Exam 2019-12-13. Similar calculators allowed as in Finnish matriculation exams. Notes and other materials are NOT allowed.

Multiple choice questions (27p)

Correct answer +3p, incorrect answer -1p, no answer 0p.

1. A chocolatier has two types of customers, random passers-by and connoisseurs, both equally common. Connoisseurs' value Criollo chocolate at €15 for the first 100g and €10 for the second; valuations of random passers-by are €12 and €4 respectively. Marginal cost is €50/kg. Which pricing scheme for Criollo bars achieves the highest profits?

   (a) 100g at €12, 200g at €25
   (b) 100g at €12, 200g at €22
   (c) 100g at €15, 200g at €22
   (d) 100g at €15, 200g at €25
   (e) 200g at €12
   (f) 200g at €25

2. A new furniture retail chain enters the Finnish market. Which of the following could be an externality caused by its entry?

   (a) Its products are more wood-based than competitors', causing slight increases in the demand for wood and in the profits of wood producers.

   (b) Increased competition lowers furniture prices thus increasing consumer surplus.

   (c) The new building for its local headquarters casts a shadow over neighboring apartments.

   (d) Workers at a competing retail chain are laid off as it loses market share to the entrant.

   (e) All of the above.

3. Firms in an oligopolistic industry have for many years achieved price moderation via implicit collusion. Which of the following would be a threat to continued price moderation?

   (a) Increase in discount rates
   (b) Increase in fixed costs
   (c) Increase in marginal costs
   (d) Moral hazard
   (e) Signaling
   (f) Winner's curse

4. Any number of fishing boats have free access to the open ocean, resulting in a tragedy of commons. In addition to overfishing, this problem is associated with

   (a) Excessive abatement costs
   (b) Excessive profits for fishing companies
   (c) Moral hazard
   (d) Principle-agent problems
   (e) All of the above
   (f) None of the above

5. Two firms, Acme and Becme, are planning to enter the market for quince jam. They commit to a production capacity before finding out each others' choices; the payoffs would be:

Becme

€m	Large	Mid	Small
Large	4,2	5,3	6,2
Small	3,5	4,4	5,3

(Acme is the row player)

What are the capacity choices in Nash equilibrium?

(a) {Large, Large}
(b) {Large, Mid}
(c) {Small, Small}
(d) {Small, Mid}
(e) There is no single answer, because there are multiple Nash equilibria.

6. Row Inc and Column Ltd are competing drone manufacturers. They are concurrently deciding on which type of a next-generation drone to develop: a heavy low-range or a light high-range drone. The resulting profits would be:

Column

€bn	Light	Heavy
Light	1,1	2,4
Heavy	4,2	0,0

(Row is the row player)

In the symmetric Nash equilibrium the probability that both firms make zero profits is about...

(a) 64%
(b) 50%
(c) 36%
(d) 25%
(e) 10%
(f) 0%

7. An increasing share of college-educated workers belong to a household with two college-educated workers. The economic argument why this has led to an increasing geographic concentration of high-skill firms is based on...

(a) Coase theorem
(b) Economies of agglomeration
(c) Moral hazard
(d) Principle-agent problems
(e) Signaling
(f) All of the above

8. The Dutch auction is strategically equivalent with which auction format?

(a) All-pay auction
(b) English auction
(c) First-price sealed bid auction
(d) Japanese auction
(e) Second-price sealed bid auction
(f) None of the above

9. Four flatmates consider moving to a new apartment. Everyone will report their valuation for the new apartment in a sealed envelope. If reported valuations exceed the rent they will move; in any case payments will be decided according to the VCG mechanism. If everyone uses their dominant strategy then for sure. . .

   (a) If the move happens then everyone will get a positive surplus from it.

   (b) The move happens if and only if it increases flatmates' total surplus.

   (c) If the move happens then total payments will add up to the rent.

   (d) If the move does not happen then no one will pay anything.

   (e) All of the above.

I (12p) Provide a brief explanation (1–3 sentences) for the following concept in economics. You can use an example (real or hypothetical) to support your explanation. The goal is to make the concept intelligible for a reader who has not studied microeconomics.

 (a) Mixed bundling
 (b) Empty threat
 (c) Pigouvian tax
 (d) Ratchet effect

II (16p) A consortium of dental clinics has pooled together their customer data and found out that customers spend on average 160 €/year on dental services, mostly on routine check-ups and cleaning. Data analysts have also figured out that administrative costs could be reduced by €40 per customer-year if visit-by-visit billing was replaced by a single yearly payment. Armed with these insights the analysts propose that the consortium launch a new subscription-based dental service, where for a yearly fee of €150 customers get access to any dental care they need (excluding the most expensive types of services, such as dental surgery and prosthetics). What could possibly go wrong?

For the remaining questions you need to show the arguments and steps behind your reasoning, backed up by calculations where relevant.

III (24p) Two companies, Alphamax and Betamin, compete in the widget market. They produce different varieties which consumers view as imperfect substitutes. The demand for Alphamax can be expressed as $Q^d(p_A, p_B) = 100 - 2p_A + p_B$, where p_A and p_B are the prices charged by Alphamax and Betamin respectively; Betamin's demand is symmetric.[1] Production of both varieties incurs a marginal cost of 10 and a fixed cost of 1500.

 (a) (10p) Firms set their prices before knowing each others' choices. What are prices and profits in equilibrium?

 (b) (10p) Alphamax offers to acquire Betamin, with the purpose of coordinating the pricing decisions of the two varieties. How much would Betamin be worth to Alphamax?

 (c) (4p) Continued from part IIIa. Suppose Alphamax sets its price before Betamin. To which direction does this change prices and profits for the two companies (compared to simultaneous choice)?

IV (21p) NeuroHype Inc has developed a non-invasive brain-computer interface and is about to launch a memory-augmenting headband for the general public. There are two possible capacity levels to consider, 2GB and 4GB. Market research indicates that there are two types of customers, both equally common. Half of consumers value capacity at 100 €/GB, while the other half value it at 150 €/GB. The cost of producing a headband depends only on its capacity, at 40 €/GB.

 (a) (16p) Design the profit-maximizing pricing scheme.

 (b) (5p) How is the optimal pricing scheme affected if the production of a headband also incurs a cost for the frame, always €60 regardless of capacity?

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[1]Don't worry about price combinations that would imply a negative demand; they are not sensible here.