

**Exam 2021-12-17**, 13:00–16:00. Individual closed-book exam. Calculators are allowed.

**Multiple choice questions (24p)**

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

1. An ice cream vendor has two equally common types of customers. Traditional types value a portion of ice cream at €4, and modern types at €3. Traditional types value a real waffle with their ice cream at €3, modern types at €1. All valuations are net of variable costs. Which ice cream pricing strategy yields the highest profits for the vendor?
  - (a) Plain €3, with waffle €5.
  - (b) Plain €3, with waffle €6.
  - (c) Plain €3, with waffle €7.
  - (d) Plain €4, with waffle €5.
  - (e) Plain €4, with waffle €6.
  - (f) Plain €4, with waffle €7.
  
2. A costly advertising campaign for a movie could function as a signal of high customer value if high-value movies have [...] than low-value movies.
  - (a) ...lower production costs...
  - (b) ...higher production costs...
  - (c) ...higher probability of causing positive network externalities...
  - (d) ...higher probability of causing negative network externalities...
  - (e) ...higher probability of viewers wanting to see the sequel...
  
3. A village has a common pasture land, which suffers from overgrazing. It is likely that the following procedure would solve this problem and result in an economically efficient outcome.
  - (a) Sell the pasture to the villager who has the highest willingness to pay for it
  - (b) Give the pasture for free to the poorest villager
  - (c) Give the pasture for free to a randomly chosen villager
  - (d) Sell the pasture to the villager who has the 2nd highest willingness to pay for it
  - (e) Any of the above
  
4. A line manager at the manufacturing company Sälätex Oy is concerned about the productivity of its workers. It is clear that many workers are putting in less effort than workers they could. Unfortunately there is no direct way to measure the effort levels of individual workers at Sälätex, because the production process at Sälätex is by its nature a complex team process. Sälätex is suffering from which problem?
  - (a) Adverse selection.
  - (b) Moral hazard.
  - (c) Signaling.
  - (d) None of the above.
  - (e) There is not enough information to answer the question.

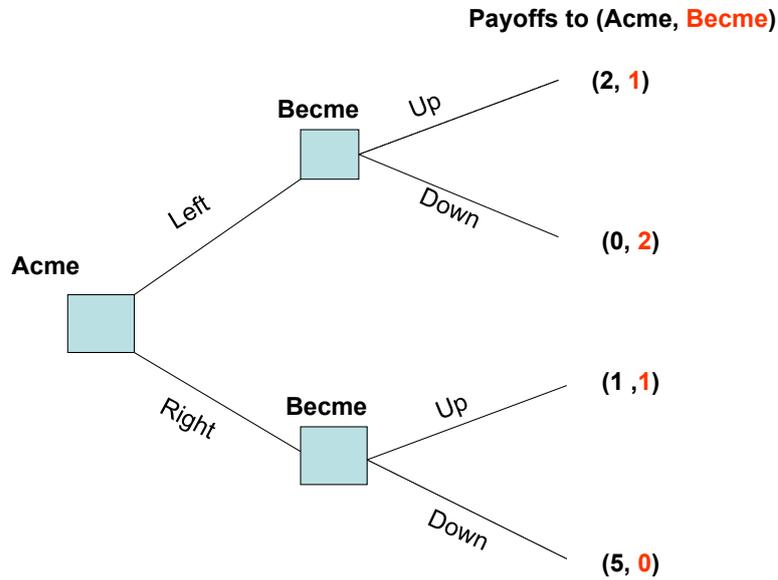
5. The Lintukoto dairy industry has 5 butter producers. They keep making economic profits year after year, even though consumers view their products as perfect substitutes. This has been made possible by their use of the so-called grim strategy. Which of the following causes a risk for the breakdown of this state of affairs?
- (a) Competition authorities obtain search warrants and begin to secretly record all communications between dairy companies.
  - (b) Improved investment opportunities in other industries cause the discount rate for dairy companies to increase.
  - (c) Worsened investment opportunities in other industries cause the discount rate for dairy companies to decrease.
  - (d) Unexpectedly high inflation causes prices, including that of butter, to rise in Lintukoto.
  - (e) Unexpectedly high deflation causes prices, including that of butter, to fall in Lintukoto.
6. Abholos and Bokrug are competing swag producers and are deciding at the same time which type of a product to launch for the coming holiday season. Their payoffs are

		Bokrug		
		€m	Cool	Schmancy
Abholos	Fancy	0 , 0	2 , 1	6 , -1
	Hip	1 , 3	0 , 0	0 , -1
	Plain	-1 , 5	-1 , 4	1 , 1

What happens in Nash equilibrium?

- (a) {Fancy, Cool}
  - (b) {Fancy, Schmancy}
  - (c) {Hip, Cool}
  - (d) {Plain, Wack}
  - (e) We cannot know, because there are multiple Nash equilibria.
7. Acme Inc has for a long time been producing a specific component that many other producers rely on. However, when the time comes to renovate the production facility for this component Acme decides to discontinue the production of this component. Which of the following consequences of Acme's decision could be an externality?
- (a) Another company, Becme, benefits, because it can now profitably begin producing a relatively similar component and gains some of Acme's old customers.
  - (b) Some of Acme's longtime customers go out of business, because they can no longer obtain a sufficiently suitable but crucial component from anywhere.
  - (c) Reduced demand of palladium, a key ingredient in Acme's components, results in less river pollution in palladium-producing countries.
  - (d) All of the above.
  - (e) None of the above.

8. Acme and Becme are competing in a situation where Acme can first commit to its decision. The resulting payoffs are depicted in the below figure.



What is the equilibrium of this game?

- (a) {Left,Down}
- (b) {Left,Up}
- (c) {Right,Left}
- (d) {Right,Down}
- (e) {Right,Up}
- (f) There is no equilibrium

I (9p) 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) Dutch auction                      (b) Network externality                      (c) Ratchet effect

II (16p) You're sitting in Economy class and a passenger in the neighboring seat, who works in the catering industry, expresses his dismay at the quality of food on offer. "It doesn't make any sense to not improve the quality of food at least a little bit—I know for a fact that many customers in Economy class would be willing to pay more than it costs to improve the quality. The airline is just stupid for not tapping into this revenue source." Supposing the passenger is right about the facts, offer him a possible explanation of why the airline may actually be using an entirely sensible pricing strategy. (2–4 sentences)

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

III (27p) Unobtainium is found in only two locations on earth, and Alpha Inc and Beta Corp are the only companies that could mine it. The cost of building an unobtainium mine is €6 billion. Furthermore, to build the transportation system and port facilities needed to sell unobtainium to the world market would require additional investments. To achieve a capacity of selling  $q$  tons of unobtainium costs €2bn per ton of capacity. The world demand for unobtainium is  $Q^d(p) = 40 - 8p$  tons, where  $p$  is in €bn.

- (a) Both companies decide on the size of their mining operation before finding out each others' choices. What are their choices and profits in equilibrium?
- (b) Alpha has the capability of pre-empting Beta by making its investments before Beta makes its decision. However, the required fast-paced construction would increase Alpha's construction cost by € $X$  billion. How large can this increase in investment costs be for pre-empting to be profitable for Alpha?
- (c) Continued from part IIIb. Would pre-empting by Alpha be in the interests of the consumers of unobtainium?

IV (24p) There is a population of summer cottage owners in Lintukoto, who would in principle be willing to sell their cottage. The cottages seem identical, but vary by unverifiable quality such as noisiness of neighbors and quality of hidden structures, known only by the owners. The owner valuations are uniformly distributed between 0 and €1m. There is an equally large population of non-owners who would like to own a summer cottage. These potential buyers would value any cottage by €200k more than the current owners.

- (a) What percentage of cottages is traded and what is the market price in equilibrium?
- (b) How much could average welfare (per cottage) be improved if it became possible to verify the quality of cottages?