BSCSTC 356

Credit Based VI Semester B.Sc. Degree Examination, September 2022
(2020-21 and Earlier Batches)
STATISTICS
Operations Research – Paper – VIII

Time : 3 Hours   Max. Marks : 80

Instructions : i) *A single booklet containing* **40** *pages will be* ***issued.***

ii) ***No*** *additional sheets will be* ***issued.***

PART – A

1. Answer **any ten** of the following :   **(10×2=20)**

   a) Mention any two features of operations research.

   b) Define slack variable with an example.

   c) How does a simplex table indicate that the solution to the LPP is unbounded ?

   d) State the merit and demerit of using a north-west corner rule in obtaining the initial basic feasible solution to a T.P.

   e) How will you identify that a transportation problem has got an alternate optimum solution ?

   f) What do you mean by "degeneracy" in a transportation problem ?

   g) When is an assignment problem is said to be unbalanced ? How do you make it a balanced one ?

   h) Define :

      i) Competitive game.

      ii) Pay-off matrix.

   i) Distinguish between pure strategy and mixed strategy.

   j) What do you mean by inventory control ?

   k) Define holding cost and set up cost in relation to inventory problems.

   l) Define economic order quantity.

PART – B

Answer **any five** of the following : **(5×6=30)**

2. Briefly explain various phases of O.R.

3. Explain the method of solving an LPP graphically.

4. Explain Vogel's approximation method of finding an initial basic feasible solution to a transportation problem.

5. State and prove the necessary and sufficient condition for the existence of a feasible solution to a T.P.

6. What is an assignment problem ? Give its mathematical formulation.

7. Explain 'minimax criterion' as applied to theory of games.

8. Explain the procedure of finding EOQ in the case of a single price break.

9. Derive the criterion for solving a news paper boy problem.

PART – C

Answer **any three** of the following : **(3×10=30)**

10. When do you say that an LPP is in standard form ? Also, explain the big M method of solving an LPP.

11. Explain the procedure of finding an optimum solution to the T.P.

12. Derive the solution to a 2×2 game without a saddle point.

13. Derive the EOQ in the case of uniform demand, instantaneous production when shortages are allowed.

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