

Main Examination Period 2025

ECN 211 Microeconomics 2

Duration: 2 hours

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INSTRUCTED TO DO SO BY AN INVIGILATOR**

Answer ALL Questions. **Please explain all answers and where appropriate show your calculations.**

Non-programmable calculators are permitted in this examination. Please state on your answer book the name and type of machine used.

Complete all rough workings in the answer book and cross through any work that is not to be assessed.

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Examiner: Nick Vriend

Question 1 - 30 marks

Assume that there are exactly two kinds of workers, with an equal number of workers of each kind. One kind has a (constant) marginal product of £10, and the other a (constant) marginal product of £15. A firm cannot directly tell the difference between the two kinds of workers. Even after it has hired them, it will not be able to monitor their work closely enough to determine which workers are of which type.

- a) What do economists mean with “information asymmetry”? And what are the two main types of problems associated with this? Briefly discuss both types.

[6 marks]

- b) If the labour market is competitive, what will be the wage rate for these workers?

[6 marks]

- c) Workers can follow a course at a local college in the evenings. The high-productivity workers think that taking this course is just as bad as a £3 wage cut, and the low-productivity workers think it is just as bad as a £6 wage cut. The firm will be able to check whether or not an individual has taken the course. Suppose that the high-productivity workers all choose to take the course, and the low-productivity workers all choose not to. What will be the competitive wage for people who take the course? And the wage for people who do not take the course?

[6 marks]

- d) Still supposing that the high-productivity workers all choose to take the course and the low-productivity workers all choose not to, what will the net benefit from taking the course be for a high-productivity worker? And for a low-productivity worker? If there is a difference between these net benefits for the two types, what explains this difference?

[6 marks]

- e) Will there be an equilibrium of this type (with all high-productivity workers choosing to take the course and all low-productivity workers choosing not to)? If so, is this a separating or a pooling equilibrium? In any case, briefly explain both types.

[6 marks]

Question 2 - 30 marks

- a) Explain the concept of a public good and its defining characteristics. Give one example of a good that is typically seen as public good, and discuss to what extent it actually fits the defining characteristics.

[6 marks]

Now, suppose the people of a small and idyllic village on the banks of the river T are considering the building of a public good G to protect the village from floods. The cost c of such a project is 24. When relevant each individual will be required to contribute the same share to the cost of the public good. The reservation values r_i of the three individuals concerned are: $r_1 = 10$, $r_2 = 5$, $r_3 = 15$ for $i = 1, 2$, and 3 respectively. Wherever possible you must use the data of this case in the remainder of this question.

- b) Before they decide to go ahead with the project, the local authorities want to make sure providing the public good will be Pareto efficient. What is the main condition they must check, is this condition satisfied in the case presented, and why may checking this in reality be problematic?

[6 marks]

- c) Briefly describe how the Vickrey-Clarke-Groves (VCG) mechanism to decide on the provision of public goods is meant to work. In your description, use the data of the case presented, and explain the actions of each individual i , as well as who pays what and why.

[6 marks]

- d) What is the main problem the VCG mechanism solves?

[6 marks]

- e) What are the two key ingredients of the VCG mechanism to achieve this?

[6 marks]

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Question 3 - 40 marks

For each of the following statements, say whether they are TRUE or FALSE and briefly explain your answer.

- a) If the initial endowments are not on the contract curve, then it is impossible to get a competitive equilibrium without any trade taking place. [4 marks]
- b) If preferences are convex, then any Pareto optimal allocation can be achieved as a competitive equilibrium after some reallocation of initial endowments. [4 marks]
- c) Imagine an economy in which there are two people and two goods. Person A has comparative advantage in the production of good 1 if and only if it takes person A less time to produce good 1 than it takes person B . [4 marks]
- d) If an allocation is envy free then it will be fair. [4 marks]
- e) If a tax is imposed because of some negative externality, then the tax revenue must be used to reduce the negative externality. [4 marks]
- f) If a pure public good is provided by voluntary contributions, economic theory predicts that in general too much will be supplied. [4 marks]
- g) In a perfect asset market, it is known with certainty that an asset will sell for £36 in one year. If the annual interest rate is 10%, then the asset will sell for £39.60 right now. [4 marks]
- h) If the price of insurance goes down, people will become more risk averse. [4 marks]
- i) If you invest half your money in a risk-free asset and half your money in a risky asset such that the standard deviation of the return on the risky asset is σ , then the standard deviation of the return on your investment portfolio is $\sigma/4$. [4 marks]
- j) An individual with insurance influencing the probability that she has an accident is a good example of moral hazard. [4 marks]

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