Department of Economics

Course name:	**Intermediate Microeconomics**
Course code:	**EC2101**
Semester:	**Spring 2016**
Type of exam:	**Re-take**
Examiner:	**Adam Jacobsson**
Number of credits:	**7,5 credits (hp)**
Date of exam:	**Saturday 16 April 2016**
Examination time:	**5 hours (09:00-14:00)**

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

Use one cover sheet per question. 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.**

You may answer in English or in Swedish.

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 "My Studies" account (www.mitt.su.se) on 6 May at the latest.

Good luck!

Question 1

Gustavo can consume two goods, x_1 and x_2, at prices p_1 and p_2, respectively. Gustavo's preferences are well behaved and are represented by the following utility function: $u(x_1, x_2) = x_1 + x_2$. Gustavo has an income of m.

a) Assume that $p_1 = 2$ and $p_2 = 4$ and $m = 10$. At these prices, what are Gustavo's demanded quantities of x_1 and x_2? Illustrate this in a diagram showing the budget constraint and the relevant indifference curve.

(5 points)

b) Now assume that p_2 decreases to $p_2 = 3$. What are the new demanded quantities of x_1 and x_2?

(5 points)

c) What is the (own) price elasticity of x_2 in the price interval $p_2 \in [3,4]$

(5 points)

d) Now assume that $p_1 = 2$ and $p_2 = 2$ with $m = 10$. What are the new demanded quantities of x_1 and x_2?   (5 points)

e) What is Gustavo's type of preferences called? Explain intuitively and verbally how they differ from the Cobb-Douglas type of preferences.

(5 points)

Question 2

Consider the chemical firm ACME which can choose to pollute or not. If ACME pollutes, the cost of producing chemicals is reduced. The municipal environmental department (MED) has a choice of inspecting ACME or not. If ACME pollutes and is inspected, the pollution will be detected for sure. However, it is expensive to conduct inspections for the MED. The payoffs to ACME and the MED are described in the payoff matrix below:

where the payoffs to the MED are listed first.

a) Are there any pure strategy Nash equilibria in this game? If so, which?

(5 points)

b) Looking at the possibility for mixed strategies, define the best response functions for the MED and ACME. Illustrate the best response functions in a graph.

(10 points)

c) Is there a mixed strategy Nash equilibrium in this game? If so, what is it? Also, illustrate this equilibrium in the graph from b).   (10 points)

Question 3

Billi owns a house that burns down with probability π (and does not burn down with probability $1-\pi$). If the house burns down Billi's wealth is reduced from 2 000 000 to 1 000 000 SEK. Billi's utility from wealth in each state of the world $i \in \{1,2\}$ is $u_i = \sqrt{c_i}$ where c_i is the wealth in state i . In state 1 the house burns down and in state 2 it does not.

    a) Write down Billi's expected utility function.   (5 points)

    b) Is Billi risk averse, risk neutral or a risk lover? Explain your answer.
                                      (5 points)

    c) Billi can choose to buy home insurance which would pay out K in the case of a fire. For this Billi would have to pay γK.   Assume also that $\pi = \gamma$. How much insurance would Billi buy?   (7 points)

    d) What is the price of insurance called when $\pi = \gamma$? Give an intuitive explanation why Billi buys the amount of insurance that you calculated under c.
                                        (5 points)

    e) Provide three reasons for why it is unlikely that we would observe insurance prices such that $\pi = \gamma$.   (3 points)

Question 4

The firm Zuper is a monopolist that produces widgets. The inverse demand function for widgets is $p(y) = a - by$ where y is demanded quantity of widgets, p is the price of widgets and a and b are positive constants. Zuper's cost of producing y widgets is $c(y) = \tau y$.

    a) How many widgets, and at what price would Zuper sell?
                                        (5 points)

    b) Draw the inverse demand curve in a figure and show how the price elasticity varies (if it does) along the inverse demand curve. Explain why the elasticity changes/remains constant along the curve.   (5 points)

    c) Explain intuitively how the price elasticity affects Zuper's choice of quantity to produce.   (5 points)

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

    a) The First Welfare theorem states that a Walrasian equilibrium is Pareto efficient. Discuss the assumptions that support the existence of such Walrasian equilibria. What problems in the real world would make the first welfare theorem problematic?
                                        (3 points)

    b) State the Second Welfare theorem. Explain what it means intuitively.
                                        (3 points)

c) Explain briefly what the beta value of a stock is in the CAPM model.

(2 points)

d) Explain briefly what second-order price discrimination is. Give at least one example of second-order price discrimination from the real world.

(2 points)