

Written Exam at the Department of Economics winter 2020-21 - R

Micro III

Final Exam

15 February 2021

(2-hour open book exam)

Answers only in English.

The paper must be uploaded as one PDF document. The PDF document must be named with exam number only (e.g. '127.pdf') and uploaded to Digital Exam.

This exam question consists of 4 pages in total

This exam has been changed from a written Peter Bangsvej exam to a take-home exam with helping aids. Please read the following text carefully in order to avoid exam cheating.

Be careful not to cheat at exams!

You cheat at an exam, if you during the exam:

- Copy other people's texts without making use of quotation marks and source referencing, so that it may appear to be your own text. This also applies to text from old grading instructions.
- Make your exam answers available for other students to use during the exam
- Communicate with or otherwise receive help from other people
- Use the ideas or thoughts of others without making use of source referencing, so it may appear to be your own idea or your thoughts
- Use parts of a paper/exam answer that you have submitted before and received a passed grade for without making use of source referencing (self plagiarism)

You can read more about the rules on exam cheating on the study information pages in KUnet and in the common part of the curriculum section 4.12.

Exam cheating is always sanctioned with a warning and dispassing from the exam. In most cases, the student is also expelled from the university for one semester.

Re-take exam

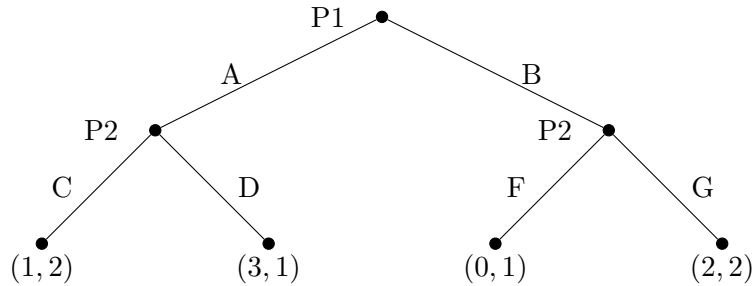
Your answers may include pictures of hand-written text, figures and equations. Please keep in mind that you are responsible for that your handwriting is easy to read and that the light is good in the picture. Make sure that you include page numbers and question numbers to your answers and that you mark your final answer clearly.

1. Consider the following normal form game:

		Player 2		
		<i>a</i>	<i>b</i>	<i>c</i>
Player 1	<i>A</i>	1, 3	0, 2	4, 4
	<i>B</i>	1, 2	5, 5	1, 3
	<i>C</i>	2, 1	6, 0	2, 0

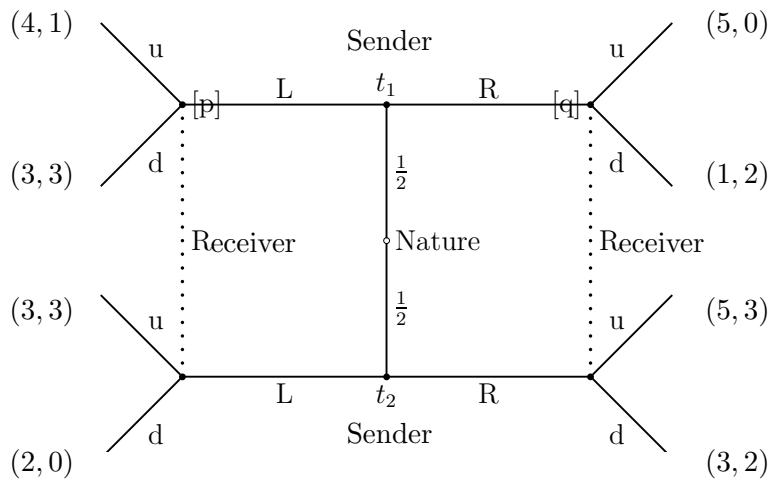
- (a) (2 points) Which strategies can be eliminated by iterated elimination of strictly dominated strategies? Explain briefly each step (1 sentence).
 - (b) (4 points) Find all (pure and mixed) Nash equilibria of the game. Remember to argue that there cannot be any other Nash equilibria. Calculate the expected payoffs for each equilibrium.
 - (c) (4 points) Now, consider the situation where the game is played twice and players observe each other's period 1 actions before period 2. No discounting. Construct a subgame perfect Nash equilibrium, which Pareto dominates all equilibria where players play a stage Nash equilibrium in both periods. Remember to define full equilibrium strategies.
2. For each statement below, state whether it is TRUE or FALSE and briefly motivate your answer. Informal discussion is enough (2-5 sentences each).

- (a) (4 points) (A, C) is a subgame perfect equilibrium outcome of the following extensive form game:



- (b) (3 points) In Stackelberg duopoly, there is a last-mover advantage because the last mover gets to observe the first-mover's action and hence has more information.
- (c) (3 points) Consider a second-price sealed-bid auction with $n > 2$ bidders and independent private values. There always exists a Bayes Nash equilibrium where bidders bid their value.

3. Consider the following signaling game:



- (a) (3 points) Can pooling on L be the outcome of a perfect Bayesian equilibrium? Argue why/ why not. If yes, find the equilibrium.

- (b) (3 points) Can separating such that type 1 plays L and type 2 plays R be the outcome of a perfect Bayesian equilibrium? Argue why/ why not. If yes, find the equilibrium.
- (c) (4 points) Choose one of the following: i) come up with a real life situation that can be modeled as the previous signaling game. Interpret your results in (a) and (b) from the perspective of the chosen application (2-4 sentences). OR ii) Choose any application where signaling can be relevant and write it as a signaling game. Formally or informally, analyze your chosen game and briefly discuss. If you choose alternative ii), you are not allowed to use any example from the lectures, assignments, or problem sets.