MASTER OF ARTS EXAMINATION, 2024

(2nd Year, 1st Semester)

ECONOMICS

PAPER : PG/ECO-301

(Microeconomics-2)

Time : *Two Hours*   *Full Marks* : 30

Attempt Question no. **1** and *any one* from the rest :

1. *(a)* Consider a standard Stackelberg duopoly (complete information) with two firms, firm 1 and firm 2. Firms simultaneously choose output levels to maximize their profits. Suppose firm 1 is the first mover and chooses q_1 first. Then after observing q_1 firm 2 chooses q_2. The market inverse demand is $P = 1 - q_1 - q_2$ where q_i is firm i's output. Each firm incurs a fixed cost of $\frac{1}{8}$ if it produces positive output (otherwise, its costs are zero). Each firms variable cost is assumed to be zero. Find the Subgame perfect Nash equilibrium of this game.

    (9)

    (b) Briefly explain the following concepts :

    (i) Monopolistic Screening

    (ii) Vickery Auction   (3+3)

(2)

2. (a) Consider the following **Complete Information** version of a *Second Price* auction. An indivisible object is to be assigned to one of 2 players in exchange of a payment. Player 1's payoff from the consumption of the indivisible good is v_1 while player 2's payoff is v_2 and assume that $v_1 = v_2$ (these can be interpreted as the maximum willingness to pay for both the individuals). Assume v_1 and v_2 to be common knowledge among the players (bidders). The mechanism used to assign the object is a (sealed-bid) *second price* auction : the players simultaneously submit bids (non-negative amounts), and the object is assigned to the player who submits the highest bid, in exchange for a payment. The payment that the winner makes in a second-price auction equals the second highest bid. If both players submit the same bid then the object is assigned to player 1. If a player fails to win the object he/she gets 0 utility (payoff).

   (i) Describe the strategy sets and payoffs of both the players.

   (ii) Try to find the best response strategies for both the players.

   (iii) Let $b_1 \geq v_1$ and $b_2 \leq v_2$. What will be the outcome in this case? Will these be a set of Nash equilibria?

   (3+4+2)

   (b) Explain briefly the following concepts :

   (i) Non-singleton information sets

   (ii) Common Knowledge (3+3)

(3)

3. (a) Describe all the pure strategy **pooling and separating** Perfect Bayesian Equilibrium of the following signalling game :
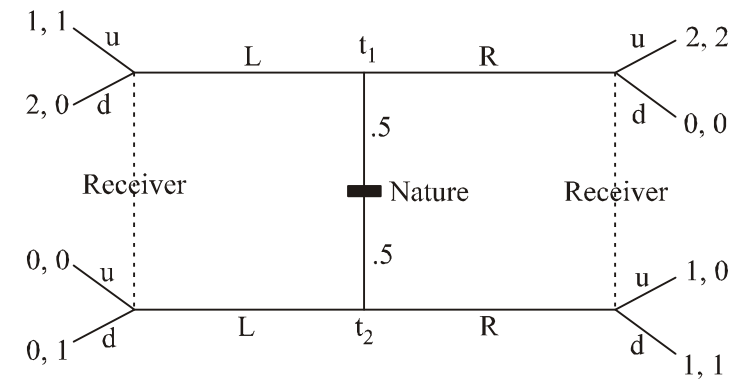
   (10)

   (b) Explain whether the following statement is True, False or Uncertain :
   "Iterated elimination of strictly dominated strategies always yields a unique prediction in a game". (5)

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