Exam Economics I (Intermediate Economics) Prüfg.Nr. 5024

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Name, First name

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Student number

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Degree/semester

Instructions:

- You have 90 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
An industry faces the demand curve

$$y = 250 - p$$

with y giving the demanded quantity and p giving the price of the good. Each firm has constant marginal costs of 4 and no other costs.

a) Consider a competitive supply side of the market. Write down the first order condition for profit maximization of a competitive firm in this market. What is the equilibrium price and the equilibrium quantity in this market?

b) Consider a monopolistic supply side of the market. Write down the first order condition for profit maximization of the monopolist in this market. What is the equilibrium price and the equilibrium quantity in this market?

c) Consider a duopolistic supply side of the market. Write down the reaction function of firm number 1 in this market, assuming both firms decide at the same time. What is the (Cournot) equilibrium price and the (Cournot) equilibrium quantity in this market?

Question 2
The demand function is given by

$$x = A p^{-\gamma}$$

with x giving the demand, p the price and a and γ as positive parameters.

a) Derive the price elasticity of demand, ε. What is the economic meaning of the price elasticity of demand? What is elastic, what is inelastic demand?

b) Denote revenues as a function of demand x and price p. How do revenues change as a reaction to an increase of the price, if demand is inelastic?

c) Is the good in focus a Giffen good? Explain your answer both verbally and analytically.

Question 3
A monopolist faces two separate markets with the demand curves given as

$$\begin{aligned} D_1(p_1) &= y_1 = 100 - p_1 \\ D_2(p_2) &= y_2 = 100 - 2p_2 \end{aligned}$$

with $D_1 = y_1$ and $D_2 = y_2$ giving the quantities and p giving the price on the market. Let the monopolist's costs be given as

$$C(y) = 20y.$$

bitte wenden !
please turn !

a) Write down the equations of the inverse demand curves $p_1(y_1)$ and $p_2(y_2)$.

b) Assume that the monopolist can price discriminate by charging a different price in each market.

   aa) Write down the specific revenue functions $R_1(y_1)$ for the first and $R_2(y_2)$ for the second market.

   bb) Write down the specific marginal revenue functions $MR_1(y_1)$ for the first and $MR_2(y_2)$ for the second market.

   cc) What are the profit maximizing quantities and prices on the markets?

c) Assume the monopolist is unable to price discriminate. Thus, he faces the aggregate demand $y = D(p)$ of both markets.

   aa) What is the function of aggregate demand $D(p)$? (Derive the explicit equation of aggregate demand for the given problem.)

   bb) For the aggregate demand function $D(p) = y = 200 - 3p$, compute the function of inverse aggregate demand.

   cc) What is the optimal quantity and price for the non–discriminating monopolist?

Question 4

Consider a game in simultaneous moves, where the payoffs are given in the following table:

		Player B		
		b_1	b_2	b_3
Player A	a_1	2, 0	1, 1	4, 2
	a_2	3, 4	1, 2	2, 3
	a_3	1, 3	0, 2	3, 0

a) What are the Nash–equilibria (in pure strategies)?

b) Which strategies survive the iterated elimination of dominated strategies?

c) Do Nash–equilibria get lost?