



Stockholm
University

Department of Economics

Course name: Economics of Industrial Organization

Course code: EC2108

Examiner: Sten Nyberg

Number of credits: 7,5 credits

Date of exam: Sunday June 2 2013

Examination time: 3 hours [9:00-12:00]

Write your identification number on each paper and cover sheet (the number stated in the upper right hand corner on your exam cover).

Use one cover sheet per question. Explain notions/concepts and symbols. If you think that a question is vaguely formulated, specify the conditions used for solving it. Only legible exams will be marked. **No aids are allowed.**

The exam consists of 9 questions. The questions in Part I are worth 5 points each, those in Part II 30 points and the credit question in Part III 10 points, amounting to 100 points in total. For the grade E 45 points are required, for D 50 points, C 60 points, B 75 points and A 90 points.

Your results will be made available on your "My Studies" account (www.mitt.su.se), on 20 June 2013 at the latest.

Good luck!

Part I: Multiple-choice questions. Select exactly one alternative for each question. Each correct answer gives 5 points and each incorrect answer -1 point.

1. What is the standard model of spatial product differentiation is called?

- (a) The Dorfman Steiner model.
- (b) The Stackelberg model.
- (c) The Hirshman-Herfindal model.
- (d) The Hotelling model.
- (e) The Farrell and Shapiro Model.

2. Consider an infinitely repeated game where the payoffs of the stage game are given in the payoff matrix below.

		Player 2	
		H	L
Player 1	H	5,5	0,7
	L	7,0	1,1

Let δ be the players' discount factor. How large must δ at least be to make $\{H,H\}$ an equilibrium in the repeated game?

- (a) 3/4.
- (b) 2/3.
- (c) 1/2.
- (d) 1/3.
- (e) 1/4.

3. Advertising can provide information about a good and thereby influence demand. The effect is likely to depend on the characteristics of the good. It has been argued that the advertising elasticity of demand can be expected to be strongest if the good is a,

- (a) search good and a convenience good
- (b) search good and a shop good
- (c) search good and an experience good
- (d) shop good and an experience good
- (e) convenience good and an experience good

4. Consider a competitive market where demand is given by $Q = 10 - P$ and the marginal cost for all firms is 6. Suppose one firm patents an innovation lowering its marginal cost. How low must the new marginal cost be to make the innovation drastic? It must be just below
- (a) 4.
 - (b) 3.5.
 - (c) 3.
 - (d) 2.
 - (e) 1.
5. Two monopoly firms, A and B, produce products that are perfect complements. Suppose these firms merge. Which of the following statements is most likely true?
- (a) The profit of the merging firms ($\pi_A + \pi_B$) falls.
 - (b) Consumer welfare decreases
 - (c) Output falls (q_A and q_B)
 - (d) The prices of the goods (p_A and p_B) fall
 - (e) None of the above.
6. A monopolist operates on two markets and is able to set separate unit prices on them (3rd degree price discrimination). Suppose the inverse demands for these markets are given $P_A = 10 - Q_A$ and $P_B = 10 - 2Q_B$ respectively, and that the monopolist's marginal cost is given by $MC = (Q_A + Q_B)/3$. What is the monopolist's marginal cost when it price discriminates optimally?
- (a) 1.
 - (b) 2.
 - (c) 3.
 - (d) 4.
 - (e) 5.

Part II: Questions that require answers with calculations/motivation.

7. A monopolist offers two goods Sweeties and Salties to four consumers, A through D. Each consumer buys at most one unit of each good. The consumers' valuations of the two goods are given in the table below. The monopolist has no production costs.

		Consumers			
		A	B	C	D
Goods	Sweeties	12	6	10	2
	Salties	6	12	2	10

- (a) (10 points) What are optimal (profit maximizing) uniform prices for the goods?
(b) (10 points) What is the optimal bundled price?
(c) (10 points) What is the optimal pricing under mixed bundling?
8. Suppose two firms, A and B, selling differentiated products compete in prices. The firms have zero costs and their respective demand functions are,

$$q_A = 5 - 3p_A + p_B.$$

$$q_B = 5 - 3p_B + p_A.$$

- (a) (20 points) Calculate the firms' reaction functions and solve for the equilibrium quantities, price and profits. Illustrate the firms' strategic interaction in a graph.
(b) (10 points) Now, suppose the firms could form a cartel. What would the optimal prices for the firms be in this case and what is the total profit. Compare with the previous case.

Part III: Credit question (For students who do not have credit for the assignments).

9. (10 points) A monopolist with zero marginal cost faces two types of consumers, the affluent (A) and the bohemians (B). The groups are of equal size and the inverse demand for the groups are given by $P_A(q) = 10 - q$ and $P_B(q) = 8 - q$ respectively. What is the optimal two-part tariff (fixed fee and price per unit) assuming the firm cannot observe the type of the consumers, but can practice second-degree price discrimination? Should the monopolist sell only to the A group or to both groups?