MA Examination 2022

Semester II

Economics

Course C-6

(Micro Economics -II)

Time 3 hrs | Full Marks 40

Questions are of value as indicated in the margin

Answer ***any four*** questions

1(a) Discuss the Axioms underlying the von-Neumann Morgenstern Expected Utility Theorem?

(b) How is the Axiom of Independence violated in case of the Allais Paradox (4+6)

2.(a) Explain why the Bernoulli utility function of a risk averse consumer is concave and show that this implies that the certainty equivalent of an uncertain event is less than its expected value.

(b) Explain in this context the Arrow Pratt measure of absolute risk aversion. (7+3)

3 Consider the following game of 2 players whose strategies and payoff matrix is given below

Player II

Player I		Left	Centre	Right
	Up	6,9	3,4	7,7
	Middle	3,4	1,1	2,5
	Down	5, 7	4,2	6,6

(a) Can you solve this game by iterated removal of dominated strategies?

(b) Use this method to show that the optimal bid for each bidder in a Second Price Sealed Bid Auction (with private values) is to quote the true value of the bidder.

(3 + 7)

4 Consider a model of Cournot Oligopoly with a linear (inverse) demand curve

$$p = a - bQ, \quad Q = \sum_{i=1}^{n} q_i$$

and constant unit costs $C_i(q_i) = c_i q_i$

(a) Show that in case of a duopoly with different unit costs $c_1 \neq c_2$ if the unit cost of Firm 1 increase the optimum quantity produced by that firm decreases in equilibrium

(b) If there are n identical firms with same unit costs $c_1 = c_2 = \dots\dots\dots = c_n$, the equilibrium output of each firm decreases while the total output increases if the number of firms increase (5+5)

5 (a) Describe a Sub-game Perfect Equilibrium (SPE) in the context of a game of entry and explain the first mover advantage

(b) Consider a duopoly market with an inverse demand curve:

$$p = 70 - q_1 - q_2 \qquad c_1 = 2, c_2 = 3$$

What is the output of each firm, market price and profits if firm 1 is the leader, firm 2 is the follower and firms engage in **quantity competition**?

(c) What are outputs, market price and profits if firms engage in price competition? (3+5+2)

6 Consider an alternating offer of non-cooperative bargaining , where buyer's reservation price is Rs 200, seller's reservation price is Rs 100 and the common rate of discount is $d = 0.7$.

(a) Find the solution to this game if there are only 3 periods and the seller makes the first offer.

(b) Find the solution to this game if there are infinite periods. Does the solution depend on (i) the rate of discount and (ii) who makes the first offer? (4+6)

7. (a) Show that the price charged by a Perfectly Discriminating Monopolist is lower than that charged by an ordinary monopolist

(b) Suppose now that the Monopolist is unable to distinguish between two possible types of customers ("high demand" and "low demand"). If she sets a two part tariff consisting of a Price and entry fee, show that the price would be usually higher than the Perfectly Discriminating Monopolist. (4 + 6)

8 (a) Explain the concept of adverse selection in the context of a model of used cars.

(b) Show that the problem of adverse selection occurs only if the proportion of bad cars ("lemons') is high enough. (7+3)