MANAGEMENT PROGRAMME (MP)
Term-End Examination
June, 2024

MS–51 : OPERATIONS RESEARCH

Time : 3 Hours   *Maximum Marks : 100*

Weightage : 70%

Note : (i)   *Answer any **five** questions.*

(ii)   *All questions carry equal marks.*

1. Discuss the significance and scope of operations research in modern management.

2. Consider the transportation problem in the following table :

To From	Distribution Centres				Supply
	D_1	D_2	D_3	D_4	
S_1	21	16	25	13	11
S_2	17	18	14	23	13
S_3	32	27	18	41	19
Demand	6	10	12	15	

Find an initial basic feasible solution of the transportation problem by using Vogel's Approximation Method.

3. What is an integer programming problem ? How does the optimal solution of an integer programming problem compared with that of the linear programming problem ?

4. A department has five employees with five jobs to be performed. The time (in hours) each man will take to perform each job is given in the below cost matrix :

Employees

	To From	I	II	III	IV	V
	A	10	5	13	15	16
	B	3	9	8	13	6
Jobs	C	10	7	2	2	2
	D	7	11	9	7	12
	E	7	9	10	4	12

How should the jobs be allocated, one per employee, so as to minimise the total man-hours ?

5. What are the various types of probabilistic models in inventory control ? Discuss various probabilistic models.

6. What do you mean by simulation ? What are the steps in the simulation process ? What are the practical applications of simulation ? Discuss.

7. Write short notes on any *four* of the following :

    (i)   Probability Distribution

    (ii) Graphical Method for LPP

    (iii) Sensitivity Analysis

    (iv) Principle of Dominance

    (v)   Inventory Control Systems