M.A. Examination, 2018
Semester-II
Economics
Course-V
(Microeconomics-II)

(For Back Candidates only)

Time: Three Hours **Full marks: 40**

Questions are of value as indicated in the margin

Answer ***any four*** questions

1. (a) When does an (expected) utility function on the space of lotteries have the von-Neumann- Morgenstern form?
   (b) Show that an Utility function has the VNM form if and only if it is linear? (3+7)
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. A Monopolist produces a durable good that lasts for only two periods. The cost of production is zero and the common discount factor is δ where $\delta = 1/(1+ 0.1)$. The demand for the good in each period is $D(p) = 10 - p$ Show that
   (a) if the monopolist rents out the good in each period then the optimal (profit maximizing) rental rate charged by the monopolist would be the same in both periods.
   (b) Show that if the monopolist sells the good in each period and a resale market exists in which goods sold in the first period can change hands, then the first period price always exceeds the second period price. [3 + 7]
4. (a) Define a Dominant Strategy Equilibrium (DSE) and a Nash Equilibrium. Explain how the two are different using examples
   (b) Show that a DSE is always a NE but the converse need not be true. (4+ 6)
5. (a) Using an example, describe the method of arriving at an equilibrium of a simultaneous move game through the iterated elimination of dominated strategies.
   (b) Describe the Bertrand Duopoly game where firms compete in prices. Show how the equilibrium of this game is obtained by iterated removal of dominated strategies in the case where (i) unit cost of both firms are equal, (ii) unit cost of firm 1 is lower than firm 2 (4+6)
6. Show that in a infinite horizon model of repeated bargaining with alternating offers and a common discount factor *d*, the game is concluded in the very first period. Is there a first mover advantage in this game? (8 +2)
7. Discuss the model of a Cournot duopoly with a linear demand curve and constant unit costs where one of the firms have imperfect information of the other's cost. (10)
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/probability of bad cars ("lemons') in the market is high enough. (7+3)

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