BACHELOR OF ARTS EXAMINATION, 2024

(3rd Year, 1st Semester, Supplementary)

ECONOMICS

[TOPICS IN MICROECONOMICS I

Time : Two hours Full Marks : 30

Answer Any five

1. Find the dominated strategies for both players. After iterated elimination of strictly dominated strategies, determine the Nash equilibrium of the following game. [6]

	L	C	R
T	7, 0	0, 5	0, 3
M	5, 0	2, 2	5, 0
B	0, 7	0, 5	7, 3

2. Each one of two political parties can choose to buy time on commercial radio shows to broadcast negative ad campaigns against their rival. These choices are made simultaneously. Due to government regulation it is forbidden to buy more than 2 hours of negative campaign time so that each party cannot choose an amount of negative campaigning above 2 hours. Given a pair of choices $(a_1;a_2)$,the payoff of parties $(v_1;v_2)$ given by the following function: $v_i = a_i - 2a_j + a_i a_j - a_i^2$

   Find the best response function of each party and equilibrium level of campaign [6]

3. Find pure stategy and mixed strategy nash equililibrium for the following game. Also draw the reaction function: [1+3+2]

		Player 2	
Player 1		L	R
	T	2,7	0,0
	B	2,0	3,1

4. Consider the following game. Two criminals are thinking about pulling off a bank robbery. The take from the bank would be Rs. 20,000 each , but the job requires two people (one to rob the bank and one to drive the getaway car). Each criminal could instead rob a liquor store. The take from robbing a liquor store is only Rs. 1000 but can be done with one person acting alone. The payoffs are as follows:

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		Player 2	
		Bank	Liquor Store
Player 1	Bank	20000, 20000	0, 1000
	Liquor Store	0, 1000	1000, 1000

Find Pure strategy and Mixed strategy Nash equilibrium of this game. [2+4]

5. Two start ups, named Firm 1 and Firm 2, are competing for leadership in a software market. The leader wins, and the other loses. Firm 1 invests x and Firm 2 invests y on research and development where x,y∈ [.001, 1] with costs x/4 and y/4 respectively.

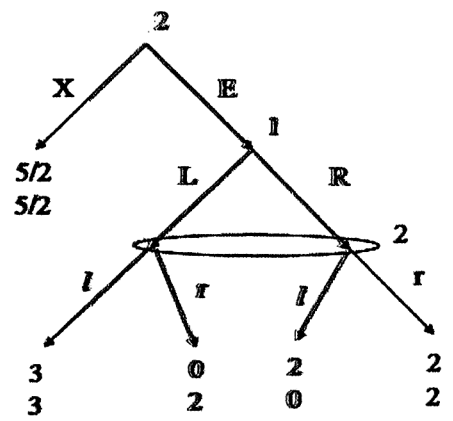
The payoffs are

$V_1 = \frac{x}{x+y} - \frac{x}{4}$

$V_2 = \frac{y}{x+y} - \frac{y}{4}$

Find the Nash equilibrium solutions. [6]

6. Find sub game perfect Nash equilibrium of the following extensive form game? The first payoff is for player 1 and the second payoff is for player 2. [6]



7. Suppose for the infinitely repeated games with the following stage game, find conditions on the discount factor under which cooperation can be supported. Use the **grim-trigger strategy** profile. [6]

		Player 2	
		Cooperate	Defect
Player 1	Cooperate	3, 4	0, 9
	Defect	7, 0	1, 2