

B.Sc. Sem-6 Examination

CC 310

Statistics

April 2022

Time : 2-00 Hours]

[Max. Marks : 50

SECTION I**Section I: Attempt any three**

- Q.1 A. What is linear programming problem? Give its mathematical formulation. 7
 B. A company during the festival season combines two items A and B to form a gift pack which must weigh at least 5 kg. At least 2 kg of A and more than 4 kg of B should be used. The cost per unit of A and B is respectively Rs 10 and Rs 6. Find the optimal item mix for minimum cost by using graphical method. 7
- Q.2 A. What is Operations Research? Explain its various applications. 7
 B. Explain Simplex method. 7
- Q.3 A. Explain transportation problem with suitable illustrations. 7
 B. Describe the matrix minima method to obtain basic feasible solution. 7
- Q.4 A. Describe Vogel's approximation method for solving transportation problem 7
 B. Explain assignment problem with suitable illustration. 7
- Q.5 A. Explain Hungarian method of solving assignment problem. 7
 B. Derive basic feasible solution of the following transportation problem by North-West corner rule. 7
- Q.6 A. Write differences between PERT and CPM. 7
 B. Write a short note on critical path method. 7
- Q.7 A. Explain terms 7
 (i) Optimistic time
 (ii) Pessimistic time
 (iii) Float time
 B. Explain with illustrations the following terms in reference to PERT 7
 (i) Activity
 (ii) Dummy activity
 (iii) Earliest start time
- Q.8 A. Write a note on Game theory. 7
 B. Explain Dominance rule of game theory. 7

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Q.9 Attempt any 8

- 1 In which method of solving transportation problem the unit cost of transportation is not taken into consideration.
 - (i) VAM
 - (ii) LCM
 - (iii) NWCM
 - (iv) HAM Method
- 2 The outcome of the interaction of selected strategies of opponent in a game is called_____.
 - (i) Income
 - (ii) Profit
 - (iii) Payoffs
 - (iv) Gains
- 3 What can you say about EST and LFT for the activities which lie on critical path?
 - (i) $EFT < LFT$
 - (ii) $EFT > LFT$
 - (iii) $EFT = LFT$
 - (iv) None of the above
- 4 EST of any initial activity is_____.
 - (i) Zero
 - (ii) $Zero + t_e$
 - (iii) Non negative
 - (iv) t_e
- 5 Float time for any activities on a critical path is always_____.
 - (i) Positive
 - (ii) Non negative
 - (iii) $> LFT$
 - (iv) zero
- 6 The feasible solution to a linear programming problem is_____.
 - (i) Convex
 - (ii) Negative
 - (iii) Unknown
 - (iv) Infinite
- 7 If three or more variables are there in a linear programming problem then _____ method is used to solve it.
 - (i) Graphical
 - (ii) Complex
 - (iii) Simplex
 - (iv) All of the three

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- 8 Linear programming was first introduced by _____.
- (i) Karl Pearson
 - (ii) George B. Danting
 - (iii) Newton
 - (iv) Spearman
- 9 The values of the variables in linear programming problem are _____.
- (i) Negative
 - (ii) Zero
 - (iii) Only positive
 - (iv) Non negative
- 10 The non-negativity constraint asserts that the feasible region must be in the _____ quadrant.
- (i) First
 - (ii) Second
 - (iii) Third
 - (iv) Fourth
- 11 The feasible solution to a linear programming problem is _____.
- (i) Convex
 - (ii) Negative
 - (iii) Unknown
 - (iv) Infinite
- 12 In linear programming problem the optimal solution of a bounded feasible region always exists at _____.
- (i) Any point
 - (ii) Vertex
 - (iii) Origin
 - (iv) All of the above

