

Written Exam for the B.Sc. or M.Sc. in Economics winter 2014-15

Mikroøkonomi A

Final Exam

February 2015

(3-hour closed book exam)

Please note that the language used in your exam paper must correspond to the language of the title for which you registered during exam registration. I.e. if you registered for the English title of the course, you must write your exam paper in English. Likewise, if you registered for the Danish title of the course or if you registered for the English title which was followed by “eksamen på dansk” in brackets, you must write your exam paper in Danish.

This exam question consists of 3 pages in total

Problem 1

Consider a consumer who can consume non-negative, continuous quantities of two goods. The consumer has an exogenous income I , and faces the price system p .

- Prove that it is not possible to have two different consumption plans both maximizing preferences, when the consumer's preferences are strictly convex.

Problem 2

Please comment on the following statement:

“When assessing the welfare impact on a consumer from a price increase for a certain good, measuring the change in Consumer's Surplus will tend to exaggerate the welfare impact when the good is normal, and, conversely, under-estimate it when the good is inferior”.

Problem 3

Consider the following statements for a consumer and for a certain good. If you think the statement is true, please argue why. If you think the statement is false, please provide a clear counter-example

- a) If the consumer has an exogenous income, and the good is normal, we can be certain that a price increase will lower his or her consumption of the good
- b) If the consumer's income stems from private ownership of an endowment, and the good is normal, we can be certain that a price increase will lower his or her consumption of the good

Problem 4

Consider the hairdressing salon ToughCut offering stylish haircuts, selling to a market characterized by perfect competition. It does so using two inputs, both of which we, for simplicity, assume may be used in continuous, non-negative quantities:

- Labor, the quantity of which can be changed in the short run
- Capital, the quantity of which can only be changed in the long run.

The production function is given by $y = \min \{L, K\}$. At the moment, the firm has a fixed quantity of capital which is $K = 64$, and it faces a wage rate of 4, whereas the rental price for capital is 4. The price for a haircut is p .

- a) Please identify the firm's short run supply curve, expressing this mathematically as well as in a clear diagram
- b) Please identify the firm's long run supply curve, expressing this mathematically as well as in a clear diagram
- c) Please compare and comment on the two supply curves

Problem 5

Consider, for a consumer, the concept of “expenditure function”.

- a) Define the expenditure function
- b) Describe how it is used in measuring changes in welfare for consumers
- c) Describe its mathematical properties

Problem 6

Consider a pure exchange economy consisting of two consumers who both can consume continuous non-negative quantities of two goods: Food (good 1) and drinks (good 2). There is a total initial endowment in the economy of 10 units of food and 20 units of drinks. Consumer A has the utility function $u_A(x_{1A}, x_{2A}) = 8 \cdot x_{1A} + 16 \cdot x_{2A}$, while B has $u_B(x_{1B}, x_{2B}) = 2 \cdot x_{1B} + x_{2B}$.

- a) Identify the efficient allocations for this economy
- b) Describe, for each allocation where this is possible, how an efficient allocation can be implemented as a market equilibrium (given by a set of market prices, using drinks as a numeraire, and two individual incomes)