Reg. No. :

Question Paper Code: 6312476

M.B.A. DEGREE EXAMINATIONS, NOV/ DEC 2024
Second Semester
Master of Business Administration
P23BAT21 – QUANTITATIVE TECHNIQUES FOR DECISION MAKING
(Regulation 2023)

Time: Three Hours   Maximum: 100 Marks

Answer ALL questions

PART – A   (10 x 2 = 20 Marks)

1.   What is Linear Programming?

2.   Mention any three applications of Linear Programming.

3.   What is an unbalanced Transportation Problem?

4.   What is feasible and optimal solution in Transportation Problem?

5.   What do you mean by Pay off in decision theory?

6.   What is Decision Tree Analysis?

7.   What is the primary objective of an inventory model?

8.   What factors influence the replacement decision in replacement models?

9.   What is a multiple-channel queuing system?

10.   How does an infinite calling source differ from a finite calling source?

11. (a) Use the graphical method to solve the following LPproblem.
Maximize: $Z = 3X_1 + 2X_2$ Subject to the restrictions, $2X_1 + X_2 \leq 40$
$X_1 + X_2 \leq 24$ $2X_1 + 3X_2 \leq 60$ and $X_1, X_2 \geq 0$.   (16)

(OR)

(b) Explain the various assumptions, Advantages and Limitations of Linear Programming.   (16)

12. (a) Optimize the following transportation problem given below wit initial basic feasible solution by MODI method.   (16)

-	Wear Houses				Supply
-	D1	D2	D3	D4	-
P1	10 3	40 2	7	6	50
P2	25 7	5	20 2	15 3	60
P3	25 2	5	4	5	25
Demand	60	40	20	15	-

(OR)

(b) Use Vogel Approximation Method to find the initial basic feasible solution for the following transportation problem.   (16)

	D1	D2	D3	D4	Supply
S1	19	30	50	10	7
S2	70	30	40	60	9
S3	40	8	70	20	18
Demand	5	8	7	14	-

13. (a) Explain the steps of Decision Making Process? Explain the different criteria for decision making under uncertainty.   (16)

(OR)

(b) The following matrix gives the Pay Off (Rs) of different strategies S1, S2 and S3 against conditions N1, N2 and N3. What is the best strategy based on (a) Maximini Criteria and (ii) Laplace Criteria. (16)

Condition	N1	N2	N3
Strategy	-	-	-
S1	7,00,000	3,00,000	1,50,000
S2	5,00,000	4,50,000	00
S3	3,00,000	3,00,000	3,00,000

14. (a) Discuss the objectives and key components of inventory models in operations research. Explain their significance in decision-making. (16)

(OR)

(b) Discuss the importance of replacement models in operations management. How can they improve decision-making in real-world scenarios? Provide examples of individual and group replacement policies. (16)

15. (a) Explain the infinite calling source assumption. How does it simplify queuing models? Discuss its limitations and provide real-world applications. (16)

(OR)

(b) Explain queuing theory and discuss its applications. Explain the basic structure of a queuing system with suitable examples. (16)

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