



Stockholm
University

Department of Economics

Course name: Intermediate microeconomics
Course code: EC2101
Type of exam: Main
Examiner: Lars Vahtrik
Number of credits: 7,5 credits
Date of exam: Thursday 1 November 2018
Examination time: 5 hours (09:00-14:00)

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

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 5 questions. Questions 1-3 are worth 25 points each, question 4 is worth 15 points and question 5 is worth 10 points. The maximum score on the exam is 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.

If you have the course credit you do not answer question 5.

Your results will be made available on your Ladok account (www.student.ladok.se) within 15 working days from the date of the examination.

Good luck!

Question 1

Robin has the utility function $U(x_1, x_2) = \frac{1}{5} \ln(x_1) + \frac{4}{5} \ln(x_2)$.

- a) Set up the Lagrangian and derive an expression for the marginal rate of substitution and calculate the Marshallian demand for both goods. **(15p)**
- b) What will happen to Robin's share of expenditures on good x_1 if the price of good one, p_1 , increases. Verify your conclusion formally! **(10p)**

Question 2

Consider an island with exclusive fishing rights to their own waters. The fishing industry is unregulated and the production function, representing the yearly catch, is given by $f(x) = 22x - \frac{x^2}{40}$ where x is the number of boats launched. Yearly industry profit is split equally among fishing boats and the cost of launching a boat equals 80. Fish is sold at a world market price of $p = 40$. A market failure is likely to occur in this market. Explain why and analyze the problem by comparing the profit maximizing solution for the fishing industry with "sustainable" fishing (revenue maximizing solution) and the free entry solution. Suggest a policy that leads to an efficient outcome.

Question 3

Consider a market with two firms where the inverse demand function is given by $p=50-2q$ where $q=q_1+q_2$. The firms have cost functions $c(q_1)=10+2q_1$ and $c(q_2)=12+8q_2$ respectively. Calculate the Cournot equilibrium and illustrate the equilibrium in a graph illustrating the best response functions. Calculate the price and the profit of each firm. **(25p)**

Question 4

a) A monopolist faces two totally separated markets with inverse demand $p=100-q_A$ and $p=160-2q_B$ respectively. The monopolist has no fixed costs and a marginal cost given by $mc=\frac{2}{3}q$. Find the profit maximizing total output and how much of it that is sold on market A and market B respectively if the monopoly uses third degree price discrimination. What prices will our monopolist charge in the two separate markets? **(10p)**

b) Calculate the price elasticity of demand in each market and explain the intuition behind the relationship between the prices and elasticities in these two separate markets. **(5p)**

Question 5

Use the definition of marginal revenue and the definition of the price elasticity of demand to derive an expression for the markup for a monopolist. Use this expression to calculate the markup for the two separate markets in question 4a). **(10p)**