



**Before you start read the following carefully:**

- The exam has a maximum duration of two hours and thirty minutes.
- The exam has of two parts: Part A consists of 12 multiple-choice questions, Part B, of four open questions.
- Write your answers to Part A in the table below in this page. At the end of the exam separate this sheet from the rest of the exam and hand it in together with your answers to Part B. Make sure you have written your identification in this page below.
- You cannot look up any book or any other learning material.
- You may use non-graphic calculators but you cannot use graphic calculators.
- Keep any mobile phone, tablets and pcs switched off.

<b>Full name:</b> (as it appears on your student record)		
<b>Student number:</b>	<b>Class:</b>	<b>Degree:</b>

**Part A (8 marks)**

Indicate with an 'O' in the table below the correct answer to the questions 1 to 12. You get 0.5 marks for each correct answer and will have a 0.15 deduction for each wrong answer.

**At the end of your exam separate this sheet from the rest of the exam paper and hand it in together with your answers to Parts B.**

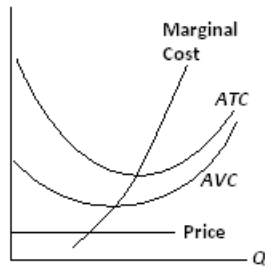
	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>	<b>6</b>	<b>7</b>	<b>8</b>	<b>9</b>	<b>10</b>	<b>11</b>	<b>12</b>
<b>a)</b>	a)	a)	a)	a)	a)	a)	a)	a)	a)	a)	a)	a)
<b>b)</b>	b)	b)	b)	b)	b)	b)	b)	b)	b)	b)	b)	b)
<b>c)</b>	c)	c)	c)	c)	c)	c)	c)	c)	c)	c)	c)	c)
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1. The accompanying figure shows a perfectly competitive firm's cost structure. The firms should:

- a) Keep producing in the short run, and shut down in the long run.
- b) Produce the output level that makes marginal cost equal to marginal revenue.
- c) Produce the output level that makes marginal cost equal to average revenue.
- d) >>>Shut down.



2. If two goods are perfect substitutes the marginal rate of substitution between them will be:

- a) Zero.
- b) >>>Constant.
- c) One.
- d) Infinite.

3. At a factory the average total cost of producing 1500 tons of cement is €50. When the factory freely varies the quantity of all inputs to double output, the average total cost rises to €55. Then this factory exhibits:

- a) Diminishing marginal product of labour.
- b) Increasing returns to scale.
- c) The law of diminishing returns.
- d) >>>Decreasing returns to scale.

4. A monopolist that practices perfect price discrimination:

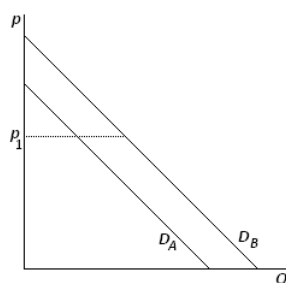
- a) >>>Is as efficient as perfect competition.
- b) Gives rise to the same consumer surplus as perfect competition.
- c) Gives rise to a lower total surplus than a collusive oligopoly.
- d) Is less efficient than perfect competition.

5. If the marginal cost curve lies above the average cost curve:

- a) The average cost is at its minimum.
- b) >>>The average cost curve is sloping up.
- c) The marginal cost curve is sloping down.
- d) The average cost curve is sloping down.

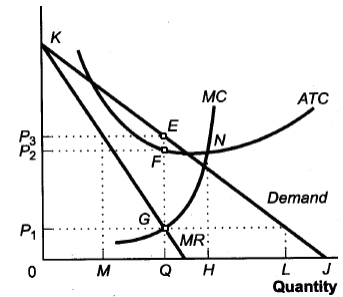
6. Owing to higher consumers' income the demand curve in the figure shifts in a parallel fashion from  $D_A$  to  $D_B$ . At price  $p_1$  which of the curves has a higher price-elasticity of demand in absolute value?

- a) >>> $D_A$ .
- b)  $D_B$ .
- c) Both curves have the same elasticity.
- d) The information is insufficient to answer.



7. The accompanying figure shows a monopolist's short-run situation. If the monopolist maximises profit its total cost is:

- a)  $FQ$ .
- b) Area  $P_1OQG$ .
- c) Area  $P_3OQE$ .
- d) >>> Area  $P_2OQF$ .



8. Anne's utility function is  $U(X,Y) = X^2Y$ . Of the following consumption bundles, (2,12), (3,6), and (4,3), which lies or lie in the higher indifference curve?

- a) >>>(3,6) only.
- b) (2,12) only.
- c) (4,3) only.
- d) (2,12) and (4,3) only.

9. A monopolistic and perfect competition bear some similarities to each other: firms in both types of market:

- a) Are price takers.
- b) >>>Are free to enter and exit the market.
- c) Produce identical products.
- d) Gain from advertising.

10. In a perfectly competitive market, does marginal revenue always equal the market price?

- a) >>>Yes, because firms lack market power.
- b) No, the price is higher.
- c) No, the equality holds only where the marginal revenue equals marginal cost.
- d) No, the price is lower.

11. Consider a game with the following payoff matrix. In each cell the first number is the payoff of player 1. Identify the equilibrium in dominant strategies.

		Player 2	
		Strategy R	Strategy S
Player 1	Strategy P	6, 9	5, 8
	Strategy Q	5, 10	2, 7

- a) The pair of strategies (Q,R)
- b) The pair of strategies (Q,S).
- c) The pair of strategies (P,S)
- d) >>> The pair of strategies (P,R).

12. The government requires consumers to pay a new tax per unit of a good. This tax will give rise to a deadweight loss equal to:

- a) The combined reduction of consumer and producer surpluses.
- b) The reduction in consumer surplus.
- c) >>>None of the other options is correct.
- d) Government's tax revenue.

**Part B (14 marks) This part consists of four questions.**

1. The price of a box of cherries in Lisbon fell from €3 to €2. Quantity demanded rose from 200 thousand to 400 thousand boxes as a consequence.
  - a) Find the midpoint price-elasticity of demand between €3 and €2. What does the value you found mean? (1.25 marks)
  - b) Find the consumers' total expenditure for both prices. Explain the relationship between the expenditure values and the elasticity value you found in part a). (1.25 mark)
  - c) What does the price-elasticity of demand tell about the existence of close substitutes? What can you conclude in this regard about the present example? (1.25 marks)



Part B, continued

2. Joe consumes goods  $X$  and  $Y$  only. His preferences can be described by the utility function  $U(X, Y) = X^2Y^3$ , and his marginal utilities are  $MU_X = 2XY^3$  and  $MU_Y = 3X^2Y^2$ .
- Find Joe's marginal rate of substitution of  $X$  in place of  $Y$  at the consumption bundle ( $X = 2$ ,  $Y = 6$ ). What is the precise meaning of the value you found? (1.25 mark)
  - Suppose that both goods have the same price and that Joe's income equals the cost of the bundle in part a). What should Joe do to maximise his utility? Consume that bundle, more  $X$ , or more  $Y$ ? Explain. (1.5 marks)
  - Suppose Joe's income is 100, and the prices of the goods are  $p_X = 10$  and  $p_Y = 5$ . Find Joe's optimal consumption bundle. Show your calculations and explain your reasoning. (1.5 mark)



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Part B, continued

3. The table below shows the total costs of a perfectly competitive firm.

Quantity	0	1	2	3	4	5	6	7	8	9
Total costs, €000	10	15	16	16.6	18.4	20.5	23.2	27.5	32.9	61.5

- Does the table show short-run or long-run costs? Explain. (0.75 mark)
- For each output level in the table, find the marginal cost ( $MC$ ), the average total cost ( $ATC$ ), and the average variable cost ( $AVC$ ). (1.25 marks)
- Find the firm's supply curve, and present it in a table. Explain your reasoning. (1.5 marks)
- For what price range would the firm produce in the short-run but not in the long run. Explain (1.0 marks)



Part B, continued

4. Select the right answer to the question below and fully explain your reasoning. If you do not present your reasoning you will have no marks even if you select the right answer. You may use graphs to aid your answer.

A price floor above the equilibrium price gives rise to a surplus. This surplus is the larger the \_\_\_\_\_ elastic the demand and the \_\_\_\_\_ elastic the supply. Which of the options below correctly fills the blanks?

- a) more; more.
- b) less; more.
- c) more; less.
- d) less; less.