

MANAGEMENT PROGRAMME (MP)

Term-End Examination

June, 2025

MS-51 : OPERATIONS RESEARCH

Time : 3 Hours

Maximum Marks : 100

(Weightage : 70%)

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

(ii) All questions carry equal marks.

1. “Operations Research (OR) aids the executive in making his/her decisions by providing him/her with needed quantitative information based on the scientific method of analysis.” Discuss this statement and give at least *two* examples to illustrate how operations research is helpful in decision-making.
2. Solve the following assignment problem shown in the table using the Hungarian

method. The matrix entries show each man's processing time in hours :

	I	II	III	IV	V
1	20	15	18	20	25
2	18	20	12	14	15
3	21	23	25	27	25
4	17	18	21	23	20
5	18	18	16	19	20

3. What are the various types of inventory ? Why are they maintained ? Explain the various costs related to inventory.
4. Discuss the similarities in the solution procedures for transportation and assignment models.
5. Describe 'Duality' in linear programming. What is the essential difference between the regular simplex method and the dual simplex method ? What are the properties of the dual problem ?
6. What is Game theory ? What are its limitations ? Show how a two-person zero-sum game problem can be formulated as a linear programming problem.

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

- (i) Non-linear programming
- (ii) Degeneracy in linear programming
- (iii) Monte-Carlo Simulation
- (iv) Dynamic programming
- (v) Assignment problem

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