

2022

ECONOMICS

[HONOURS]

(B.Sc. Sixth Semester End Examination-2022)

PAPER-DSE3

Full Marks: 60

Time: 03 Hrs

The figures in the right hand margin indicate marks

Candidates are required to give their answers in their own words as far as practicable

Illustrate the answers wherever necessary

Group-A

- 1) Answer any ten questions of the following: 10x2= 20
- a. Define zero sum game.
 - b. Define saddle point of a game.
 - c. Define value of a game
 - d. Define non-cooperative game.
 - e. What is sub-game perfect equilibrium?
 - f. What do you mean by backward induction method in a game?
 - g. What is ultimatum game?
 - h. What is normal form of a game?
 - i. What is dominated strategy?
 - j. What is outcome of a game?
 - k. What do you mean by expected pay off?

(2)

- l. Define sequential game.
- m. Distinguish between pure strategy and mixed strategy.
- n. Find Nash equilibrium for the following game:

	B1	B2
A1	3,1	0,0
A2	0,0	1,4

- o. What is game tree in game theory?

Group-B

Answer any four questions of the following: 4x5 = 20

- 2) Write a short note on sub-game perfect Nash equilibrium.

3) Given $A = \begin{bmatrix} -15 & -35 & 10 \\ -5 & 8 & 0 \\ -12 & -36 & 20 \end{bmatrix}$ solve the game.

- 4) Solve the game where A & B are the players of the game from the matrix.

		Player B				
		1	2	3	4	5
Player A	1	4	6	5	10	6
	2	7	8	5	9	10
	3	8	9	11	10	9
	4	6	4	10	6	4

(3)

- 5) What do you mean by Iterated deletion of strictly dominated strategy? Give example.
- 6) Distinguish between simultaneous move game and sequential move game.
- 7) What is extensive form game? What are the properties of extensive form game?
- 8) Explain in the context of prisoner's dilemma that a strictly dominant strategy for both players may not be pareto efficient.

Group-C

Answer any two questions of the following: 10x2 = 20

- 9) Suppose two persons A & B want to sell icecream on a beach of length 500 metres at same price. There are people enjoying on the sea beach and they are uniformly distributed. Where should the two persons A & B locate their shop?
- 10) Consider the pay off matrix of player A & B as shown below and solve it optimally using graphical method.

		Player B				
		1	2	3	4	5
Player A	1	-4	2	5	-6	6
	2	3	-9	7	4	8

- 11) i) Can there be a two- person zero-sum game which has a value zero? If so, write the pay-off matrix of such game.

(4)

ii) Using dominance principle solve the following game problem:

	B1	B2	B3	B4	B5
A1	3	5	4	9	6
A2	5	6	3	7	8
A3	8	7	9	8	7
A4	4	2	8	5	3

4+6

12) The following pay-off table depicts service completion between two hospitals in a city.

(Each Pay-off represents profit in thousand Rs):

		Hospital B's service		
		Basic	All purpose	Speciality
Hospital A's service	Basic	5,7	5,4	12,6
	All purpose	4,5	8,7	7,4
	Speciality	6,10	3,12	3,3

Determine Nash equilibrium.

ii) Define two person zero-sum game.

iii) Using maximin minimax principle solve the game:

	B1	B2	B3	B4
A1	1	7	3	4
A2	5	6	4	5
A3	7	2	0	3

6+2+2