

DO NOT LOOK AT THE EXAMINATION PAPER UNTIL YOU ARE TOLD TO DO SO

READ CAREFULLY THE RULES OF THIS EXAM

The first thing that you should do is fill in the oval corresponding to the number of your traccia. Otherwise we cannot mark your answers.

RULES

1. It is forbidden to communicate with the other candidates. If you do so you will be expelled from the examination session and your compito destroyed.
2. Any student discovered using forbidden material (books, notes etc.) will be immediately expelled from the examination session.
3. Students who wish to talk to one of the academic staff should raise their hand.
4. The academic staff will not discuss any points concerning the answers to the examination.
5. Answers to the questions on the examination paper should be indicated on the answer sheet by filling in the appropriate circle, as indicated below.

Domanda	<input type="radio"/> A	<input type="radio"/> B	<input type="radio"/> C	<input checked="" type="radio"/>	corretta
Domanda	<input type="radio"/> A	<input type="radio"/> B	<input type="radio"/> C	<input checked="" type="radio"/>	sbagliata
Domanda	<input type="radio"/> A	<input type="radio"/> B	<input type="radio"/> C	<input checked="" type="radio"/>	sbagliata

6. Your matriculation number should be indicated on the answer sheet by filling in the appropriate circles.
8. Students cannot leave the examination room in the final ten minutes of the examination.
9. When the academic staff announce the end of the examination, students should stop writing immediately. Those who continue to write after this point will have their answer sheets **destroyed**.
10. When the academic staff announce the end of the examination period, all the answer sheets should be passed along the row to the student at the end of the row. Students should not talk during the collection of the answer sheets.

It is totally forbidden to talk at any stage during the examination.

YOU HAVE 2 HOURS

QUESTIONS 1-4:

Consider a market for a hypothetical good in which there are a number of buyers and sellers, each of which wants to buy or sell one unit of the good. Assume that a buyer who is indifferent about buying always buys and a seller who is indifferent about selling always sells. The reservation prices are given below, first for the buyers and then for the sellers.

Buyers: 5, 7, 7, 9, 5, 4, 6. Sellers: 5, 2, 4, 7, 7, 2.

Question 1: What is the maximum quantity demanded?

- A 7
- B 6
- C 10
- D 5

Question 2: What is the maximum quantity supplied?

- A 13
- B 6
- C 7
- D 4

Question 3: What is the maximum total surplus generated in the market?

- A 16
- B 13
- C 17
- D 19

Question 4: What is the maximum number of trades (not necessarily with the same price)?

- A 3
 - B 7
 - C 4
 - D 6
-

QUESTIONS 5-7:

Consider, in an Edgeworth Box, exchange between two individuals, Individual A and Individual B, with preferences as specified below, endowed with two goods, Good 1 and Good 2. (Consider only competitive equilibrium in which at least one individual is better off compared to the initial position.)

Individual A has Perfect Complement preferences with parameter $a = 0.5$. Individual B has Perfect Substitute preferences with parameter $a = 1$. Total endowment of good 1 is 8 and that of good 2 is 6. Individual A's endowment of good 1 is 6 and that of good 2 is 6.

Question 5: What is the competitive equilibrium price ratio?

- A 1.50
- B 0.50
- C 2.00
- D 1.00

Question 6: What is the quantity exchanged of good 1 to reach the competitive equilibrium?

- (A) 3.50
- (B) 0.00
- (C) 2.50
- (D) 2.00

Question 7: What is the quantity exchanged of good 2 to reach the competitive equilibrium?

- (A) 0.50
 - (B) 3.50
 - (C) 0.00
 - (D) 2.00
-

QUESTIONS 8-9:

In the next two questions you will be asked questions about the the demands of an individual with the following preferences at the following incomes and prices.

The individual has Perfect Substitute preferences with parameter $a = 0.33$. The individual has income 30 and faces prices 0.50 and 1.00 for goods 1 and 2.

Question 8: What is the individual's demand for Good 1?

- (A) 36.00
- (B) 30.00
- (C) 20.00
- (D) 0.00

Question 9: What is the individual's demand for Good 2?

- (A) 30.00
 - (B) 20.00
 - (C) 15.00
 - (D) 12.00
-

QUESTIONS 10-11:

In the next two questions you will be asked to identify two points on the production possibility frontier in an economy with two firms and two factors of production, the quantities of which are fixed.

Firm 1 has Perfect Complements technology with parameter $a = 0.5$. Firm 2 has Perfect Complements technology with parameter $a = 0.5$. Total endowment of factor X is 6 and that of factor Y is 8.

Question 10: Find the maximum output for firm 2 if firm 1 has an output of 3

- (A) 5.00
- (B) 0.00
- (C) 4.00
- (D) 3.00

Question 11: Find the maximum output of firm 1 if firm 2 has an output of 3

- (A) 7.00
 - (B) 3.00
 - (C) 0.00
 - (D) 4.00
-

QUESTIONS 12-13:

In the next two questions you will be asked to consider an individual, taking decisions under conditions of risk, with Expected Utility preferences and utility function $u(x) = x^{0.5}$ (that is, the utility of x is the square root of x). Suppose the individual is faced with two lotteries P and Q as specified below. A lottery is denoted by $(a,b;p,1-p)$ and means that the outcome is a with probability p and b with probability $1-p$.

The lotteries are: $P = (9,4;0.25,0.75)$ $Q = (1,25;0.5,0.5)$

Question 12: Does the individual prefer P or Q?

- (A) We cannot tell from the information given
- (B) P
- (C) Q
- (D) The individual is indifferent

Question 13: What is the individual's certainty equivalent for P?

- (A) 13
 - (B) 5.0625
 - (C) 5.25
 - (D) 9
-

QUESTIONS 14-15:

In the next two questions you will be asked to consider a monopoly with a demand curve for its output given by $p = a - b \cdot y$ where p and y denote the price and quantity of its output and where a and b are given below. Suppose that the cost function of the firm is given by $C(y) = c + d \cdot y$ where c and d are given below. Assume that the monopolist always has to pay its fixed costs.

$a = 20, b = 2. \quad c = 0, d = 10$

Question 14: What price does the monopoly set if it wants to maximise its profits?

- (A) 0.00
- (B) 15.00
- (C) 20.00
- (D) 10.00

Question 15: What output does the monopoly optimally produce?

- (A) 5.00
 - (B) 0.00
 - (C) 2.50
 - (D) 6.00
-

QUESTIONS 16-17:

In the next two questions you will be asked to consider a game played simultaneously, and without communication between two players, 1 and 2, each of whom can choose one of two options A and B. The payoffs to the two players are given below, the first for Player 1 and then for Player 2. The order of the payoffs is AA, AB, BA, BB where XY indicates the outcome when Player 1 plays X and Player 2 plays Y.

Player 1: 2, 8, 9, 10. Player 2: 10, 1, 9, 2.

Question 16: Specify ALL the Nash Equilibria in pure strategies.

- (A) BA
- (B) There are none
- (C) BB

AA

Question 17: Specify ALL other outcomes (not a Nash Equilibrium) that Pareto dominate any of these.

- A There are none
- B AB and AA dominate BA
- C AB dominates AA
- D AA dominates AB

For every correct answer you get 2 marks. For every wrong answer 1 mark will be deducted.
