

R18

Code No: 156DY

JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD

B. Tech III Year II Semester Examinations, February/March - 2022

QUANTITATIVE ANALYSIS FOR BUSINESS DECISIONS

(Common to CE, CSE, IT)

Time: 3 hours

Max. Marks: 75

Answer any five questions
All questions carry equal marks

- 1.a) Briefly explain the different Techniques of OR. Where are they applied? [8+7]
b) Brief on the solution methodology of simplex algorithm.
- 2.a) What are the advantages of OR? [8+7]
b) How did OR develop in India and where are they being applied now?
- 3.a) What is a Transportation Problem and brief on the application of the transportation model.
b) Briefly explain the steps involved in solving the Vogel's Approximation Method (VAM). [8+7]
- 4.a) What is an Assignment Problem? What are its Objectives and Characteristics?
b) Solve the following Assignment Problem Efficiency Matrix: [8+7]

| | B ₁ | B ₂ | B ₃ | B ₄ |
|----------------|----------------|----------------|----------------|----------------|
| A ₁ | 60 | 65 | 70 | 55 |
| A ₂ | 70 | 60 | 55 | 65 |
| A ₃ | 65 | 60 | 75 | 70 |
| A ₄ | 50 | 55 | 60 | 80 |

- 5.a) What is Minimax Regret Criterion? Give a hypothetical example of the same.
b) What are the situations that make group replacement of low-cost items? [8+7]
6. At a Sales Counter manned by a single person, customers arrive according to Poisson distribution, at a mean rate of 20 per hour and the time required to service a customer is expected to follow Exponential Distribution with a mean rate of 120 seconds. Find the Average Waiting Time of a customer in the System and in the Queue. [15]
- 7.a) What is a Q-System? What are its basic elements? Explain the same briefly.
b) Explain the solution methods of games without saddle point. [8+7]
- 8.a) What is Coefficient of Optimism (Hurwitz Criterion) in Decision-Making under Uncertainty? Briefly explain the same.
b) Explain the nature, scope of simulation and brief on types of simulation. [8+7]

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