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**MS-051**

**MANAGEMENT PROGRAMME**

**(MP)**

**Term-End Examination**

**June, 2026**

**MS-051 : OPERATIONS RESEARCH**

*Time : 3 Hours*

*Maximum Marks : 100*

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

(ii) All questions carry equal marks.

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1. Define 'Operations Research' (OR). Explain its major limitations and describe in detail the various steps involved in conducting an Operations Research study.
2. What is 'Dynamic Programming' ? In what areas of management can it be applied successfully ?

3. Using the following cost matrix, determine :
- optimal job assignment, and
  - the cost of assignments.

| <b>Jobs</b>      |    |    |   |   |    |
|------------------|----|----|---|---|----|
| <b>Machinist</b> | 1  | 2  | 3 | 4 | 5  |
| A                | 10 | 3  | 3 | 2 | 8  |
| B                | 9  | 7  | 8 | 2 | 7  |
| C                | 7  | 5  | 6 | 2 | 4  |
| D                | 3  | 5  | 8 | 2 | 4  |
| E                | 9  | 10 | 9 | 6 | 10 |

- Define 'Inventory'. "Some business consider inventory as necessary evil while other inventory as an asset." Discuss.
- Explain the concept of a 'Queuing Model'. Describe the main characteristics of a queuing system and discuss Kendall's notation used to represent queuing models.
- Clearly explain the advantages and limitations of Simulation, and describe the steps involved in performing it.

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

- (a) Sensitivity Analysis in Linear Programming
- (b) Balanced and Unbalanced Assignment Problem
- (c) Differential Weights
- (d) Integer Programming
- (e) Saddle Points in Game theory

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