TDC (CBCS) Even Semester Exam., 2024

STATISTICS

(6th Semester)

Course No. : STSDSE–602T

(Operations Research)

Full Marks : 50
Pass Marks : 20

Time : 3 hours

The figures in the margin indicate full marks for the questions

UNIT—I

1. Answer any *three* questions : 1×3=3

(a) Mention three types of models used in operations research.

(b) Why is linear programming problem called linear programming?

(c) Write two important applications of operations research.

(d) What are the main limitations of graphical method of solving linear programming problem?

2. Answer any *one* question : 2

(a) Define linear programming problem.

(b) What are the phases of operations research?

3. Answer any *one* question : 5

(a) Describe simplex method for solving linear programming problem.

(b) Discuss the graphical method of solving transportation problem.

UNIT—II

4. Answer any *three* questions : 1×3=3

(a) What is Charne's M-technique in operations research?

(b) Why are artificial variables required in solving linear programming problem?

(c) What do you mean by duality in linear programming problem?

(d) What is the main advantage of dual simplex method over simplex method?

5. Answer any *one* question : 2

(a) Explain duality with an example.

(b) Why is Charne's M-technique required in linear programming problem and how is it different from simplex method?

6. Answer any *one* question : 5

(a) Show that the dual of the dual is the primal. Give one example.

(b) Explain the uses of duality with an example in linear programming problem.

UNIT—III

7. Answer any *three* questions : 1×3=3

(a) What is unbalanced transportation problem?

(b) Write two applications of transportation problem.

(c) What is assignment problem?

(d) Define basic feasible solution of a transportation problem.

8. Answer any *one* question : 2

(a) What is northwest corner rule in transportation problem?

(b) Explain the meaning of optimal solution in a transportation problem.

9. Answer any *one* question : 5

(a) Describe Vogel's approximation method of solving transportation problem.

(b) Explain Hungarian method of solving assignment problem.

UNIT—IV

10. Answer any *three* questions : 1×3=3

(a) What is rectangular game?

(b) What is saddle point in a game?

(c) Define dominance in a game.

(d) Define CPM in a network.

11. Answer any *one* question : 2

(a) What do you mean by maximin-minimax principle in a game?

(b) What are the properties of dominance in a game?

12. Answer any *one* question : 5

(a) Explain the procedure of solving rectangular game using maximin-minimax principle.

(b) Describe the graphical method of solving rectangular game.

UNIT—V

13. Answer any *three* questions : 1×3=3

(a) Define carrying cost in inventory.

(b) What do you mean by inventory?

(c) Define inventory management.

(d) What is EOQ model in inventory management?

14. Answer any *one* question : 2

(a) Explain EOQ model with shortages.

(b) Explain ABC inventory system.

15. Answer any *one* question : 5

(a) Discuss the characteristics of inventory system.

(b) Describe EOQ model without shortages and its limitations.

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