphically—

Max $Z= 9x_1 + 3x_2$

Subject to,
$2x_1 + 3x_2 \leq 13$
$2x_1 + x_2 \leq 5$

$x_1 , x_2 \geq 0$

25. Discuss the origin and development of OR.What are its limitations.

26. Solve by simplex:

Maximize Z = x1+2x2 +3x3- x4

Subject to,

X1+2x2+3x3=15

2x1+x2+5x3=20

X1+2x2+x3+x4=10

X1,x2,x3,x4 ≥0

27. Discuss primal and its dual of LP

28 Write the dual for the given primal

Max Z= 3x1+17x2+9x3

X1-X2+X3 ≥ 3

-3X1+2X3 ≤1

X1,X2,X3 ≥ 0

29. Give the mathematical formulation of Transportation problem

QUESTION BANK :OR

31. Consider the following transportation problem.

	1	2	3	Supply
1	5	1	7	10
2	6	4	6	80
3	3	2	5	15
Demand	75	20	50	

Since there is not enough supply,some of the demands may not be satisfied.For every unsatisfied demand there is a penalty of Rs 5,3 and 2 for destinations 1,2 and 3.Find the optimal solution.

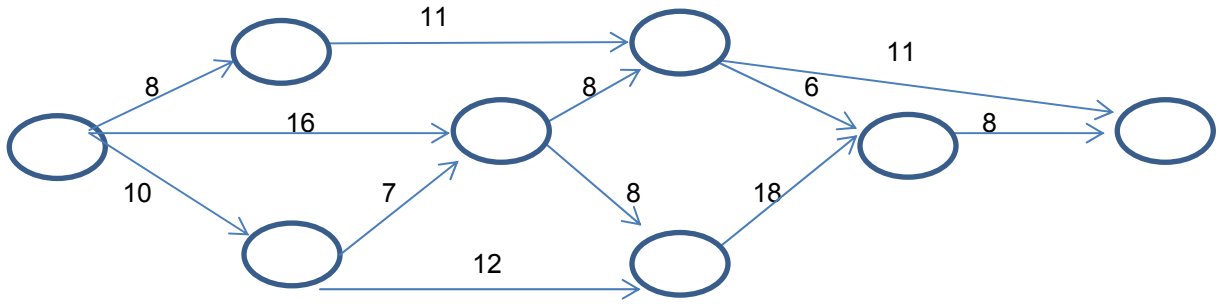
32. Give the mathematical formulation of an assignment problem

33. Minimize the following assignment problem,

	J1	J2	J3	J4	J5
A	12	10	15	22	18
B	11	18	25	15	16
C	11	10	3	8	5
D	6	14	10	13	13

34. What are the phases of project management.

35. Determine the project duration and the critical path.Also,calculate all the floats for the activity10-20 and 20-50



36. Solve the following game by graphical theory

	y1	y2	y3	y4
x1	19	6	7	5

QUESTION BANK :OR

x2	7	3	14	6
x3	12	8	18	4
x4	8	7	13	-1

37. What is the significance of the following.Give examples:-

(a) Saddle point
(b) Law of dominance
(c) 2xn and mx2 games