



YLIOPISTOTENTTILOMAKEPOHJA / UNIVERSITY EXAM TEMPLATE

Koskee tiedekuntia LuTK, OyKKK, KaTK, TTK, TST ja BMTK (Linnanmaan tentit) /
Concerns Faculties SCI, OBS, OMS, TECH, ITEE and BMM (Linnanmaa campus)

Tentin päivämäärä / Date of exam: 11.1.2016	Tentin kesto tunteina / Exam in hours: 4
Tiedekunta / Faculty: OBS	
Opintojakson koodi, nimi ja tentin numero / The code and the name of the course and number of the exam: 721333S, Industrial Organization (2. Retake)	
Tentaattori(t) / Examiner(s): Maria Kopsakangas-Savolainen	Sisäinen postios. / Internal address OBS
Sallitut apuvälineet / The devices allowed in the exam:	
<input checked="" type="checkbox"/> Nelilaskin / Standard calculator	<input checked="" type="checkbox"/> Funktiolaskin / Scientific calculator
<input type="checkbox"/> Ohjelmoitava laskin / Programmable calculator	
<input checked="" type="checkbox"/> Muu materiaali, tarkennettu alla / Other material, specified below: Sanakirja	
Tenttiin vastaaminen / Please answer the questions:	
<input checked="" type="checkbox"/> Suomeksi / in Finnish	<input checked="" type="checkbox"/> Englanniksi / in English
Kysymyspaperi on palautettava / Paper with exam questions must be returned:	
<input checked="" type="checkbox"/> Kyllä / Yes	<input type="checkbox"/> Ei / No

Answer all questions. Each question gives you max 6 points



721333S, Industrial Organization 11.1.2016 (2. Retake)

1. Consider the following game depicted the process of standard setting in highdefinition television (HDTV). The United States and Japan must simultaneously decide whether to invest a high or a low value into HDTV research. Each country's payoffs are summarized in figure below.

		<i>Japan</i>	
		Low	High
<i>U.S.</i>	Low	4, 3	2, 4
	High	3, 2	1, 1

- a. Are there any dominant strategies in this game? What is the Nash equilibrium of the game? What is the rationality assumption implicit in this equilibrium?
 - b. Suppose now that the United States has the option of committing to a strategy before Japan's decision is reached. How would you model this new situation? What are the Nash equilibria of this new game?
 - c. Comparing the answers to a) and b), what can you say about the value of commitment for the United States?
2. Assume that two firms sell differentiated products and face the following demand curves: $q_1=15-p_1+0.5p_2$ and $q_2=15-p_2+0.5p_1$.
 - a. Assume that firms choose prices and have equal and constant marginal costs $c = 0$. Derive each firm's best response function. Are prices strategic substitutes or complements?
 - b. What is the equilibrium set of prices in this market? What profits are earned at those prices?
 3. ABC, Inc. is a monopolist selling to competitive retailers. It faces a constant marginal cost of 10. Demand at the retail level is described by $P = 50 - Q$.
 - a. What wholesale price maximizes ABC's profit? What retail price does this imply?
 - b. What is consumer surplus if ABC sets a profit-maximizing wholesale price?

Assume now the actual number of retailers the monopoly ABC sells to is ten but that they act as perfect competitors. ABC now requires that each retailer spends \$100 on services, which shifts demand to $P = 90 - Q$.

 - c. ABC decides to implement a RPM agreement with retailers. Under his agreement, what retail price should ABC specify? How many units will retailers sell at this price?
 - d. What is consumer surplus under the RPM agreement?
 4. Give a definition of product differentiation, describe the spatial model of Hotelling and further, derive (at least graphically) the equilibrium resulting from Hotelling model for product differentiation.
 5. Give an explanation for Peak-Load Pricing. Discuss also on Peak-Load Pricing and efficiency and on limitation of Peak-Load Pricing.



721333S, Industrial Organization 11.1.2016 (2. Retake)

1. Consider the following game depicted the process of standard setting in highdefinition television (HDTV). The United States and Japan must simultaneously decide whether to invest a high or a low value into HDTV research. Each country's payoffs are summarized in figure below.

Japan

		Low	High
		4, 3	2, 4
<i>U.S.</i>	Low	4, 3	2, 4
	High	3, 2	1, 1

- a. Are there any dominant strategies in this game? What is the Nash equilibrium of the game? What is the rationality assumption implicit in this equilibrium?
 - b. Suppose now that the United States has the option of committing to a strategy before Japan's decision is reached. How would you model this new situation? What are the Nash equilibria of this new game?
 - c. Comparing the answers to a) and b), what can you say about the value of commitment for the United States?
2. Assume that two firms sell differentiated products and face the following demand curves: $q_1=15-p_1+0.5p_2$ and $q_2=15-p_2+0.5p_1$.
 - a. Assume that firms choose prices and have equal and constant marginal costs $c = 0$. Derive each firm's best response function. Are prices strategic substitutes or complements?
 - b. What is the equilibrium set of prices in this market? What profits are earned at those prices?
 3. ABC, Inc. is a monopolist selling to competitive retailers. It faces a constant marginal cost of 10. Demand at the retail level is described by $P = 50 - Q$.
 - a. What wholesale price maximizes ABC's profit? What retail price does this imply?
 - b. What is consumer surplus if ABC sets a profit-maximizing wholesale price?

Assume now the actual number of retailers the monopoly ABC sells to is ten but that they act as perfect competitors. ABC now requires that each retailer spends \$100 on services, which shifts demand to $P = 90 - Q$.

- c. ABC decides to implement a RPM agreement with retailers. Under his agreement, what retail price should ABC specify? How many units will retailers sell at this price?
 - d. What is consumer surplus under the RPM agreement?
4. Give a definition of product differentiation, describe the spatial model of Hotelling and further, derive (at least graphically) the equilibrium resulting from Hotelling model for product differentiation.
 5. Give an explanation for Peak-Load Pricing. Discuss also on Peak-Load Pricing and efficiency and on limitation of Peak-Load Pricing.

