

**First Year MHA Degree Supplementary Examinations March 2025**  
**Operations Research**  
**(Common for 2013 and 2016 Scheme)**

Time: 3 Hours

Max Marks: 100

- Answer all questions to the point neatly and legibly • Do not leave any blank pages between answers • Indicate the question number correctly for the answer in the margin space
- Answer all parts of a single question together • Leave sufficient space between answers
- Draw table/diagrams/flow charts wherever necessary • Ordinary calculator can be used
- Simple calculator shall only be permitted

**Essays:****(2x20=40)**

1. The daily demand for a commodity is 100. Every time an order is placed, there is a fixed cost of Rs.100/-. The daily holding cost is RS. 20/- If the shortages are not allowed-
  - a) Determine the EOQ
  - b) How frequently production run should be made
  - c) Determine the total expected cost.
2. A department has four subordinates and four tasks to be performed. The subordinates differ in efficiency and task differs in their intrinsic difficulty. The estimates of the profit, in rupees, each man would earn is given in the effectiveness matrix. How should the task be allocated, one to each man, so as to maximize the total earning

		Tasks			
		A	B	C	D
Subordinates	1	5	40	20	5
	2	25	35	30	25
	3	15	25	20	10
	4	15	5	30	15

**Short Essays:****(2x10=20)**

3. What is linear programming. Discuss the application of linear programming to managerial decision making
4. What is simulation. Discuss advantages of use of simulation techniques in decision making

**Short notes:****(8x5=40)**

5. Discuss in brief the role of OR model in decision making
6. Explain graphical method of solving LPP
7. Explain Vogel's approximation method of obtaining initial feasible solution while solving Transportation Problem
8. What do you understand by zero sum and non-zero sum games
9. Discuss the arrival and service process of waiting line model
10. Explain how the theory of replacement is used in replacement of items
11. Distinguish between PERT and CPM
12. What are the different costs that are involved in the inventory problem

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