B.Sc DEGREE EXAMINATION, EVEN SEMESTER 2021
II Year IV Semester
Operations Research - I

Max.marks :25

Answer any **FIVE** questions $(5 \times 5 = 25)$ Marks

1. Discuss the advantages and limitations of Operation research in detail.
2. Solve the following LPP using SIMPLEX Method.
   Maximize Z = $16X_1 + 17X_2 + 10X_3$
   Subject to
   $X_1 + X_2 + 4X_3 \leq 2000$;
   $2X_1 + X_2 + X_3 \geq 3600$;
   $X_1 + 2X_2 + 2X_3 = 2400$;
   X_1, X2, X3 ≥ 0
3. he following matrix gives the pay-off of different strategies S_1, $S_2$and S_3against conditions N_1 , N_2 , N_3.

	State of Nature		
Strategies	N_1	N_2	N_3
S_1	700000	300000	150000
S_2	500000	450000	0
S_3	300000	300000	300000

   Which strategy should the concerned best on the basis of

   a) Maximin criterion b) Maximax criterion c) Minimax regret criterion
   d) Laplace criterion

4. Solve the following game using graphical method and find its value of the game.

	Player B			
Player A	B1	B2	B3	B4
A1	2	2	3	-2
A2	4	3	2	6

5. Determine a sequence of these jobs that minimize the total elapsed time T. Also find idle time for machine A and B.

Jobs	1	2	3	4	5	6	7
Machine A	3	12	15	6	10	11	9
Machine B	8	10	10	6	12	1	3

6. Define Game theory and write its application.

7. The pay-off of three acts $A_{1,}A_2$ and A_3 and the Events $E_{1,}E_2$ and $E_3$are given below.

	Three acts		
State of nature	A_1	A_2	A_3
E_1	25	-10	-125
E_2	400	440	400
E_3	650	740	750

The probabilities of the state of nature are 0.1, 0.7 and 0.2 respectively. Calculate and tabulate EMV and conclude which would prove to be the best course of action.