Examination: 5024 Economics I (Intermediate Economics)

Winter Term 2004/05 **February 17, 2005**

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Instructions:

- You have 120 minutes to answer *all four* questions.
- Use of non–programmable calculators is allowed.
- Please put your name on *all* sheets.
- Please hand in *all* exam materials.

Question 1

a) 'marginal revenue = marginal costs' is the first order condition for a profit maximum both in a monopolistic and in a competitive market. Explain why still the profit maximizing quantities (and prices) differ.

b) Explain why bulk discounts can be a form of monopolistic price discrimination and give a simple example.

c) What is a natural monopoly? Under what conditions does a natural monopoly occur?

Question 2

A consumer's demand for a good can be described by the function

$$x(p, m) = 2mp^{-1}$$

with x giving the demanded quantity, p giving the price and m giving the income. The current price is $p^0 = 4$, the current income $m^0 = 100$.

a) For an increase in the price to $p^1 = 5$, compute income and substitution effect.

b) Explain the economic meaning of the income effect.

c) For p^0 and m^0, compute the income elasticity of demand.

d) For p^0 and m^0, compute the own price elasticity of demand. What does your specific result mean in economic terms?

Question 3
In a market with two suppliers, inverse demand is given by

$$p = 20 - y_1 - y_2$$

(p giving the price, y_1, y_2 giving the quantities supplied by the respective firms). Both firms have the same cost function

$$c(y_i) = 5y_i, \quad i \in \{1, 2\}.$$

a) Find the profit maximizing quantity for a single firm.

b) If there were three firms in the market, would the individual optimum quantity be higher, the same, or lower than in the two–firm case? Explain your answer.

c) Try to compute the optimum quantity for the three–firm case.

Question 4
A monopolist faces a demand curve of

$$Y = 2000 - 100p$$

with Y denoting demand, p denoting the price. The monopolist has marginal costs of $MC = 4$.

a) Derive the monopolist's supplied quantity and the respective price.

b) Because of the introduction of a quantity tax, marginal costs rise to $MC' = 5$. Find the new supplied quantity and the new respective price.

c) Compute producer's surplus for the original $MC = 4$ and the new $MC' = 5$ situation. What is the change in producer's surplus?

d) Compute consumers' surplus for the original $MC = 4$ and the new $MC' = 5$ situation. What is the change in consumers' surplus?

e) Add up the changes of producer's and consumers' surplusses. How does the introduction of the tax change the situation?