

C-6433

Sub. Code

31016

M.B.A. DEGREE EXAMINATION, APRIL 2022

First Semester

Industry Integrated

QUANTITATIVE TECHNIQUES

(2017 onwards)

Duration: 3 Hours

Maximum : 75 Marks

Part A

(10 × 2 = 20)

Answer all questions.

1. What is linear programming?
2. Define optimal feasible solution.
3. What do you mean by two person Zero sum game?
4. What is the nature of IPP?
5. List the merits of North West Corner method.
6. What is cost matrix?
7. What is balk in Queue Behaviour?
8. Define Free Float.
9. Define Hurwicz Alpha Criterion.
10. When is simulation used?

Part B

(5 × 5 = 25)

Answer all questions.

11. (a) Solve the linear programming problem by Graphical Method

$$\text{Minimize } Z = 30x_1 + 20x_2$$

$$\text{subject to } 15x_1 + 5x_2 \geq 120$$

$$10x_1 + 10x_2 \geq 80$$

$$10x_1 + 30x_2 \geq 240$$

$$x_1, x_2 \geq 0.$$

Or

- (b) What are slack variables? Where are they used? Explain.

12. (a) Discuss Gomory's cutting plane method.

Or

- (b) Develop a model of fixed charge problem.

13. (a) Explain the applications of Travel Salesman Problem with suitable example.

Or

- (b) Solve this transportation problem using Least Cost method.

	D1	D2	D3	D4	SUPPLY
S1	1	2	1	4	30
S2	3	3	2	1	50
S3	4	2	5	1	20
DEMAND	20	40	30	10	

14. (a) Distinguish between CPM and PERT.

Or

- (b) Discuss the cost Trade-Off in project crashing.

15. (a) Explain the methodology of Monte Carlo simulation techniques.

Or

- (b) Explain Decision Tree for sequential Decision. Why are they used?

Part C

(3 × 10 = 30)

Answer all questions.

16. (a) Explain the applications of Linear programming in functional areas of Management.

Or

- (b) Distinguish between Total Covering problem and Partial covering Problem. And also discuss related models.

17. (a) Solve this transport problem using

- (i) North west Corner method
 (ii) Least Cost Method
 (iii) Vogel's Approximation Method.

	D1	D2	D3	SUPPLY
S1	5	4	3	100
S2	8	4	3	300
S3	9	7	5	300
DEMAND	300	200	200	

Or

- (b) Explain :
- (i) Maximax ,
 - (ii) Minimax,
 - (iii) Maxmin decision criteria.

18. (a) Consider the network scheduling problem as shown in the following table.

Activity	1-2	1-3	1-4	2-6	3-6	4-6	6-7
Duration (Months)	6	4	9	5	8	2	7
Man power Requirement	10	6	8	4	7	5	4

Schedule the activities of the project with the maximum limit on man power requirement as 15.

Or

- (b) A businessman is trying to decide whether to take one of two contracts or none of them and then simplifying the situation into two alternatives. How can he make a decision tree? Explain giving suitable example.