2103000206030015
EXAMINATION JUNE - 2025 (PURAK EXAM)
BACHELOR OF SCIENCE (SIXTH SEMESTER)
OPERATION RESEARCH-II - MTH-(E.G.)-6001 (EG-MATHEMATICS) - LEVEL 3

[Time: As Per Schedule] **[Max. Marks:50]**

Instructions:
1. Fill up strictly the following details on your answer book
   a. Name of the Examination : **BACHELOR OF SCIENCE (SIXTH SEMESTER)**
   b. Name of the Subject : **OPERATION RESEARCH-II - MTH-(E.G.)-6001 (EG- MATHEMATICS) - LEVEL 3**
   c. Subject Code No : **2103000206030015**
2. Sketch neat and labelled diagram wherever necessary.
3. Figures to the right indicate full marks of the question.
4. All questions are compulsory.

Seat No:

Student's Signature

Q.1 **a) Attempt any two :** **06**

1. Define: Maximin Point, Fair Game.
2. Explain Balanced and Unbalanced Transportation Problem.
3. Solve the following Assignment Problem:

6	3	5
5	9	2
5	7	8

b) Attempt any one : **04**

1. Find value of the game.

Player A	Player B			
	B_1	B_2	B_3	B_4
A_1	1	7	3	4
A_2	5	6	4	5
A_3	7	2	0	3

2. Find value of the game.

Player A	Player B		
	B_1	B_2	B_3
A_1	-1	2	-2
A_2	6	4	-6

Q.2 Attempt any two : **20**

1. Find an initial basic feasible solution for the following Transportation problem using

   (i) North west corner method (ii) Least cost method.

		Destinations				
		D_1	**D_2**	**D_3**	**D_4**	**Supply**
Sources	**S_1**	1	2	1	4	**30**
	S_2	3	3	2	1	**50**
	S_3	4	2	5	9	**20**
	Demand	**20**	**40**	**30**	**10**	

2. Determine the value of the game using graphical method:

Player A	Player B					
	B_1	B_2	B_3	B_4	B_5	B_6
A_1	1	3	-1	4	2	-5
A_2	-3	5	6	1	2	0

3. Determine an optimal solution for the following transportation problem using MODI method:

		Destinations				
		I	II	III	IV	Supply
Sources	A	2	4	6	11	50
	B	10	8	7	5	70
	C	13	3	9	12	30
	D	4	6	8	12	50
	Demand	25	35	105	20	

4. Find Solution using Vogel's Approximation method:

	B_1	B_2	B_3	Supply
A_1	550	300	400	40
A_2	350	300	100	20
Demand	25	10	25	

Q.3 Attempt any two : **20**

1. Use dominance rule to solve the following game and determine the value of the game:

Player A	Player B		
	B_1	B_2	B_3
A_1	3	7	5
A_2	8	10	2
A_3	2	9	1

2. Solve following Assignment problem:

	a	b	c	d	e
A	160	130	115	190	200
B	135	120	130	160	175
C	140	110	125	170	185
D	50	50	80	80	110
E	55	35	80	80	105

3. Solve the following assignment problem:

	1	2	3	4	5
A	2	9	2	7	1
B	6	8	7	6	1
C	4	6	5	3	1
D	4	2	7	3	1
E	5	3	9	5	1

4. Use Graphical method to solve the following game and find the value of the game:

	Player B		
Player A	B_1	B_2	B_3
A_1	1	3	11
A_2	8	5	2

*****