

Examination: 5024 Economics I (Intermediate Economics)

Version A

Summer Term 2008

July 29, 2008

Examiner: T. Riechmann

Name, First Name: _____

Immat. No.: _____

Instructions:

- The exam consists of two parts. The first part contains 20 multiple choice questions. Please state for each question if the respective statement is correct ('true') or incorrect ('false'). Mark the respective box on your answer sheet. Correct answers yield 2 points each, wrong answers -1 points each, no mark yields no point. Block II (Sections 2, 3, and 4) contains 3 free-form questions yielding 20 points each. You should answer all questions.
- You have 120 minutes to answer all questions.
- Use only the answer sheet to answer the questions. Answers given in any other place will not count for the exam!
- Use of non-programmable calculators is allowed.
- Please put your name on *all* sheets.
- Please hand in *all* exam materials.

Section 1. Various Questions (40 points)

State whether the following statements are correct or not. Mark the respective box on the answer sheet.

1. Imagine a firm with a cost function $c(y) = \frac{2}{3}y^3 - 12y^2 + 36y$ with y giving the firm's output quantity.
At a market price of $p = 14$, the output quantity that maximizes the firm's profits, is $y^* = 11$.
2. For the firm from the previous question, the supply function is $y^* = y(p) = 6 \pm \sqrt{36 - 18 + \frac{p}{2}}$.
3. An equilibrium is stationary but not necessarily stable.
4. Consumption gives the opportunity costs of leisure.
5. According to microeconomic theory, any firm's primary goal is to maximize profits.
6. The Hotelling model can be interpreted as a model of product quality.
7. In a competitive market, a firm's marginal revenue is equal to the price.
8. Given demand for good number 1 is $x_1 = 2 \frac{m - p_1 + p_2}{2p_1}$, the two goods, good 1 and good 2, are substitutes.
9. The fact that the MRS is diminishing means that goods are the more valuable in terms of other goods the scarcer they are.
10. If two goods are perfect complements, their income elasticity is equal to 1.
11. An individual's preferences concerning the commodity bundles A , B , and C can be described as follows:
$$A \sim B; A \sim C; C \prec B$$

These preferences are transitive.
12. In its minimum, the AVC curve is intersected by the AC curve.
13. The technical rate of substitution can be derived from the marginal products.
14. In a competitive market, any firm's short-run supply function is completely equal to its curve of marginal costs.
15. In an equilibrium, no single individual has reason to change his behavior.
16. A Cournot equilibrium is a Nash equilibrium.
17. Monopolistic price discrimination of first degree generally means charging different prices for different units of the good, but the same prices from different people.
18. In terms of utility, a consumption tax on a single good is worse than an income tax with the same revenue.
19. Saving means shifting consumption from the present into the future.
20. Monotonicity of preferences means that individuals prefer mixtures to extremes.

Section 2. Market Forms (20 points)

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.

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?

2. 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?
3. 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?

Section 3. Consumption (20 points)

A household has the following utility function:

$$u(x_1, x_2) = x_1(x_2 + 5),$$

with x_1 and x_2 giving the quantities of goods no. 1 and 2, respectively.

1. Derive the general demand functions for the goods.
2. Assume the general demand function for the second good is

$$x_2(m, p_1, p_2) = \frac{1}{2} \frac{m}{p_2}.$$

Let the income be $m = 1000$ and the price for the second good $p_2 = 1$

- a) Compute the demanded quantity for the second good, $x_2(m, p_2)$.
- b) Assume the price for the good rises to $p'_2 = 2$. What is the new (hypothetical) income m' that keeps the household's purchasing power constant at the new price p'_2 ?
- c) Compute the demanded quantity of the second good for the new price p'_2 and the hypothetical income m' , i.e. $x_2(m', p'_2)$.
- d) Compute the demanded quantity for the original income m and the new price p'_2 , i.e. $x_2(m, p'_2)$.
- e) Compute the substitution effect $\Delta_{x_2}^s$, the income effect $\Delta_{x_2}^n$ and the total effect Δ_{x_2} of the price change.

Section 4. Demand (20 points)

1. The demand function is given by

$$x = Ap^{-\gamma}$$

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

2. 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?
3. Is the good in focus a Giffen good? Explain your answer both verbally and analytically.

Answer sheet

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I have participated in the midterm and want to use my respective points for this exam.

Part 1: Multiple Choice

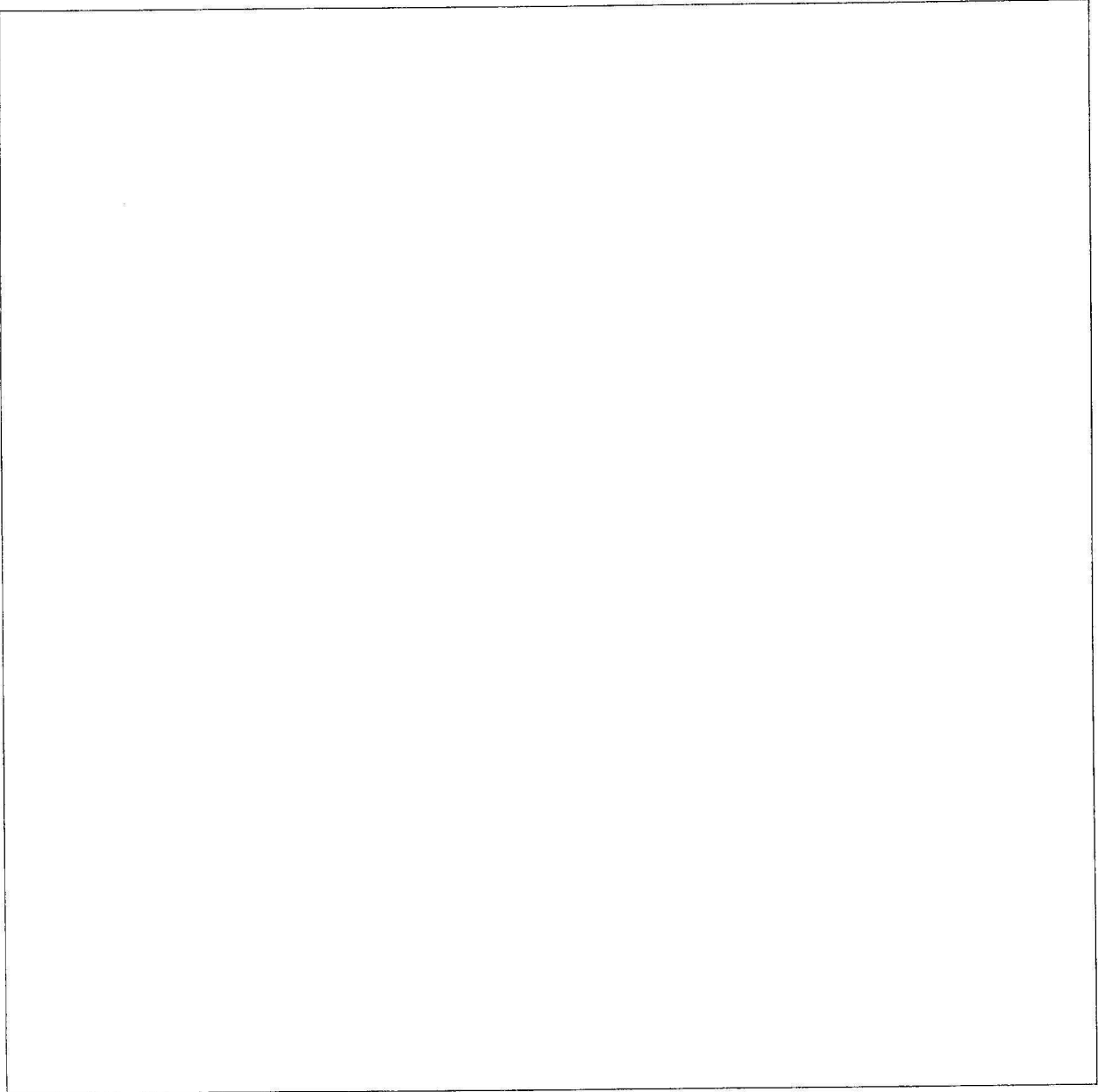
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2	<input type="checkbox"/>	<input type="checkbox"/>	12	<input type="checkbox"/>	<input type="checkbox"/>
3	<input type="checkbox"/>	<input type="checkbox"/>	13	<input type="checkbox"/>	<input type="checkbox"/>
4	<input type="checkbox"/>	<input type="checkbox"/>	14	<input type="checkbox"/>	<input type="checkbox"/>
5	<input type="checkbox"/>	<input type="checkbox"/>	15	<input type="checkbox"/>	<input type="checkbox"/>
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9	<input type="checkbox"/>	<input type="checkbox"/>	19	<input type="checkbox"/>	<input type="checkbox"/>
10	<input type="checkbox"/>	<input type="checkbox"/>	20	<input type="checkbox"/>	<input type="checkbox"/>

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Part 2: Free Form

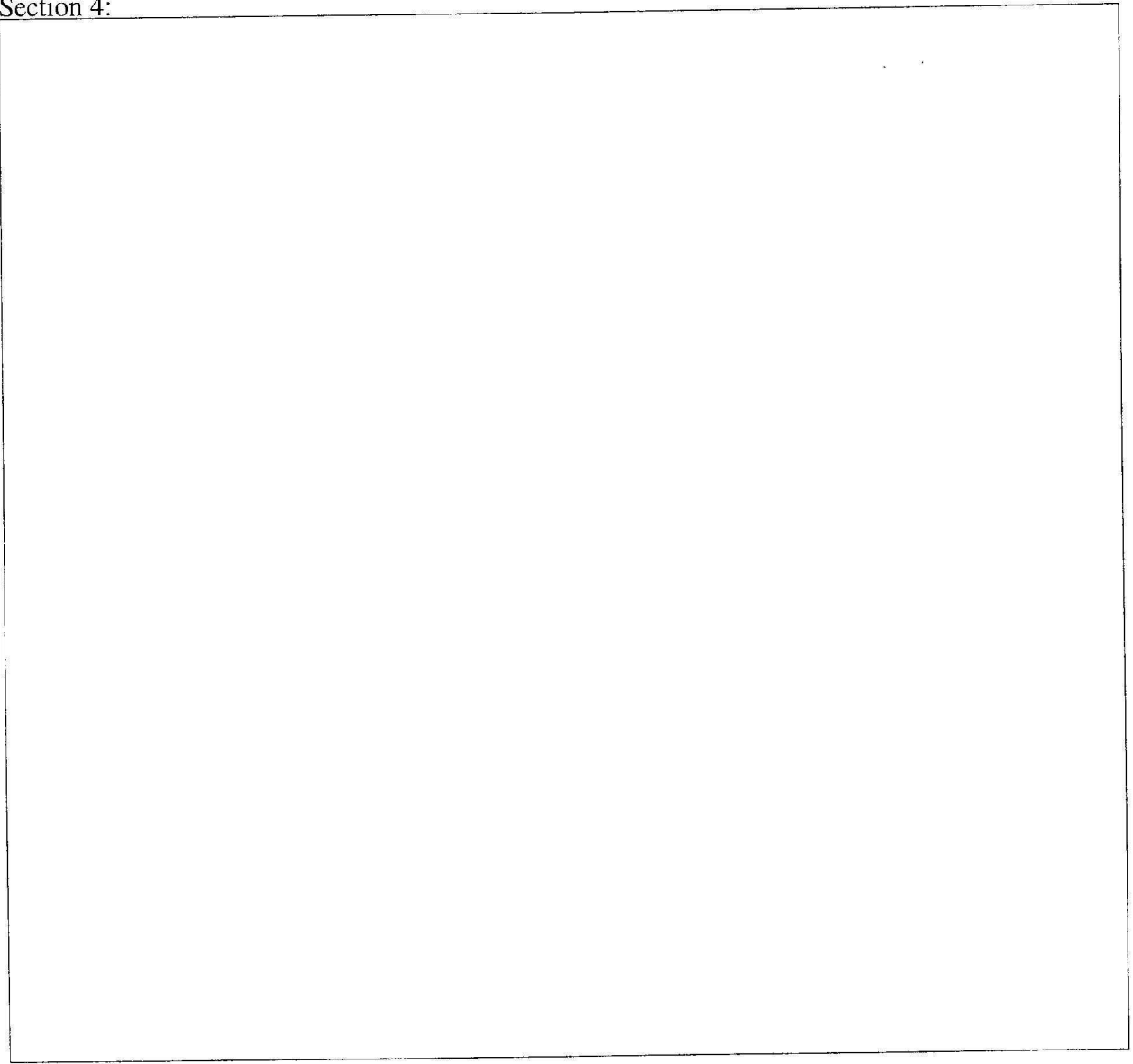
Section 2:

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Section 4:

A large, empty rectangular box with a thin black border, occupying most of the page below the 'Section 4:' label. It is intended for the student to write their response to the section.