



INDIAN INSTITUTE OF TECHNOLOGY, KHARAGPUR
End-Spring Semester 2017-18

Date of Examination: 23.04.2018 Session (FN/AN): FN Duration: 3 hrs
Subject No.: HS20006 Subject Name: Microeconomics II
Full Marks: 50
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 × 4 = 20

- Nash equilibrium is Pareto efficient.
- Bilateral monopoly leads to a range of mutually agreeable wage and employment levels.
- Product exhaustion theorem holds only if the production function is linearly homogeneous.
- In a duopoly market it is possible for both the firms to end up with zero profit.
- Backward induction can eliminate some of the Nash equilibria based on empty threat.

2. (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:

- Actual earning of the factor;
- Transfer earning of the factor;
- Economic rent earned by the factor.

- (b) Distinguish between the concepts of rent and quasi rent.

7.5+2.5

3. Consider a market with two firms that sell identical products. Firm 1 has a constant marginal cost of 1, and Firm 2 has a constant marginal cost of 2. The market demand is $Q=15-p$.

- Solve for the Cournot equilibrium price, quantities, profits, consumer surplus and deadweight loss.
- If the firms collude and produce at the lower marginal cost, how do the equilibrium values change?
- Discuss the change in efficiency (average cost of producing the output) and welfare – that is, consumer surplus, producer surplus (or profit,) and deadweight loss. (Hint. Average cost of duopoly is weighted average of MCs where the weights are the output shares.)

4+2+4

P.T.O.

4. (a) Suppose that Toyota and GM are considering entering a new market for electric automobiles and that their profits (in millions of dollars) from entering or staying out of the market are as follows:

		GM	
		Enter	Do not Enter
Toyota	Enter	10, -40	250, 0
	Do not Enter	0, 200	0, 0

If the firms make their decisions simultaneously, which firms enter? How would your answer change if the U.S. government committed to paying GM a lump sum subsidy of say \$50 million on the condition that it would produce this new type of car? 1+3

(b) Discuss with suitable example a two by two strategic form game where both cooperation and non-cooperation are feasible outcomes. Find out the Nash equilibrium in pure strategy and mixed strategy and draw the best response functions. 6

5. You and your friend form a team to perform a job. Each of you can work or pretend to work and take decision independently and simultaneously. The pay-offs depend on joint effort as given in the following table.

		Your Partner (B)	
		Work	Pretend
You (A)	Work	100, 100	40, 120
	Pretend	120, 40	50, 50

Find out the Nash Equilibrium of the game and check whether it is also an IESDS solution and Pareto Optimum outcome.

(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. 5+5