Before you start read the following carefully:

• The exam has a maximum duration of two hours and thirty minutes.

• The exam has three parts: Part A consists of 16 multiple-choice questions, Part B, of three exercises, and Part C is an essay.

• 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 Parts B and C. Make sure you have written your identification in this page below.

• If you have passed already and are trying to improve on your mark write "Melhoria" on your answer sheets header.

• 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 switched off**.**

A

Full name:			
(as it appears on your student record)			
Student number:		**Class:**	**Degree:**

Part A (8 marks)

Indicate with an X in the table below the correct answer to questions 1 to 16. You get 0.5 marks for each correct answer and 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 and C.

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
a)	a)	a)	a)	a)	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)	b)
c)	c)	c)	c)	c)	c)	c)	c)	c)	c)	c)	c)	c)	c)	c)	c)	c)
d)	d)	d)	d)	d)	d)	d)	d)	d)	d)	d)	d)	d)	d)	d)	d)	d)

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1. In a certain economy there are two producers only, **A** and **B**, and each produces goods **X** and **Y** only. Their Production Possibility Frontiers are initially as shown in the accompanying pictures. Then producer **A** doubles the number of his workers whereas producer **B** does not change anything. Which of the following is true?
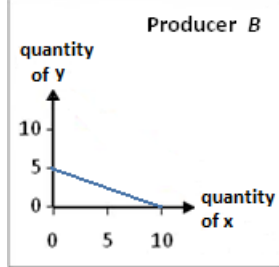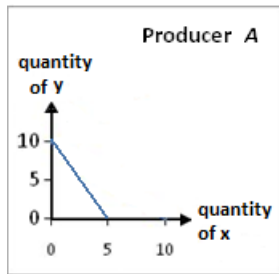
   a) Producer A has a comparative advantage in the production of X.
   b) Producer A has a comparative advantage in the production of Y, and producer B has an absolute advantage in the production of Y.
   c) Producer A has a comparative advantage in the production of good Y, and producer B has a comparative advantage in the production of X.
   d) None of the other alternatives is true.

2. **Goods X and Y are substitutes. The market for good X is in equilibrium. Then the price of good Y decreases and the costs of production of good X fall. What will happen to the market equilibrium for good X?**

   a) Equilibrium price and quantity increase.
   b) Equilibrium price falls, but we cannot tell what happens to equilibrium quantity.
   c) Equilibrium price increases, but we cannot tell what happens to equilibrium quantity.
   d) Equilibrium price falls and equilibrium quantity increases.

3. **In a market there are five consumers, who buy at most one unit of the good. The maximum price they are willing to pay for a unit, their willingness to pay, is shown in the table below.**

Consumer	Willingness to pay, €
Anne	150
Bob	125
Chris	105
Daniel	60
Emma	25

   The market price was €60, but then the government levied an indirect tax which made the consumer price increase to €75. What is the variation in the total consumer surplus caused by the tax?

   a) − €45.
   b) €45.
   c) €200.
   d) − €155.

4. **The table below gives information on a typical take-away consumer.**

| Price of a take-away, € | Quantity of take-away demanded | |
	For a monthly income of €1000	For a monthly income of €1500
20	3	7
18	4	8
16	5	9
14	6	10
12	7	11
10	8	12
8	9	13
6	10	14

   What is the income-midpoint elasticity of demand for take-away when monthly income changes from €1000 to €1500 and the price of a take-away is €10?

   a) 0.2.
   b) 1.
   c) -1.
   d) 1.5.

5. **Desperate to raise revenue the government of a certain country is considering levying an excise tax on salt cod. The tax will rise more revenue:**

   a) The more elastic demand and supply are
   b) The more inelastic demand and supply are
   c) The more elastic demand is and the more inelastic supply is.
   d) The more inelastic demand is and the more elastic supply is.

6. **If prices and the consumer's nominal income increase by the same proportion her budget line:**

   a) Shifts to the right in a parallel fashion.
   b) Shifts to the right and becomes steeper.
   c) Shifts to the right and becomes less steep.
   d) Remains unchanged.

7. **Which of the following is false according to standard consumer theory?**

   a) The optimal consumption bundle is where the budget line is tangent to the indifference curve that is furthest from the origin.
   b) If a consumer is maximising his utility he will have the same marginal utility per monetary unit for all goods he is consuming.
   c) Where the budget line is tangent to the furthest indifference curve from the origin the prices of every good are the same.
   d) The consumer spends all her income on the optimal bundle.

8. Clare's monthly income doubled, and so her optimal consumption bundle changed. She consumes normal goods only. What happens to her marginal utility per monetary unit?

   a) It increases.
   b) It falls.
   c) It remains unchanged.
   d) The information is insufficient to answer the question.

9. Which of the following correctly defines marginal cost?

   1. Change in total cost divided by change in output.

   2. Change in variable cost divided by change in output.

   3. Variable cost divided by output.

   a) Definition 1 only.
   b) Definition 2 only.
   c) Definitions 1 and 2 only.
   d) Definition 3 only.

10. If a firm's long-average costs increase when output increases then the firms has

    a) Variable returns to scale.
    b) Constant returns to scale.
    c) Decreasing returns to scale.
    d) Increasing returns to scale.

11. The shut-down price, which firms face in the short-run:

    a) Is the price below which the firm should keep producing, as its losses would be greater if it ceased production.
    b) Is equal to the minimum average variable cost.
    c) Corresponds to the intersection of marginal and average total cost curves.
    d) Is a price at which firms make zero profits.

12. The accompanying figure shows a perfectly competitive firm cost curves. The firm will have non-negative profits in the short-run if the price is:

    a) Higher than €0.
    b) Higher than or equal to €6.
    c) Higher than €11.
    d) Higher than or equal to €10.
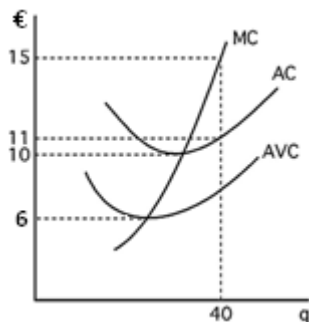
13. At a monopolist's profit-maximising output:

    a) Marginal revenue exceeds marginal cost.
    b) Marginal cost exceeds marginal revenue.
    c) Marginal revenue equals marginal cost.
    d) Marginal cost exceeds the price.

14. A profit-maximising monopolist facing a linear, downward-sloping demand curve will not operate where its demand curve has price-elasticity (in absolute value) of:

    a) 3.
    b) 1.
    c) 1/3.
    d) None of the other alternatives is correct, as the price-elasticity of demand is not relevant for the monopolist.

15. LxComputers and InvictaPC are the only firms in an oligopolistic market. Each can adopt strategies *R&D* (investment in research and development) or *N* (no investment). The payoff (profit) they will obtain form each combination of strategies is shown in the table below (LxComputers' profit on the left, InvictaPc's on the right).

		InvictaPC	
		R&D	**N**
LxComputers	**R&D**	**30 , 30**	**45, 25**
	N	**25 , 45**	**40 , 40**

   Then, representing a combination of strategies with (LxComputers' strategy, InvictaPC's strategy):

    a) (*N*, *N*) is an equilibrium in dominant strategies.
    b) (*R&D*, *R&D*) is an equilibrium in dominant strategies.
    c) (*R&D*, *N*) is an equilibrium in dominant strategies.
    d) (*N*, *R&D*) is an equilibrium in dominant strategies.

16. A firm in a monopolistic industry is producing its short-run profit-maximizing level of output but its profits are negative. Letting as usual *AC* stand for average cost, *p* for price, *MR* for marginal revenue, and *MC* for marginal cost, then:

    a) $ATC > p > MR = MC$.
    b) $ATC = p > MR = MC$.
    c) $ATC > p = MR = MC$.
    d) $ATC > p > MR > MC$.

Part B (9.5 marks)

1. A perfectly competitive firm has fixed costs (*FC*) of €100 and variables costs (*VC*) for quantity (*Q*) 0 to 6 as shown in the table below.

Q	VC	FC	TC	AVC	ATC	MC
0	0					
1	50					
2	80					
3	130					
4	200					
5	290					
6	400					

   a) Copy the table to your answer sheet and complete it with the values for the total cost (*TC*), average variable cost (*AVC*), average total cost (*ATC*) and marginal cost (*MC*). (1.5 marks.)

   b) How much are the shut-down and break-even prices, and what levels of output correspond to these prices? Explain. (1 mark.)

   c) Find the optimal output and the firm's profit when the price is i) €50 and ii) €90. (1 mark.)

   d) There are many other firms in the market, and all of them have the same cost structure as the firm above. Explain why €50 cannot be the long-run equilibrium price. Is the long-run equilibrium price higher or lower than €50? Explain. (1 mark.)

2. Joana spends her monthly income of €120 on goods *X* and *Y* only. The prices of goods *X* and *Y* are $p_X = 4$ and $p_Y = 2$ respectively. Joana's total utility function is $U(x,y) = xy^2$, where *x* is the quantity of good *X*, and *y* that of good *Y*.

   a) Find the general expression for Joana's marginal rate of substitution of good *X* in place of good *Y*. Find and interpret its value when Joana buys 30 units of *X* and 20 of *Y*. (1.25 marks.)

   b) Find Joana's optimal consumption bundle and the utility she obtains from it. (1.25 marks.)

3. A firm has a monopoly in a certain market. The additional cost of an additional unit of output is always €1, and the firm has no costs when it does not produce at all. The market demand curve is given by:

$$P^d(Q) = 8 - 0.5Q,$$

   where *Q* is the quantity and $P^d(Q)$ is the price charged by the monopolist.

   a) Find the equilibrium quantity, price and profit. Explain. (1.25 marks.)

   b) Suppose the monopolist's marginal cost is now given by $MC = 15Q$. Find the new equilibrium quantity, price and profit, and comment on the changes. (1.25 marks.)

Part C (2.5 marks)

Carefully discuss the following statement: "Generally when the market price falls consumers' expenditure fall as well."

(Your answer must not exceed 150 words.)

For rough work