

Answer any Five questions
All questions carry equal marks

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- 1.a) What are the types of decisions? Explain them in brief with suitable example.
b) An electronics company makes a profit of Rs.10000 per day at present. The company has the option to go in for license from another company and make a profit of Rs.20,000 per day gross but has to pay a royalty of Rs.6000 per day. It has another option to go in for research and development at a cost of Rs.10,000. The company may make a profit of Rs.25,000 with a probability of 70% success and 30% failure. Draw a decision tree and choose the appropriate action.

2. Explain the role of quantitative specialist in a manufacturing organisation.

3. Solve the following LPP

$$\text{Max } Z = 3x_1 + 9x_2$$

$$\text{Show that } x_1 + 4x_2 \leq 8$$

$$x_1 + 2x_2 \leq 4$$

$$x_1, x_2 \geq 0$$

4. Determine the optimum basic feasible solution to the following transportation available problem.

				Available
	50	30	220	1
	90	45	170	3
	250	200	50	4
Required	4	2	2	

5. Consider pay off matrix with respect to player A and solve it optimally.

		B	
A	6	9	
	8	4	

6. Cars arrive at a drive-in restaurant with a mean arrival rate of 30 cars per hour and the service rate of the cars is 22 per hour. The arrival rate and the service rate follow Poisson distribution. The number of parking space for cars is only 5. Find the standard result of their system.

- 7.a) Discuss the steps of simulation.
b) What are advantages of simulation. Discuss various application areas of simulation.

8. Draw a network for job production and indicate the critical path from the following.

Activity	Time (weeks)	Preceded by
A	15	-
B	15	-
C	3	A
D	5	A
E	8	B,C
F	12	B,C
G	1	E
H	14	E
I	3	D,G
J	14	F,H,I

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