INDIAN INSTITUTE OF TECHNOLOGY KHARAGPUR
End-Spring Semester Examination 2022-23

Full Marks: 50 **Duration:** 3 hrs
Subject No.: EM21202/ HS21202 **Subject Name:** Microeconomics-II
Department/Center/School: Humanities & Social Sciences
Specific charts, graph paper, log book etc., required. No
Special Instruction: Question Number 1 is compulsory. Answer any three from the rest.

1. Argue whether the following statements are true or false giving appropriate reasons in favour of your answer. Answer any four: $5 \times 4 = 20$

   (a) Product exhaustion theorem holds only if the production function is linearly homogeneous.

   (b) Bilateral monopoly leads to a range of mutually agreeable wage and employment levels.

   (c) Even though every firm in the industry has upward rising marginal cost the industry supply curve may be downward sloping or a horizontal line.

   (d) Nash equilibrium is unique and Pareto efficient outcome.

   (e) The supply curve of a monopolist may be downward sloping.

2. Consider a perfectly competitive market where firms have identical technology described by the following production function: $Q = L^{1/2}K^{1/2}$

   Let w = 2, r = 1.

   (a) If initially k = 4 how much will a representative firm produce if price is Rs. 6? Does it make profit?

   (b) In the long run when capital can be changed how much will each firm produce?

   (c) Without deriving the long run average cost curve can you say whether the long run equilibrium price will rise above or fall below Rs. 6? 5+3+2

3. A monopoly drug producer with a constant marginal cost of m=1 sells only in two countries and faces a linear demand curve of $Q_1 = 12 - 2P_1$ and $Q_2 = 9 - P_2$.

   What are the prices that the monopolist will charge and how much will it sell in the two countries if arbitrage can be prevented? Find out the profits earned by the firm in the two markets. How will your answer change if arbitrage among the consumers in two countries is possible? 10

P.T.O.

4. (a) A firm operating in a monopolistically competitive market faces demand curve as given below:
P = 10 - 0.1Q where P is per unit price, Q is output
The firm's total cost curve is: $TC = -10Q + 0.0333Q^3 + 130$

(i) Determine the price and output that will allow the firm to maximize profit or minimize losses. 4

(ii) Compute the Lerner index of monopoly power. 3

(iii) Is this a long-run equilibrium? 1

(b) Is the existence of excess capacity an inevitable phenomenon in monopolistic competition? Explain by describing the monopolistically competitive market structure. Is such market structure socially undesirable? Argue in favour of your answer. 2

5. (a) Let the demand for a factor be given by $Q_d^f = 96 - 8p_f$ where p_f is the price of the factor and supply of the factor is: $Q_s^f = \sqrt{16p_f - 80}$

Determine the following:

(i) Actual earning of the factor;

(ii) Transfer earning of the factor;

(iii) Economic rent earned by the factor.

(b) Distinguish between the concepts of rent and quasi rent. 8+2