

No. of Printed Pages : 3

MS-51

MANAGEMENT PROGRAMME (MP)

Term-End Examination

December, 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.*

1. Solve the equation graphically :

Min. :

$$Z = 2500x + 3500y$$

Subject to :

$$50x + 60y \geq 2500$$

$$100x + 60y \geq 3000$$

$$100x + 200y \geq 7000$$

$$x, y \geq 0.$$

P. T. O.

2. What do you understand by the term operations research ? Describe in brief some of the techniques of operations research.
3. ABC manufacturing company has several plants, three of which manufacture a Standard Sofa, Deluxe Sofa and a Super Deluxe Sofa. The selling prices are : Standard ₹ 1,495, Deluxe ₹ 1,895 and Super Deluxe ₹ 2,195. The requirement of units are Standard 450, Deluxe 1050 and super Deluxe 600. The plants A, B and C have a capacity of 800, 600 and 700, respectively. The variable cost matrix is as follows :

	Standard	Deluxe	Super Deluxe
Plant A	800	850	925
Plant B	795	860	920
Plant C	810	845	930

Show the initial basic feasible solution table.

4. Define goal programming. Identify the major differences between linear programming and goal programming.
5. A TV repairman finds that the time spent on his jobs has an exponential distribution with mean 30 minutes. If he repairs sets on FCFS

[3]

basis and if the arrival of sets is with an average of 10 per 8 hour day, what is the repairman's expected idle time each day ? Also, obtain the average number of sets in the system.

6. Explain, in brief, the simulation model. What are the advantages of using simulation model ?
7. Write short notes on any *three* of the following :
 - (a) Random Experiment and Probability
 - (b) Modified Distribution (MODI) method
 - (c) Queuing Model
 - (d) Objectives of Inventory Control
 - (e) Limitations of Simulation