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MS-51

MANAGEMENT PROGRAMME (MP)

Term-End Examination

June, 2023

MS-51 : OPERATIONS RESEARCH

Time : 3 Hours *Maximum Marks : 100*

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

(ii) All questions carry equal marks.

(iii) Use of simple calculators is allowed.

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1. Solve the equation graphically :

   Maximize :

   $$Z = 2A + 3B$$

   Subject to :

   $$100\,A + 200\,B \leq 4000$$

   $$A + B \leq 30$$

   $$A \leq 26$$

   $$B \leq 15$$

   $$A, B \geq 0.$$

2. What are the limitations of operations research ? Explain some applications of operations research.

3. Five candidates are approved for appointment as personal secretaries to five members of the board of a company. The preferences of each member are given below. How would you make allocations so that satisfied level is maximised ?

Board members/ Candidates	1	2	3	4	5
A	1	2	1	2	3
B	2	3	3	1	1
C	4	1	5	3	4
D	5	4	2	5	5
E	3	5	4	4	2

4. What do you understand by dynamic programming ? In what areas of management can it be applied successfully ?

5. The annual demand of an inventory item is 2400 units, the order processing costs amount to ₹ 350 per order and the inventory holding costs are estimated to be 2% per month of the value in stock. The normal price of the product is ₹ 10 per unit.

   What would be the most economical purchase quantity ?

6. What are the steps involved in simulation process ? Explain some practical applications of simulation.

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

   (a) Probability Distribution

   (b) Dual Linear Programming Problem

   (c) Cutting-Plane Method

   (d) Characteristics of Queuing Model

   (e) Saddle Point