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

UNIVERSITY OF OULU

YLIOPISTOTENTTI - UNIVERSITY EXAM

Opiskelijan nimi / Student name:	**Opiskelijanumero / Student number:**

Opettaja täyttää / Lecturer fills in:

Opintojakson koodi and nimi / The code and the name of the course:

Koodi / Code 721333S

Tentin nimi / Exam name Industrial Organization

Tiedekunta / Faculty: Business School (OBS)

Tentin pvm / Date of exam: 2.11.2017	**Tentin kesto tunteina / Exam in hours: 3 h**
Tentaattori(t) / Examiner(s):	**Opintopistemäärä / Credit units: 6**
Maria Kopsakangas-Savolainen	**Sisäinen postios. / Internal address:** **6 OYKKK**

Sallitut apuvälineet / The devices allowed in the exam:

☒ Funktiolaskin / Scientific calculator ☐ Ohjelmoitava laskin / Programmable calculator

☐ Muu materiaali, tarkennettu alla / Other material, specified below:

Tenttiin vastaaminen / Please answer the questions:

☒ Suomeksi / in Finnish ☒ Englanniksi / in English

Suomenkielisessä tutkinto-ohjelmassa olevalla opiskelijalla on oikeus käyttää arvioitavassa opintosuorituksessa suomen kieltä, vaikka opintojakson opetuskieli olisi englanti. Tämä ei koske vieraan kielen opintoja. (Kts. Koulutuksen johtosääntö 18 §)

In a Finnish degree programme a student has a right to use Finnish language for their study attainment, even though the language of instruction is English, (excluding language studies) even when the language of instruction is other than Finnish. (See the Education Regulations 18 §)

Kysymyspaperi on palautettava / Paper with exam questions must be returned:

☒ Kyllä / Yes ☐ Ei / No

Answer all questions. Each question gives you max 6 points.

OULUN YLIOPISTO
UNIVERSITY of OULU

721333S, Industrial Organization
Maria Kopsakangas-Savolainen

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

U.S.		Low	High
	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. A local bar owner has a constant unit costs of 2€ per drink. He determines that the demand for drinks is different for students than it is for those age 25 or over, with each group comprising half of his nightly crowd. Specifically, he discovers that the demand for drinks is:

   Age 18-25: $q = 18 - 5p$

   Age 25 and over: $q = 10 - 2p$

   a. If no discrimination is possible, what is the optimal uniform price assuming it is low enough that both groups buy?
   b. If the bar owner adopts a two-part pricing policy that is the same for everyone, what will be the cover charge (fixed fee), and what will be the price per drink?
   c. How would your answer to b. change if students comprised only 30 percent of the customers?

3. Consider a Cournot industry composed of three firms, facing a demand q(p) = 150-p. Initially, the three firms are identical and have the same marginal cost equal to 30. As such, the Cournot-Nash equilibrium is for each firm to produce 30 units at the price of 60. Suppose that two of those firms decide to merge, and as a result, the merged firm will save in costs such that, the post-merger marginal cost would be equal to $c < 30$.
   a. Calculate the post-merger equilibrium output level of the merged firm (q_m^*) and the non-merged firm, (q_3^*) and compute the corresponding price and profits.
   b. Compare your results in part (a) with the (pre-merger) Cournot-Nash equilibrium and determine:
      i. How large should the savings be for the merger to be profitable?
      ii. How large should the savings be for the merger to benefit consumers?

4. True or false. Briefly explain your answer.

   a. Price cap regulation gives better incentive for cost efficient behavior than rate of return regulation?
   b. Drastic Innovation with $Q^M > Q^C$ means that innovator cannot charge monopoly price P^M because rivals can undercut that price.
   c. A monopolist's optimal two-part tariff consists of a positive fixed fee and a variable fee that is lower than monopoly price. Total surplus is therefore greater than under uniform pricing.

5. Consider a situation where an authority wants to regulate a firm but it does not know the true costs of the firm. Explain what kind of economic mechanism would give the firms sufficient incentive to report its true costs.