

MASTER OF ARTS EXAMINATION, 2019

(1ST Year, 2ND Semester)

ECONOMICS

MICROECONOMICS-2

Full Marks: 30

Time: Two Hours

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

(1). 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 the player with the lowest label. If a player fails to win the object he/she gets 0 utility (payoff).

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

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

(c). Consider the following situations:

(i). 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?

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

(5+5+5)

[Turn over

(2). (a). Consider a standard Cournot duopoly (complete information): two firms simultaneously choose output levels to maximize their profits. 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). Once the fixed cost is paid it costs each firm zero to produce each additional unit i.e. variable costs are zero. Find the pure strategy Nash equilibrium of this game. (10)

(b). Explain the following concepts:

(i). Complete information (ii). Perfect information

(2.5+2.5)

(3). (a). Consider 2 individuals 1 and 2 in an economy who can contribute to the production of a public good. Contribution is a 0-1 decision, 1 implies that the individual contributes and 0 otherwise. Public good is provided if at-least one individual contributes. The benefit from public good provision is normalized to 1 and this is common knowledge. Assume both individuals to be symmetric. The cost of contribution for both individuals is private information to both individuals and the possible costs are distributed **uniformly** within the range $[0,2]$. Write the payoffs of the game clearly. Show that both individuals will contribute if and only if their costs are sufficiently low and find that threshold value of cost below which both will contribute? (2+8)

(b). Find the mixed strategy equilibrium of the following 'Battle of Sexes' game:

		<u>Wife</u>	
		Sumo	Ballet
<u>Husband</u>	Sumo	4, 2	0, 0
	Ballet	0, 0	2, 4

(5)