

STOCKHOLM UNIVERSITY
Department of Economics

Course name: Intermediate Microeconomics
Course code: EC2101
Examiner: Hans Wijkander
Number of credits: 7,5 credits
Date of exam: Tuesday 28 October 2014
Examination time: 5 hours

Write your identification number on each paper and cover sheet (the number stated in the upper right hand corner on your exam cover).

Do not write answers to more than one question in the same cover sheet. Explain notions/concepts and symbols. If you think that a question is vaguely formulated, specify the conditions used for solving it. Only legible exams will be marked. No aids are allowed.

The exam consists of 4 questions. Each question is worth 25 points, 100 points in total. For the grade E 45 points are required, for D 50 points, C 60 points, B 75 points and A 90 points.

Results will be posted on minastudier.su.se on 18 November at the latest.

Good luck!

1. In Econvillage there are currently 1 million people living. The income each of them has got is, USD 100,000 per year and they have the same utility function = $h^{0.2}c^{0.8}$, where h and c represent individual consumption of housing space, measured in square meters, and goods per year. The prices of h and c are p_h and p_c , respectively.
 - a) State a typical individual's utility maximization problem. (5 points)
 - b) Derive demand functions for housing space and goods. (5 points)
 - c) Calculate income- and price elasticities for housing space and goods. (5 points)
 - d) Suppose the housing market is competitive and there is 100 million square meters of housing available. Calculate the equilibrium price of housing space (price per square meter). (5 points)
 - e) USD 100,000 per year is a pretty high income and 200,000 persons move in. The newcomers will earn only USD 50, 000 per year. They have the same utility function as the old residents in Econvillage. State the aggregate demand function for housing space after the influx. (5 points)

2. Consider a firm that has a production function = $K * \sqrt{L}$, where Q is the firm's output and K and L are inputs of capital and labor.
 - a) State the marginal productivity of each production factor. (5 points)
 - b) What degree of returns to scale does the firm show (decreasing, constant or increasing)? (5 points)
 - c) Suppose capital is fixed at \bar{K} , the price of output is p , the wage rate is w and the rent of capital is r . State the first-order condition for profit maximization. (5 points)
 - d) How will the profit maximizing quantity of labor change as the amount of capital is changed, marginally? (5 points)
 - e) Derive the firm's short-run cost-function when capital is fixed. Is the cost-function up- or downward sloping or constant in output quantity? (5 points)

(Answer to Question 3 must be in English)

3. Consider the following simultaneous move games:

Payoffs are described as follows: (Row Player, Column Player). Players know each other's payoffs.

The first game is as follows.

		Column Player	
		Left	Right
Row Player	High	(4,4)	(2,6)
	Low	(6,2)	(3,3)

a) Is there a dominant strategy equilibrium in this game? (5p)

b) Which strategy pairs would represent a Pareto-improvement relative to the equilibrium, if the two players could cooperate? (5p)

Now, we consider a different game.

		Column Player	
		Left	Right
Row Player	High	(12, 6)	(-3, 12)
	Low	(-3, 3)	(0, 0)

c) Is there a pure strategy Nash equilibrium in this game? (5p)

d) What type of equilibrium is there in the game? If there is an equilibrium, calculate it. (5p)

e) Suppose now that the Column Player moves first and the Row player second. What is the equilibrium, if there is one? (5p)

4. Consider a consumer who's expected utility is: $U = \pi * \sqrt{W_1} + (1 - \pi) * \sqrt{W_2}$, where π and $(1 - \pi)$ are probabilities that two different situations will occur. W_1 and W_2 represent wealth, in SEK, and $\sqrt{W_1}$ and $\sqrt{W_2}$ represent utility, in the two situations. Suppose the two situations are outcomes of a lottery.

a) Is the consumer risk-averse, risk-neutral or risk loving? (5 points)

b) Suppose the lottery, with probability $\frac{1}{2}$ gives SEK 9 and with probability $\frac{1}{2}$ nothing. What is the expected value of the lottery? (5 points)

- c) Suppose the consumer has got SEK 1, initially and is offered to participate in the lottery and that the cost of participating is SEK1. Would the consumer accept the offer? (5 points)
- d) Are there probabilities for the different outcomes at which the consumer would be indifferent between participating in the lottery and not participating in it? In the case there are such probabilities, state them. (5 points)
- e) With probabilities $\frac{1}{2}$ for the two different outcomes, what is the cost of risk or the risk premium for the lottery? Show in a diagram and calculate by using the definition of cost of risk (or risk premium). (5 points)