

# Sample questions for the Admission Test of the Master's degree courses in Economics

## 1. APTITUDE TEST

### A. Verbal reasoning, comprehension and logic

#### A.1 Verbal critical reasoning

##### 1. Read the passage below carefully

Adults who live close to pastry shops are more likely to buy sweets and it is more likely that they buy them in larger quantities compared with adolescents who live near pastry shops. The belief that adolescents eat more sweets than adults is therefore false.

##### The conclusion of the passage is weak mostly because:

1. no distinction is made between buying and eating sweets
2. it relies on a popular belief rather than on results from scientific research
3. the exact quantity of sweets bought by the two groups taken into consideration is not specified
4. information about people who do not live near pastry shops is not supplied

Correct answer: 1

#### A.2 Text Comprehension

##### Read the passage below to answer the following question

It is an axiom that the world of recruiting is changing, particularly for HR managers tasked with finding alternatives to obsolete recruitment procedures, to chaotic interviewing processes and to the increasing risk that repetitive assessment models lose their effectiveness. This goes hand in hand with the need to focus more closely on more gratifying activities for the candidate, since during the assessment the human element remains the most important aspect. This is the backdrop of the targeted interview carried out with over 9,000 human resources professionals by LinkedIn. In their opinion, four main trends will guide recruitment activities in the next few months: diversity inclusion, new tools for interviews, data analysis and artificial intelligence. 78% of interviewees view diversity inclusion as a way of improving their company culture while 62% see it as a way of improving financial performances. So-called *diverse teams* are more productive, more innovative and more creative than others. However, on the other hand there are still many companies that have not yet managed to achieve this goal (38% of the sample cases). New recruitment tools for acquiring a better understanding of candidates are also required: for 63% of interviewees the biggest defect of the old systems is their limited ability to identify the soft skills of candidates. In addition, 69% of the recruiters interviewed believe that the use of data has changed after the advent of digital technology: such as the speed, the large volumes of data, the predictive abilities and the multiple usage possibilities. And industry professionals also have some doubts about the adoption of these innovative systems: 16% fear that the advent of artificial intelligence could lead them to lose their job.

**2. According to the results of the LinkedIn survey:**

1. some HR experts have doubts over the use of new technologies
2. over the next year the trend in HR will be investment in *diversity inclusion*
3. 22% of interviewees are not interested in making their company multiethnic
4. almost 20% of the people interviewed fear that they won't find a job

Correct answer: 1

*A.3 Logic*

**3. Lucia tells lies, but not to Paola; Fabiana only tells lies to Paola, who only tells the truth to Fabiana; Valeria tells lies, but not to Lucia; Giorgia tells the truth, but not to Paola.**

**If one of the 5 girls says "you are nice" to another, this statement is:**

1. true, if Valeria says it to Paola
2. false, if Paola says it to Lucia
3. false, if Giorgia says it to Lucia
4. true, if Lucia says it to Giorgia

Correct answer: 2

**B. Quantitative reasoning**

*B.1 Data sufficiency*

**Choose answer choice**

- A. if statement (1) BY ITSELF is sufficient to answer the question, but statement (2) by itself is not or vice versa
- B. if statement (1) and (2) TAKEN TOGETHER are sufficient to answer the question, even though NEITHER statement BY ITSELF is sufficient
- C. if either statement BY ITSELF is sufficient to answer the question
- D. if statement (1) and (2) TAKEN TOGETHER are NOT sufficient to answer the question, requiring more data pertaining to the problem

**4. The Dinamo Firenze team won 40 handball games this year.**

**What is the percentage of handball games won this year by the Dinamo Firenze team?**

**Statement (1)** The Dinamo Firenze team played the same number of games as the Flora team.

**Statement (2)** The Flora team won 45 games, which amount to 62.5% of the handball games played this year.

1. A
2. B
3. C
4. D

Correct answer: 2

B.2 Numerical Critical Reasoning

Consider also the table below to answer the next question

Statistics on road accidents in some provinces of Tuscany in 2020

Province	Road accidents	Deaths	Thousands of inhabitants
Florence	5,200	91	964
Arezzo	1,540	79	356
Siena	3,650	73	978
Pisa	1,450	42	282

5. With regard to the 2020 statistics, which of the following provinces of Tuscany had the lowest death rate due to road accidents?

1. Arezzo
2. Siena
3. Pisa
4. Florence

Correct answer: 4

*Problem solving*

6. In a class, 10 pupils went on a trip. 7 of the pupils that went on the trip passed the test but some of those that passed the test did not go on the trip. Only 5 of the pupils that failed the test didn't go on the trip.

What is the minimum number of pupils in the class?

1. 23
2. 15
3. 16
4. 17

Correct answer: 3

## 2. CULTURAL TEST

### Department of Law

**7. Can the Italian Parliament delegate the revision of the Constitution to the Government?**

1. No, except in extraordinary cases of necessity and urgency
2. No, never
3. Yes, subject to the determination of the constitutional principles
4. Yes, after consideration of the state of war

Correct answer: 2

### Department of Business and Management

#### *Mathematics*

**8. The first derivative of the function  $f(x) = e^{2x+1} / (2x + 1)$  is:**

1.  $f'(x) = e^{2x+1} (2x - 1) / (2x + 1)^2$
2.  $f'(x) = e^{2x+1} / (2x + 1)^2$
3.  $f'(x) = 4x e^{2x+1} / (2x + 1)^2$
4.  $f'(x) = 4 e^{2x+1} / (2x + 1)^2$

Correct answer: 3

#### *Financial Mathematics*

**9. Calculate the capital  $C$  invested at a simple annual interest rate of 4.8% for two years and three months, which produces an interest of €23,760.**

1.  $C = €256,000$
2.  $C = €282,500$
3.  $C = €310,000$
4.  $C = €220,000$

Correct answer: 4

#### *Descriptive statistics*

**10. In an examination five students had a score of 24/30, three had 28/30 and one had 30/30. According to the data, what is the median of the exam scores?**

1. 24
2. 28
3. 27
4. 26

Correct answer: 1

*Probability calculation*

**11. If A and B are independent events such that  $Pr(A) = 0.5$  and  $Pr(B) = 0.8$ , then  $Pr(A \cup B)$  is equal to:**

1. 0.4
2. 1.3
3. 0.8
4. 0.9

Correct answer: 4

*Statistical inference*

**12. The least squares method in the simple linear regression model is used to:**

1. verify the goodness of fit of the linear regression to the data
2. estimate the parameters of the linear regression
3. measure the distance of the linear regression from the data
4. forecast

Correct answer: 2

## **Accounting, Business Administration and Budgeting**

**13. Standard costs are useful to:**

1. measure the value of resources after processing
2. determine the cost of the product according to the logic of responsibility centres
3. fill in the financial statement and evaluate managerial performance
4. determine the cost of the product according to the logic of Activity Based Costing

Correct answer: 3

## **Department of Economics and Finance**

*Microeconomics*

**14. Which is the best oligopoly model from the consumer perspective?**

1. The Bertrand model
2. The Cournot model
3. Only the Stackelberg model
4. The monopolistic collusion

Correct answer: 1

**15. The "liquidity trap" occurs:**

1. when, at an interest rate equal to zero, further increases in the money supply no longer have an effect on the nominal interest rate
2. when, at a very high interest rate, the demand for money for investment becomes high
3. when the Central Bank aims to increase the interest rate by increasing the money supply, but the demand for money for speculative purposes prevents the achievement of this objective
4. when the Central Bank aims to reduce the interest rate by decreasing the money supply, but the demand for money for speculative purposes prevents the achievement of this objective

Correct answer: 1