UNIVERSITÀ DEGLI STUDI DI TRIESTE **Facoltà di Economia**	**LOGIC QUANTITATIVE TEST**

FAMILY NAME:	**NAME:**
DATE OF BIRTH:	**ID NUMBER:**

CHECK / THE CORRECT ANSWER.

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1) In a box there are 25 marbles, numbered 1 to 25. Three marbles are drown in sequence; the value of the first marble drawn is lower than that of the second one which in turn is lower than that of the third marble. The product of the three values is 45. What is the sum of the three numbers?

☐ 35	☐ 25	☐ 24	☐ 27	☐ 22

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2) Complete the numeric sequence with the fifth fraction: $1; \dfrac{1}{2}; \dfrac{5}{6}; \dfrac{7}{12}; \dfrac{47}{60};........$

☐ $\dfrac{60}{37}$	☐ $\dfrac{37}{60}$	☐ $\dfrac{2}{3}$	☐ $\dfrac{3}{2}$	☐ $\dfrac{21}{30}$

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3) A dealer buys 3,500 kg flour at €0,40 per kilo. He sells 2,000 kg to different bakers at €0,80 per kilo. Subsequently he sells 600 kg to two confectioners at a set price, and then the remaining flour to a third confectioner at a price which exceeds that applied to the first two confectioners by 5 cents. His final profit results in €1,595. What price has the dealer applied to the first two confectioners?

☐ € 0,85	☐ € 0,90	☐ € 1,00	☐ € 0,70	☐ € 1,60

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4) US Dollar exchange rate to the Euro today is $ 1.27 to €1.00. Since the last year's exchange rate was $ 1.45 to €1.00, what is the approximate percentage of appreciation of the Dollar over this past year?

☐ 0.18%	☐ 18%	☐ 12%	☐ 1.2%	☐ 14%

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5) In a circumference with diameter = 2 m we insert a disc of unknown radium, internally tangent to the former circumference. We mark as P the tangent point of the disc to the circumference at a given instant and as A_1 the corresponding point of contact on the circumference; we make the disc roll inside the circumference and mark the consequent points of contact with P as A_2 , A_3 , …What must the disc radius measure in order to have A_8 coincide with the starting point A_1 , thus describing the vertexes of a regular hectagon?

☐ 2/7 m	☐ 2 π m	☐ 5/7 m	☐ π/7 m	☐ 1/7 m

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6) A man walks an up-hill street at a steady pace covering the distance of 3 km in 45'. The same man walks the same street down-hill, always at a steady pace, in 25'. Meanwhile a second man starts walking – at a steady pace – from the foot of the same hill 10' after the first man covering the same distance up-hill in 50'. Where (distance from the foot) will the two men meet ?

☐ 2,400 m	☐ 2,700 m	☐ 3,000 m	☐ 2,200 m	☐ 1,500 m

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7) Three natural (integer positive) numbers a, b, c are such that their arithmetic mean is equal to the arithmetic mean of number c and the arithmetic mean of a and b. In said hypotesis we can assert that

☐ c = a+b	☐ c is the arithmetic mean of a and b	☐ c is double as a	☐ the value of c is independent from a and b	☐ c < a+b

8) In a competition there are 16 contestants, two for each team. The first contestant is assigned 8 points, the second 7 points and so on down to the eighth that is assigned 1 point. Following contestants receive 0 points. Team C obtains 10 points more than team D who was earned no less than 1 point. Team E has earned 2 points; team F has earned 3 points; G and H do not earn any point. Given that team A won with a total of 13 points, how many points did team B score?

☐ 6	☐ 15	☐ 5	☐ 4	☐ 12

9) How many are the four-digit numbers that give 6 as product of their digits?

☐ 12	☐ 24	☐ 4	☐ 18	☐ 16

10) If you divide 243 by 9, the product of its quotient by its remainder is

☐ 27	☐ 0	☐ 81	☐ 9	☐ 162

11) What is the ratio between the area of a equilateral triangle and hat of the inscribed circle?

☐ $\dfrac{3\sqrt{3}}{\pi}$	☐ $\dfrac{\sqrt{3}}{\pi}$	☐ $\dfrac{3}{\sqrt{3}}$	☐ $\dfrac{3}{2}$	☐ $\dfrac{\pi}{3}$

12) In a lottery three natural numbers from 1 to 20 are drown in ascending order.

How many are the ways in order the product of the three numbers is 36?

☐ 6	☐ 5	☐ 4	☐ 3	☐ 8

13) A salesman must start a clearance sale of some long unsold goods: a stock of crystal glasses which he had purchased at 1.35 €each plus several sets of dishes bought for 90.00 €a set. His intent is to recover his investment and gain an extra 10% for the suffered storage expenses. After the sale, with all the items being sold, he makes a total of 3,366 € How many glasses and how many sets of dishes has he sold?

☐ 1,000 - 16	☐ 600 - 36	☐ 1,200 - 16	☐ 2,200 - 10	☐ 3,000 - 10

14) A capital sum T_1 is invested at a yearly net compound interest of 6%; another capital sum T_2 is invested at a yearly net compound interest of 7.5%. After three years the capital and interest amount of the two investments coincide whereas at start the difference of the two sums was of 600 € What is the value of T_1?

☐ € 8,500	☐ € 14,500	☐ €15,000	☐ €18,500	☐ € 10,000

15) Two old friends Antonio and Bruno meet while walking their respective grandchildren. Antonio, who is always sincere, says to his friend: "I am a grandfather of four!" Bruno, notoriously a compulsive liar who never tells the truth, claims in turn: "I have at least as many grandchildren as you, but grandsons and granddaughters are different in number." How many grandsons and how many granddaughters does Bruno have?

☐ two boys	☐ two boys and two girls	☐ only one	☐ one boy and one girl	☐ two girls

16) Over one regular year (365 days) what are the chances that Christmas and Easter both fall on a Sunday?

☐ 1	☐ 1/49	☐ 0	☐ 1/7	☐ 50/365

Scoring criteria: points
1 for each correct answer ; 0 for no answer or more than one answer for the same question;
- 0,25 for each one wrong answer

Trieste, 2010 September 10