

Roll No.

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MMS/M-17 13527
MANAGEMENT SCIENCE
CP-201

Time : Three Hours]

[Maximum Marks : 70

Note : Attempt any *eight* questions from Section A (each of 5 marks) and any *three* questions from Section B (each of 10 marks).

Section A

1. Highlight the essential characteristics of Management Science.
2. Discuss the assumptions and applications of Linear Programming.

3. Solve the following LPP graphically :

$$\text{Maximise } Z = 10x_1 + 15x_2$$

Subject to :

$$2x_1 + x_2 \leq 26$$

$$2x_1 + 4x_2 \leq 56$$

$$x_1 - x_2 \geq -5$$

$$x_1, x_2 \geq 0$$

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P.T.O.

4. Solve the following game :

		Player B			
		b_1	b_2	b_3	b_4
Player A	a_1	3	2	4	0
	a_2	3	4	2	4
	a_3	4	2	4	0
	a_4	0	4	0	8

5. Explain the motives for holding inventories and types of inventories.
6. Obtain an optimal solution for the following assignment problem :

		Time Taken (in minutes)			
		Jobs			
		A	B	C	D
Workers	P	45	40	51	67
	Q	57	42	63	55
	R	49	52	48	64
	S	41	45	60	55

7. Elaborate integer programming. Give an example each of a pure and a mixed integer linear programming problem.
8. Discuss the characteristics and limitations of PERT model.
9. Draw a network corresponding to the following information :
Activity : 1-2 1-3 2-6 3-4 3-5 4-6 5-6 5-7 6-7
Duration (weeks) : 4 6 8 7 4 6 5 9 10
 Also determine the critical path.
10. Discuss the advantages and limitations of simulations.

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Section B

11. Solve the following LPP by Simplex Method :

$$\text{Maximise } Z = 40x_1 + 35x_2$$

Subject to

$$2x_1 + 3x_2 \leq 60$$

$$4x_1 + 3x_2 \leq 96$$

$$x_1, x_2 \geq 0$$

12. Solve the following transportation problem for maximising the total profit.

Profit (Rs. per unit)

From \ To	P	Q	R	S	Supply
A	12	10	12	13	500
B	7	11	8	14	300
C	6	16	11	7	200
Demand	180	150	350	320	

13. Discuss the methodology, scope and limitations of Management Science.
14. What is Waiting Line Theory ? What are its applications ? Discuss the general structure of a queuing system.
15. Write notes on the following :
- (a) Sensitivity analysis
 - (b) Decision trees.