

## **Exam Energy and Economics (0C930)**

**Date:** 28-10-2009

**Time:** 3 hours (09:00-12:00)

**Teacher:** W.J.H. van Groenendaal

The number of points per exercise is indicated.

Always explain your answer.

You can answer either in English or Dutch.

**This is an open-book exam. The use of laptops is permitted.**

**When you use an article to answer a question, please give the reference.**

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### **Exercise 1 (10 points each)**

- a) If the taste for sneakers severely declines, what happens to their price and the quantity sold? Why?
- b) A rumor sweeps the country that eggs are great diet food and they don't even raise cholesterol levels. At the same time, advances in chicken husbandry increase the number of eggs that can be produced. What happens to the price and quantity of eggs?

A new pipeline is constructed in to transport a substantial amount of natural gas from Azerbaijan to Western Europe.

- c) What happens to the market for natural gas in Western Europe?
- d) And what to the market for natural gas in Azerbaijan?

### **Exercise 2 (10 points each)**

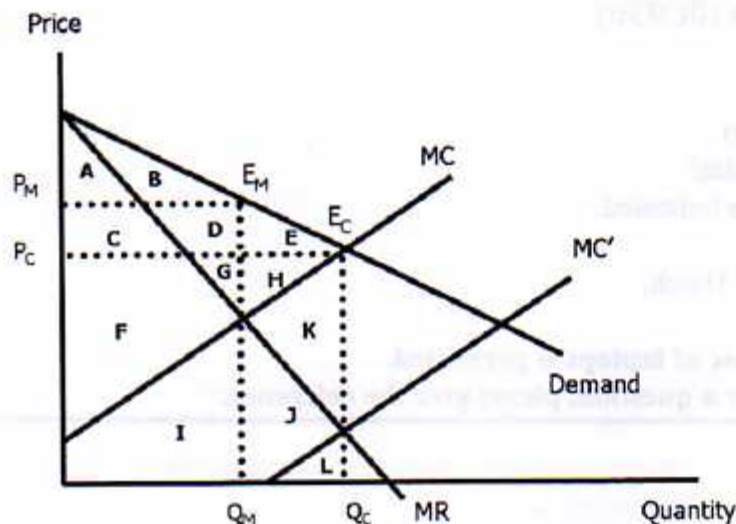
- a) Suppose all the diamond mines in South Africa are closed for some reason. This lowers supply and increases the price of diamonds. The price rise is so great that the total revenue of diamond cutters increases. Is this evidence that the diamond industry is monopolistic?

Coffee is produced at a constant marginal cost of \$1.00 a pound. Suppose the marginal cost of coffee rises to \$2.00 a pound.

- b) If coffee is produced in a competitive market, what will happen to the market price?
- c) If coffee is produced by a monopolist, what will happen to the market price?

### **Exercise 3 (20 points each)**

Below the graph in which a subsidy by the government is used to eliminate the deadweight loss resulting from a monopoly. The subsidy results in a shift of the marginal cost curve MC to MC'



- Show, using the indicators A, B, etc. in the graph, that a subsidy can be used to eliminate the deadweight loss resulting from a monopoly.
- What would this policy cost the taxpayer?

#### Exercise 4 (10 points each)

- Why is a point-to-point tariff structure for contracts between electricity sellers and suppliers insufficient for the effective operation of an electricity grid?
- What is the main argument for the efficiency of franchise bidding and why is the bidding repeated after some time?
- A close connection is needed between the design of pricing options for market flexibility and the pricing principles for actual use of a transmission grid. What are the main arguments for this?
- Name the main objectives of price regulation for networks.

#### Exercise 5 (10 points each)

- What is at the core of Jaffe's et al. discussion about economic efficiency and energy efficiency?
- The Dutch electricity distribution companies argue that ownership unbundling of the sales of gas and electricity, and running the respective networks will result in a loss of synergy advantages due to the high cost of this operation. What arguments can the government use against this argument?
- Ownership unbundling is not required by an EU directive. In the past the Dutch government has always stated that it will not go beyond what is required. In this case it does. What could be the effect of this?



### Exercise 6 (10 points each)

- a) What is an E-programme and what is the goal of this concept?
- b) What is the motivation behind "direct access" in electricity trading?
- c) Which tasks must a potential market model meet?
- d) Is wholesale competition likely to have a positive or a negative effect on end-user incentives to adopt energy-efficiency measures?

### Exercise 7 (10 points each)

- a) A politician sees an environmental subsidy as a mirror of an environmental tax. Is this correct?
- b) In the latest agreement on ETS the EU is considering the auctioning of permits instead of grandfathering them. What would companies prefer? Why?
- c) What is a main challenge when setting a pollution charge? Why?
- d) The EU trading system ETS for allowances has according to some authors a major drawback. Which one is this, and what can be done to improve the system?

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