

18. Solve the following TP.

				a_i	
10	18	11	7	20	
9	12	14	6	40	
8	9	12	10	35	
b_j	16	18	31	30	

19. Solve

	Player B		
Player A	4	-1	5
	0	5	3
	5	3	7

20. Construct a network diagram and find the total float for?

Activity : 1-2 1-3 2-3 2-4 3-4 4-5

Duration : 20 25 10 12 6 10

(For the candidates admitted from 2008-2009 onwards)

B.B.A. (CA) DEGREE EXAMINATION,
APRIL/MAY 2018.

Second Semester

QUANTITATIVE TECHNIQUES — II

Time : Three hours

Maximum : 75 marks

SECTION A — (10 × 2 = 20 marks)

Answer ALL questions.

1. What is operation research?
2. State any four applications of O.R.
3. Define "basic feasible solution".
4. Write down the canonical form of a L.P.P.
5. Describe a transportation problem.
6. Express a transportation problem as a linear programming model.
7. How is a 3 × 3 game, can be solved when Dominance property fails?
8. Define strategy.
9. What is dummy activity in a network?
10. What is the latest start time?

SECTION B — (5 × 5 = 25 marks)

Answer ALL questions.

11. (a) Describe briefly the research phase of O.R.
Or
(b) Write short notes on the applications of O.R. in the finance and marketing areas of management.

12. (a) Solve the following LP problem, using graphical method :

$$\text{Minimize } Z = 2x_1 + 3x_2$$

$$\text{Subject to } x_1 + x_2 \geq 6$$

$$7x_1 + x_2 \geq 14$$

$$x_1, x_2 \geq 0.$$

Or

- (b) Define slack variables and surplus variables in L.P.P.
13. (a) Describe the methods of obtaining an initial solution to a T.P by Vogel's approximation methods.

Or

- (b) Assign the mechanics to the machine such that the total production cost is minimum.

	1	2	3	4
A	8	2	6	5
B	10	9	2	8
C	5	4	9	6
D	3	6	2	8

14. (a) Solve the following game $\begin{bmatrix} 3 & -2 \\ -2 & 5 \end{bmatrix}$.

Or

- (b) Define saddle point and write the rules for determining saddle point.

15. (a) Describe a network and define project duration.

Or

- (b) The following data are the characteristics of a project.

Activity :

A	B	C	D	E	F
-	A	A	B, C	-	E
2	3	4	6	2	8

Immediate predecessors :

Duration (in days) :

Draw the network diagram for the above project and find the project duration.

SECTION C — (3 × 10 = 30 marks)

Answer any THREE questions.

16. Explain the limitations of O.R.
17. Solve, using simplex method :

$$\text{Maximize } Z = 21x_1 + 15x_2$$

$$\text{Subject to } x_1 + 2x_2 \leq 6$$

$$4x_1 + 3x_2 \leq 12$$

$$x_1, x_2 \geq 0.$$