i Candidate instructions

ECON3820/4820

This is some important information about the exam in ECON3820/4820. Please read this carefully before you start answering the exam.

Exam date and time: Wednesday, May 6, 2020 at 09.00 - 14.00

Language: The examination text is given in English.You may submit your response in Norwegian, Swedish, Danish or English.

Guidelines: You should upload your text in pdf format - one pdf per problem. You can scroll back and forth in the problem set.
You should familiarize yourself with the rules that apply to the use of sources and citations.

The answers to your exams are not expected to meet the formal requirements for references and citations in the spring 2020 exam. However, you should make references by indicating the source in the text. Creating a bibliography is not required. Whether you choose to do so, or not has no impact on your grade. If you are referring to a limited part of the source, the reference should indicate which part of the source you refer to by using page numbers. If you are quoting directly from a source, follow the normal citation practice – with quotations marks and references to the source.
The exam lasts for only five hours. We recommend that you use the available time to work on the problem set, as well as allocate time to scan attachments with graphs and/or equations.

The problem set: The problem set consists of three questions, with several sub-questions. They count as indicated. Start by reading through the whole exam, and make sure that you allocate time to answering problems you find easy.

Digital hand drawings/graphs/equations: You will find information about options for hand drawings on this website: https://www.uio.no/english/studies/examinations/submissions/options-for-hand-drawings.html

Submission in Inspera

- Read more about exam and submission in Inspera. https://www.uio.no/english/studies/examinations/submissions/.
- When your answer is uploaded, you will see that the exam is uploaded and saved.
- To submit your answer, please see https://www.uio.no/english/studies/examinations/submissions/submit_answer/. You can either choose the “submit now” or the “Automatic submission”.
- You can make changes in your exam until the deadline.
- You will find the answer under Archives.

Do you need technical support, or do you have any questions during the exam?

Please send an e-mail, titled “ECON3820/4820” to hjemmeeksamen@sv.uio.no from your university email.

Grading: The grades given: A-F, with A as the best and E as the weakest passing grade. F is fail.
Grades are given: Tuesday, May 26.

1
Question 1

Weight: 30%

Briefly explain whether the following statements are TRUE or FALSE.

a) Signaling is one reason market prices might differ from marginal costs.

b) The Chicago school view on exclusive dealing relies on there not being any economies of scale in production.

c) If products are horizontally differentiated, a puppy dog strategy would be to locate to the center.

d) If products are vertically differentiated, consumer heterogeneity determines how many product variants are produced.

e) Impatient firms are less likely to collude than patient ones.

f) When second stage variables are strategic complements, the incumbent's entry deterring and entry accommodating actions before an entrant enters are the same.

g) Telecommunications is one industry in which competition authorities have been actively trying to punish vertical foreclosure.

h) Quantity competition and capacity constrained price competition lead to different predictions about market prices.

i) Farrell-Shapiro criterion says that when evaluating a merger, it is enough to focus on external effects.

Maximum marks: 30

2
Question 2

Weight: 35%

An upstream monopolist is selling an input to downstream firms. Let the marginal cost of producing the input be $c > 0$ and let the demand for the downstream firms' end-product be $D(p) = e^{-\alpha p}$where $\alpha > 0$ is a constant and p is the price. The downstream firms do not need any other inputs except the one sold by the upstream monopolist.

a) Suppose that there is only one downstream firm, which is owned by the upstream monopolist. What is the optimal price for the end-product in terms of parameters α and c?

b) Suppose that there is only one downstream firm, which is not owned by the upstream monopolist, and that the upstream monopolist can only use a price p_w in dealing with the downstream firm. What is the optimal price for the end-product in terms of parameters α and c? Is the price higher or lower than in a)? What about the upstream monopolist's profit?

c) Briefly explain the economic intuition behind the difference in the prices in a) and b). (Hint: you may do so even if you do not manage to solve them.)

d) Show one way how the upstream monopolist can attain the same profit as in a) even if it does not own the downstream firm.

e) Suppose then that there are two downstream firms engaged in price competition (with homogenous products) and that the upstream monopolist has to use a single price p_w in dealing with both firms. What is the price for the end-product? What about market shares?

f) Suppose that same things as in e) hold, but suppose now that one of the downstream firms is owned by the upstream monopolist. What is the price for the end-product? What about market shares?

g) Should the competition authority be concerned about integrated firms' behavior in f)? Explain briefly.

h) Suppose that same things as in e) hold, but that there are also marginal costs for the downstream market and that the integrated firms marginal cost is higher than the other downstream firms. Should the competition authority then be concerned about the integrated firms' behavior in e) and what can it do about it? Explain briefly.

Maximum marks: 35

3

Question 3

Weight: 35%

Suppose there are two telecommunication firms with their own networks competing against each other in the retail market.

a) What is the simplest model of competition between the two firms? Write down the model. (Hint: you are free to assume convenient functional forms.)

b) Solve the equilibrium price in the model you chose in a). (Hint: if the firms do not choose the same price in equilibrium, you probably did not choose the simplest model.)

c) Suppose then that the firms are engaged in standard price competition and one of the firms has a lower marginal cost, say $c_1 > c_2 > 0$. Is there a difference to your answer in b) and if there is then why?

d) Suppose that besides different marginal costs as in c), the firms also have different capacities, $q_1 < q_2$, so that the sum $q_1 + q_2$ is less than the total market demand. How does your answer differ from c)? Which are more important for market prices capacities or marginal costs?

e) Besides capacities and different marginal costs, what are other important factors that are missing from the simple model of competition? Briefly discuss their effects on market prices.

Maximum marks: 35