

Roll No. 

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Total No. of Pages : 02

Total No. of Questions : 08

**MBA (Sem.-3)**  
**OPERATIONAL RESEARCH**  
Subject Code : MB-301  
Paper ID : [C0197]

Time : 3 Hrs.

Max. Marks : 60

**INSTRUCTIONS TO CANDIDATES:**

1. SECTION-A is COMPULSORY consisting of TEN questions carrying TWO marks each.
2. SECTION-B contains SIX questions carrying TEN marks each and students have to attempt any FOUR questions.

**SECTION-A****Q1. Answer the following questions briefly :**

- a. Discuss any two uses of operations research techniques.
- b. What is Slack variable in linear programming?
- c. Define unbounded solution.
- d. Explain travelling salesman problem.
- e. What is the meaning of initial basic feasible solution in transportation models?
- f. Write a brief note on Re-order level of inventory.
- g. What is the meaning of mixed strategies?
- h. Explain crashing of cost in CPM.
- i. What is resource leveling in network programming?
- j. Define decision tree in decision making.

### SECTION-B

Q2. Solve the following linear programming problem.

$$\text{Maximize } z = 4x + 2y + 2z + 2w$$

Subject to

$$x + 3y - z + w \leq 50$$

$$2x + 2y - z - w \geq 10$$

$$2x - y + 2z \leq 40$$

$$x, y, z, w \geq 0$$

Q3. Maximize the following assignment problem.

14	15	10	9	8
15	9	7	15	14
11	6	15	19	7
5	14	9	17	8

Q4. Explain individual and group replacement methods.

Q5. Solve the following Game and find out strategies.

		Player-II			
Player-I	10	81	32	43	93
	59	63	39	69	73
	71	20	5	27	84
	34	14	44	44	69

Q6. Explain PERT and CPM. Discuss the use and importance of PERT and CPM.

Q7. Write a detailed note on various methods of taking decision under risk and uncertainty.