**UNIVERSITY OF TRIESTE**

Degree in International Economics and Financial Markets
(curriculum Economics and Financial Markets)
Degree in Business Administration and Management
(curriculum Business and Management)

# QUESTIONNAIRE

**DO NOT OPEN**
the plastic envelope until you are told
the test is starting

# Prova P00000

**1. In the academic year 2016-2017, among the 120 students enrolled at the Bachelor Degree in Economics there are 30 males. What is the percentage of females in this group?**

**A.** 60,00 %
**B.** 66,67 %
**C.** 70,00 %
**•D.** 75,00 %

**2. In the academic year 2016-2017, the Bachelor Degree in Management shows the following figures:**
**▪ 180 students enrolled**
**▪ 80 male students and 100 female students**
**▪ 100 Italian students and 80 foreign students**
**▪ the 50% of foreign students are females**
**What is the males percentage of the Italian students:**

**•A.** 40 %
**B.** 50 %
**C.** 60 %
**D.** 30 %

**3. 10 answers given to a questionnaire are wrong and 80% are correct. How many questions does the questionnaire contain?**

**A.** 100
**•B.** 50
**C.** 40
**D.** 80

**4. Three heirs must share a sum of € 18.000. Determine their portion of inheritance, knowing that they are proportional respectively to the quotas of 9, 12, 15.**

**•A.** € 4.500 € 6.000 € 7.500
**B.** € 4.000 € 5.000 € 9.000
**C.** € 5.000 € 6.000 € 7.000
**D.** € 4.500 € 5.500 € 8.000

**5. In December 2015, in a city, there were 1.000 people who want to work: 80% worked and 20% were unemployed. In January 2016 , a new factory opened and 50% of the unemployed recruited, the other unemployed continued to look for works without finding. Moreover in July 2016, 200 immigrants arrived in the city looking for work without finding.**
**At the end of the 2016, the percentage of unemployment among the people who want to work (employed and unemployed) compared to the percentage in the 2015 was:**

**•A.** increased
**B.** decreased
**C.** the same
**D.** the question cannot be answered

**6. In the first month of 2016, Romina saved 2 €. In each of the 11 months following, she saved 1 € more than she had saved in the previous month. What was the total amount Romina saved during the 12 months?**

**A.** 12
**B.** 78
**•C.** 90
**D.** 24

**7. 1.000 workers are paid 10 cent/h for the first 40 hours worked during a month and 2 times that wage for the subsequent hours. What was the total payroll for a month in which 30% of the workers worked 20 hours, 50% worked 40 hours, and the others worked 50 hours?**

**A.** 290.000
**B.** 320.000
**C.** 350.000
**•D.** 380.000

**8. In a class there are 40 students; they must choose at least one foreign language course (German or French) and:**
**▪ 12 students enroll for both German and French and**
**▪ 22 students follow the French course.**
**How many students enroll for only German and not French?**

**A.** 14
**•B.** 18
**C.** 20
**D.** 30

**9. If you answer to 40 questions of this test (45 questions; 1 point for correct answer, 0 point for no-answer, -0,5 point for wrong answer) and you are sure that at least 30 answers are correct. Then you can sure that:**

**A.** you earn at least 40 points
**B.** you earn less than 25 points
**•C.** you earn at least 25 points
**D.** you earn less than 20 points

**10. In a day a student writes 2/5 of his 150 page thesis. The next day he writes 2/3 of the remaining pages. How many pages are left to write?**

**•A.** 30
**B.** 60
**C.** 90
**D.** 100

**11. An admission exam consists of two tests. There are 180 candidates: 1/3 of the candidates pass the first test and 2/3 of these pass also the second. How many students are admitted?**

**A.** 60
**B.** 90
**•C.** 40
**D.** 30

**12. A capital sum of 200.000 euros, deposited in a bank, is subject to a 5% annual interest rate during the first year and to a 10% annual interest rate during the second year (calculated on the value after one year). What is its value after the second year?**

**A.** 210.000
**B.** 215.000
**•C.** 231.000
**D.** 235.000

**13. You may choose between:**
**Option 1: receive 1.100 euros today and invest them at 10% annual interest rate for one year;**
**Option 2: receive 1.110 euros in one year. Which option do you prefer?**

**A.** Options 1 and 2 are indifferent
**•B.** Option 1
**C.** Option 2
**D.** The question cannot be answered

**14. A supermarket offers to all customers a "general discount" of 20% on listed prices, plus a further "special discount" of 10% (on the total amount after "general discount") if the value of expenditure exceeds 100 euros. Hence, for a 200 euros total (pre-discount), a customer pays a final amount (after discount):**

**A.** 170
**•B.** 144
**C.** 140
**D.** 160

**15. You can choose a mobile phone contracts between the two following plans:**

| Plans A | Plans B |
|---|---|
| monthly contract | monthly contract |
| 10 euros per month | 70 euros per month |
| 100 minutes of traffic included (threshold) | 400 minutes of traffic included (threshold) |
| cost of minute exceeding the threshold:<br>0,2 euro per minute | cost of minute exceeding the threshold:<br>0,1 euro per minute |

**If your monthly traffic is equal to 500 minutes which is the cheapest plans:**

**A.** Plans A and Plans B are indifferent
**B.** Plans A
**•C.** Plans B
**D.** The question cannot be answered

**16. At the beginning of 2015, Robert makes a financial investment. After a year the value of the investments increased by 10%. At the beginning of 2017 the value of investments decreased by 10% over the previous year. Then:**

**A.** the final value is equal to the capital invested at the beginning of 2015
**B.** the final value is greater than the capital invested at the beginning of 2015
**•C.** the final value is less than the capital invested at the beginning of 2015
**D.** The question cannot be answered

**17. If the population of a city made up of 10.000 inhabitants increases by 10% per year, compared to last year, three years later the population will amount to:**

**A.** 13.000
**•B.** 13.310
**C.** 13.300
**D.** 30.000

**18. A shoe store sells only one model of shoes and the owner is planning to discount the price of 20% of all shoes. The new price is 80 euros, and the store will sell 100% more shoes. So the new revenue amounted to euros 16.000 *(revenue = number of shoes sold × price of the shoes)***
**What was the revenue increase?**

**•A.** 6.000
**B.** 10.000
**C.** 12.000
**D.** 16.000

**19. A player rolls two dice and win if he gets a result equal to 7 (the sum of the two numbers on the face of the two dice). What is the probability of winning?**

**•A.** 6/36
**B.** 1/12
**C.** 1/36
**D.** 1/2

**20. In the Mathematics class there are:**
**▪ 120 students**
**▪ 30 male students and 90 female students**
**▪ 60 Italian students and 60 foreign students**
**▪ the 50% of foreign students are males**
**The teacher randomly chooses a female student to do an exercise on the blackboard. The probability that the chosen female student is Italian is equal to:**

**•A.** 60/90
**B.** 30/90
**C.** 60/120
**D.** 30/60

**21. Given the sets A={1,2,3,4,5,6,7,8,9,10}, B={1,3,5,7,9,11,13,15,17} and C={1,3,5,7,9}, then:**

**A.** C = A ∪ B

**•B.** C = A ∩ B

**C.** C ∈ A

**D.** C ∈ B

**22. If A is the set of the even numbers between 1 and 10 and B is the set of the odd numbers between 1 and 10, which of the following statements is true?**

**A.** A = B

**B.** A ⊂ B

**C.** A ⊃ B

**•D.** A ∪ B = {1,2,3,4,5,6,7,8,9,10}

**23. Considering sets A, B, C and D; if A ⊂ B, B ⊂ C and C ⊂ D, which among the following statement is FALSE**

**A.** A ⊂ C

**B.** A ⊂ D

**C.** B ⊂ D

**•D.** all other sentences are false

**24. According to the following figure, indicate the diagram that represents the relations between the sets: dress, shirts, jackets, umbrellas:**

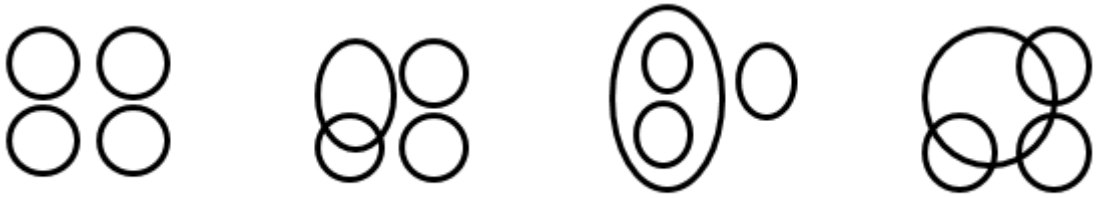


Diagram 1 Diagram 2 Diagram 3 Diagram 4

**A.** Diagram 1

**B.** Diagram 2

**•C.** Diagram 3

**D.** Diagram 4

**25. Say which of the numbers below is the next in the sequence 10, 14, 13, 17, 16, ...**

**A.** 24; 28; 32

**•B.** 20; 19; 23

**C.** 20; 18; 24

**D.** 22; 30; 18

**26. Say which of the numbers below is the next in the sequence 4, 8, 7, 14, 12, ...**

**A.** 24; 23; 46

**•B.** 24; 21; 42

**C.** 24; 18; 24

**D.** 22; 20; 30

**27. When a set consists of 4 elements, how many subsets of 3 elements does it contain?**

**A.** 7

**•B.** 4

**C.** 12

**D.** 3

**28. The solution of the equation $x^2 - 2 = 79$ is:**

**A.** 8

**•B.** 9

**C.** 11

**D.** 7

**29. Which of the following numbers is divisible by 3?**

**A.** 110
**B.** 134
**C.** 148
**•D.** 159

**30. Determine the number whose triple, plus 20 equals 71?**

**A.** 23
**B.** 21
**C.** 19
**•D.** 17

**31. Calculate the least common multiple of the following numbers 3, 4, 6, 7:**

**•A.** 84
**B.** 56
**C.** 42
**D.** 168

**32. Calculate the greatest common divisor of the following numbers 21, 33, 81:**

**•A.** 3
**B.** 7
**C.** 9
**D.** 11

**33. Simplify the expression $-48x + 30x - 2(2x - 7x - 3x)$**

**•A.** $-2x$
**B.** $-21x$
**C.** $21x$
**D.** $x$

**34. What is the arithmetic average of the natural numbers 10, 14, 15, 16, 20**

**A.** 37,5
**•B.** 15
**C.** 75
**D.** 20

**35. Determine the degree of the polynomial $5x^4 + 2x^3y^2 + x^3y^2z^2$**

**A.** 4° degree
**B.** 5° degree
**C.** 16° degree
**•D.** 7° degree

**36. What is the result of**

$$\frac{25a^3}{5a}$$

**•A.** $5a^2$
**B.** 5
**C.** $5a$
**D.** 1

**37. Which of the following expression is equivalent to $3x^2 + 2x - 8$**

**•A.** $(3x - 4)(x + 2)$
**B.** $(3x + 4)(x - 2)$
**C.** $(3x - 4)(x - 2)$
**D.** All the other answers are wrong

**38. Which value of $x$ represents a solution for the following equation:**

$$\frac{x}{-8} = 12 - (-4)$$

**A.** −2
**B.** −16
**C.** 84
**•D.** −128

**39. Which value of $x$ represents a solution for the following system of equation:**

$$\begin{cases} x + 2y = 2 \\ x - 4y = -10 \end{cases}$$

**A.** $x = -4$
**•B.** $x = -2$
**C.** $x = 1$
**D.** $x = 3$

**40. Which value of $x$ represents a solution for the following inequality: $2(x + 2) < 3(x + 1) + 8$**

**A.** $x < -2$
**•B.** $x > -7$
**C.** $x > +1$
**D.** $x < -6$

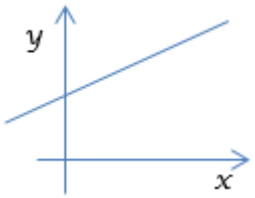
**41. Which value of $x$ represents a solution for the following system of inequalities:**

$$\begin{cases} 2x + 14 \geq 12 + x \\ 3x - 2 \leq 7 \end{cases}$$

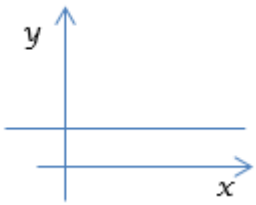
**•A.** $-2 \leq x \leq 3$
**•B.** $-2 \leq x \leq 3$
**C.** $-3 \leq x \leq 2$
**D.** $-3 \leq x \leq 3$

**42. Which of the following is the graph of the straight line of equation: $-2x + y - 5 = 0$**

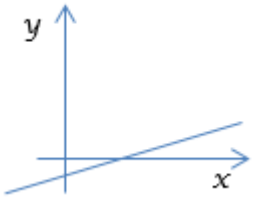
**•A.**



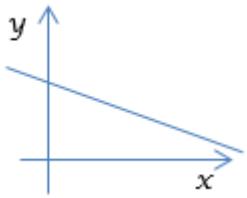

**B.**




**C.**




**D.**




**43. In the Cartesian plane, what is the equation of the straight line passing through point A = (2 , 3) and parallel to the straight line $2x - 4y + 3 = 0$ ?**

**A.** $2x - 3y + 5 = 0$

**•B.** $x - 2y + 4 = 0$

**C.** $x + 2y + 6 = 0$

**D.** $x + 2y + 4 = 0$

**44. In the Cartesian plane, the intersection point of the straight lines**

**$2x - 3y - 4 = 0$ and $3x + 2y - 6 = 0$**

**has coordinates?**

**A.** (0,1)

**B.** (0,−2)

**C.** (−2,0)

**•D.** (2,0)

**45. The equation of the straight line passing through the points (1, 7) and (2, 10) is**

**•A.** $y = 3x + 4$

**B.** $y = 3x - 4$

**C.** $y = 3x + 2$

**D.** $y = 3x - 2$