Exam: Economic Policy (11071) **Summer term 2011**

Examiner: Prof. Dr. Joachim Weimann **Date:** 11/07/2011

Remark: The exam consists of five questions and all questions have to be answered. Total available time is 120 minutes. A dictionary as well as a calculator (fulfilling the requirements of the examination office) can be used.

Question 1 (30 points)

Consider an economy with two households and two firms. Each firm produces one specific (private) good with two input factors capital and labour and each household benefits from consumption of these goods.

a) Explain "marginal rate of substitution", "marginal rate of technical substitution" and "marginal rate of transformation" verbally and give an analytical definition.

b) What does exchange efficiency mean? Explain verbally the optimisation problem and explain (formally and verbally) the condition to achieve exchange efficiency in the sense of Pareto.

c) What does production efficiency mean? Explain verbally the optimisation problem and explain (formally and verbally) the condition to achieve production efficiency in the sense of Pareto.

d) Explain formally and verbally the conditions for a general equilibrium (product mix efficiency).

e) Now consider that one of the two private goods is a public good. How does this alter the answer of d) and explain briefly the reason for this change?

Question 2 (20 points)

Assume that a private firm's cost function is $C(x)=5x+555$ and that inverse demand is given by $p(x)=205-5x$.

a) Explain why no private firm could survive if it was forced to charge the price that yields the first best market allocation. Provide a suitable graph with your answer.

b) How many units are sold at the second best market allocation?

Question 3 (30 points)

Please answer the following questions:

a) How does the output quantity in product markets in which producers have pricing power generally compare to the social optimum. Explain what role the price elasticity of demand has to play in this. What effect would you expect pricing power in the product market to have on the labour employment decision of the firms? Explain your answer.

b) Explain why asymmetric information may be used as a rationale for government intervention in insurance markets. Would you expect such intervention to lead to efficiency? Explain your answer. Name one mechanism through which individuals may try to deal with asymmetric information themselves.

c) Explain why a lump-sum tax can be described as optimal from the point of view of economic efficiency. How should different commodities with independent demands be optimally taxed when a lump-sum tax is not available and leisure cannot be taxed? Explain your answer.

Question 4 (30 points)

A landlord has offered to provide a 3 person flat with a television which costs 900 Euros. In order to find out if the flat mates would like to take up the offer the landlord would like to find out their willingness to pay for the television. If the willingness to pay exceeds the cost then the landlord will take 300 Euros from each flat mate and the television will be provided. The willingness to pay of flat mate 1 is 800, the willingness to pay of flat mate 2 is 400 and the willingness to pay of flat mate 3 is 100.

a) Why would flat mate 3 not have an incentive to reveal a true willingness to pay if the flat mates where simply asked their willingness to pay by the landlord?

b) The landlord decides to use the Clark-Groves mechanism to determine whether to provide the television or not. Would the television be provided using this mechanism? Which flat mate or mates will have to pay a Clarke-Groves tax and why? How much would the tax be for each flat mate?

c) Explain why none of the flat mates has an incentive to overestimate or underestimate their true willingness to pay for the television if the landlord uses the Clark-Groves mechanism.

d) Explain what should be done with the tax revenue raised by the Clark-Groves mechanism and why. Would it be Pareto optimal?

Question 5 (10 points)

a) Show formally the condition for a progressive tax schedule.

b) Provide a graphical example for a *directly* progressive tax schedule.

c) Provide a graphical example for an *indirectly* progressive tax schedule.