TM244724K

Reg. No :.....

Name :.....

MASTER'S DEGREE (C.S.S) EXAMINATION, MARCH 2024

2022 ADMISSIONS REGULAR

SEMESTER IV - Applied Statistics and Data Analytics

ST4E01TM - Operation Research

Time : 3 Hours **Maximum Weight : 30**

Part A

I. Answer any Eight questions. Each question carries 1 weight **(8x1=8)**

1. Write a short note on travelling sales man problem.
2. Write a short note on Vogel's Approximation Method in Transportation problem.
3. Write a short note on Least Cost Method in Transportation problem.
4. Define General nonlinear programming problem.
5. Explain nonlinear programming problem.
6. Write a short note on
   i) Feasible solution
   ii) Basic solution
   iii) Basic feasible solution
7. Explain the term EOQ.
8. What does the term inventory stands for?
9. Explain maximin-minimax principle in game theory.
10. Explain two-person zero sum game.

Part B

II. Answer any Six questions. Each question carries 2 weight **(6x2=12)**

11. Explain big M method step by step.
12. Define convex set. Show that the intersection of any number of convex sets is convex, but the union of two or more convex sets may not be convex.
13. Briefly explain Beal's method for solving quadratic programming problem.
14. State and prove necessary and sufficient condition for a maximum point of a quadratic programming problem.
15. Explain EOQ with price brakes.
16. Explain multi item EOQ with storage limitation.
17. Explain any one method to solve a 2×2 game problem without saddle point.
18. Show that every two-person zero sum game with mixed strategies has solution.

Part C

iii. Answer any Two questions. Each question carries 5 weight **(2x5=10)**

19. Explain the method of solving LPP by duality method with the help of an example.
20. Differentiate between the procedures of Wolfe's method and Beal's method.
21. Explain EOQ models when shortages are allowed.
22. Explain the principle of dominance in game theory and solve the following game:

	B1	B2	B3	B4

	B1	B2	B3	B4
A1	8	10	9	14
A2	10	11	8	12
A3	13	12	14	13