

**UNIVERSITA' BOCCONI
GRADUATE SCHOOL**

**Guide to the
Entrance Test
for Specialized Master Programs**

VERBAL REASONING questions

The admissions questionnaire for university Master courses will feature a series of questions designed to assess your understanding of passages and your ability to process the information contained therein. We recommend reading the passage carefully. Once you have finished reading, a number of questions will follow. In order to answer correctly, you need to have understood the meaning and information contained in the text.

Carefully read the following passage:

The leadership process is composed of interaction between those with the highest elevated positions in a specific environment in respect to others in that group. One of the fundamental characteristics of members with an elevated position is the proposal of ideas and activities, using measures to influence and change group members' behavior. However, from the moment that social influence is a mutual process, the leader is defined by how he or she is able to influence others in the group rather than be influenced by them. For this reason, in the most recent leadership theories, this is seen as a relationship; the leader is a person who has followers, without followers one cannot be a leader. It is necessary to point out an important distinction between two concepts that are often misconstrued and confusing to distinguish: formal leadership is imposed from external sources and often associated to a leader while informal leadership is spontaneously derived from within the group. In English, it is possible to distinguish leadership (intended as the ability to influence) from headship (knowing how to be the boss of something, acting as the "conductor" of something). The concept of leadership does not exist without the ability to communicate one's ideas. A true leader is oriented towards people, sharing and motivating his or her ideas and transforming a concept into an ideal.

1. The passage interprets interaction between a leader and his followers as what form of relationship?

- Reciprocal** 1
Arid 2
Mature 3
One-way 4

Solution

The correct answer is number **1** given that the fourth line of the passage reads: "...social influence is a mutual process ...". It is therefore a circular relationship between the leader and members of the group in which the influence is mutual, reciprocal. The alternative answers are not relevant to this passage (alternatives **2** and **3**) or directly contradict the information contained therein (alternative **4**).

2. The passage makes a distinction between which types of leadership?

- Direct and indirect** 1
Corporate and organisational 2
Formal and informal 3
Instrumental and affiliative 4

Solution

In order to answer this question you need to refer to the second half of the passage: this part of the text discusses the distinction between formal leadership (imposed from the outside) and informal leadership (spontaneous, which is legitimised by the consensus of the group members). The correct answer is therefore number **3**. The alternative answers are not supported by the text in any way.

NUMERICAL REASONING questions

The following examples are questions used to assess your mathematical knowledge and numerical reasoning skills. There are two different types:
in the first type, you will be presented with a series of mathematical problems or pure mathematics questions to solve.

Here are two examples:

3. Dr Bianchi earns 30,000 Euros per year, Dr Rossi earns 45,000 and Mr Verdi earns 50,000. How much does Mr Neri earn if he makes 11,000 Euros more than Dr Rossi?

56,000 Euros

61,000 Euros

41,000 Euros

51,000 Euros

46,000 Euros

Solution

The correct answer is number **1**. Knowing that Dr Rossi earns 45,000 Euros, we just need to add 11,000 Euros to this to obtain 56,000 Euros.

4. Part of a company's profits are assigned to the reserve fund, part are distributed to ordinary shareholders in the form of dividends and part are distributed to privileged shareholders in the form of dividends, in the following proportions: 8, 2 and 5. If the profits amount to 15,000 Euros, how much will be assigned to the reserve fund?

12,500 Euros

1,875 Euros

8,000 Euros

7,000 Euros

10,000 Euros

Solution

The correct answer is number **3**. We start by calculating into how many parts the profits should be divided ($8 + 2 + 5 = 15$) and how much 1 part is worth ($15,000 : 15 = 1,000$ Euros). We know that 8 parts are assigned to the reserve fund, so we just need to perform the following calculation $1,000 \times 8 = 8,000$ Euros.

The second type of question is made up of two parts. You will first be posed a problem, followed by two statements identified by the letters **A** and **B**. Your task is to determine whether either (or both) of these statements are required in order to solve the problem and, if so, which. To answer, shade the appropriate box:

- 1** statement **A** alone is sufficient to solve the problem but statement **B** alone is not;
- 2** statement **B** alone is sufficient to solve the problem but statement **A** alone is not;
- 3** if statements **A** and **B** together have to be used to solve the problem, although neither is sufficient on its own;
- 4** if both statement **A** and **B** are alone sufficient to solve the problem;
- 5** if, despite the combination of statements **A** and **B**, it is not possible to solve the problem since further data is required.

Here are some examples:

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5. If Sandro's café has to make at least Euros 2,000 per month to cover operating expenses, can Sandro make a profit from it?
- A. At Sandro's café, customers spend an average of Euros 3 per person.
 - B. Sandro serves 900 customers in his café in the course of one month.

Solution

The correct answer is **3**, because neither of the statements on its own is sufficient to solve the problem: statement **A** does not tell us how many customers are served and statement **B** does not tell us how much money customers spend. Statements **A** and **B** need to be combined in order to calculate the café's monthly takings (900 x Euros 3 = Euros 2,700 monthly takings) and to work out whether or not a profit is made (Euros 2,700 monthly takings – Euros 2,000 operating expenses = a profit of Euros 700).

6. Is x equal to y ?
- A. $x^2 - y^2 = 0$
 - B. $(x - y)^2 = 0$

Solution

The correct answer is No. **2**. At first glance, statement **A** appears sufficient on its own to solve the problem, but if we look more closely, we find that this is not the case as we are dealing with square numbers, meaning that x might be a positive number while y might be a negative (a negative number squared become a positive number). Statement **B**, on the other hand, is sufficient on its own in that it tells us that $(x - y)(x + y) = 0$. The difference between two numbers is only 0 when the two numbers are equal.

CRITICAL REASONING questions

The test will also include questions designed to test your ability to reason logically. In the first type of question, you will be presented with a list of data and a list of consequences. Your task is to determine whether the consequences are true or false, based on the data provided.

DATA

John is a good tennis player
George doesn't know how to play tennis
John's best friend went to the tennis players' meeting
All those attending the tennis players' meeting are tennis players

CONSEQUENCES

- A. John's best friend is tennis players
- B. George is at the tennis players' meeting
- C. John is at the tennis players' meeting
- D. George is John's best friend

7. On the basis of the data above, which consequences are true?

- Both A and B
- Only C
- Only A
- Both C and D

Solution

A is the only true consequence (option **3**) insofar as, based on the data provided, we know that everyone attending the tennis players' meeting are tennis players and that John's best friend went to the tennis players' meeting, and therefore is tennis players. Consequences **B** and **D** are false, and we have no data to confirm whether consequence **C** is true or false.

DATA

Tom wears a shirt and a jumper
 Tom's brother wears a tie and a double-breasted jacket
 Only who wears a tie and a double-breasted jacket can go into the theatre

CONSEQUENCES

A. Tom can't go into the theatre
B. Tom can't go into the cinema
C. Tom's brother can't go into the theatre

8. On the basis of the data above, which consequences are true?

Both A and C

Only A

Only B

Only C

Solution

The only true consequence is **A** (alternative **2**) inasmuch as, according to the facts, we know that only people wearing a double-breasted jacket and tie may enter the theatre and Tom is wearing a shirt and jumper, meaning that he may not go to the theatre. Consequence **C** is false, while we have no information available to tell us whether **B** is true or false.

In the second type of critical reasoning question, you will be presented with a short passage containing a range of information. We recommend reading the passage carefully. In order to answer the following question, you need to have understood the meaning and information contained in the passage.

Carefully read the following passage:

A study on twenty overweight men demonstrated that all of them lost weight to a significant degree when they added Wateless, an artificial dietary supplement, to their daily diet. For four months, every morning each man assumed the contents of a sachet of Wateless after having performed physical activity, and for the remainder of the day followed his normal diet. Evidently, anyone who takes a sachet of Wateless every day for at least four months will lose weight and feel better.

9. Which of the following statements is the hypothesis on which the argument presented in the passage is based?

Daily physical exercise is not responsible for the results emerging from the study

The men in the study will gain weight again as soon as they interrupt the Wateless programme

No other dietary supplement has the same effect on overweight men

Women will not achieve the same results as men if they follow the Wateless programme for four months

Solution

The correct answer is number **1**. The text only examines two factors: daily use of Calopeso and daily physical exercise; we can therefore say that the two factors are in some way on the same level. The author maintains that the positive results are due to Calopeso: in order for the theory expressed in the passage to be true, these results cannot and must not depend on physical exercise. This hypothesis corresponds to answer number **1**. As regards answers number **2**, **3** and **4**, however probable they may be, none of the factors named therein (rapid weight regain; comparison with other supplements; comparison between men and women) are discussed in the text, nor do they in any way form part of the Calopeso study, and can therefore not be hypotheses on which the author of the text bases his arguments.

Messina public library needs to be completely restored in order to meet new municipal building regulations. To start with, the wiring is inadequate, inasmuch as the neon lights sporadically lose intensity and start to flicker. Moreover, there are not enough emergency exits and the existing ones are not clearly marked and are sometimes even obstructed.

10. Which of the following statements is the conclusion reached by the author of the passage?

The wiring needs to be completely reviewed, changed and modernised

Messina public library needs to undergo total renovation

New emergency exits need to be created

Signs inside the library need to be reviewed

Solution

The correct answer is number **2**. In fact, the conclusion reached by the text should be a generalised statement, based on the arguments present in the text. In this sense, answers **1**, **3** and **4** refer to arguments found in the passage, intended to highlight the most urgent specific problems presented by the building in question. Only answer number **2** contains a broader statement, which takes all the critical elements discussed by the passage into account, both summing them up and proposing action to be taken.

In the third type of critical reasoning questions, however, you will be given a passage containing a number of statements that are intended to convey information or to persuade the reader of a viewpoint. The passage will be accompanied by a series of statements relating to the content of the text. Even if you do not personally agree with what is written in the passage, you have to assume that everything stated is true. Based on this assumption, your task is to decide whether the statements that follow are true or false, or whether there is insufficient information in the passage to draw definite conclusions regarding the truth or falsehood of the statement.

Carefully read the following passage:

Last year more than one million polygraph lie-detector tests were requested. The people requesting them hoped that they would help in catching thieves, check whether a potential employee was honest, or discover spies. However, it can be argued that they are nothing more than a systematic invasion of privacy and are hardly more reliable than taking auspices. It has been shown that the lie-detector could only distinguish between a group of confessed criminals and a group of people who had been interviewed about the same crimes, and were thus exonerated by the confessions, 59% of the time. This is little better than chance. These tests are often used as a device to intimidate subjects into incriminating themselves.

Answer the questions by shading the appropriate box:

1 TRUE: means that the statement is included in the passage, is implied, or can be logically deduced from a claim or claims made in the passage;

2 FALSE: means that the statement contradicts a claim that is made or implied in the passage or that is a logical consequence of what is written in the passage;

3 CANNOT BE DEDUCED FROM THE TEXT: means that there is insufficient information in the passage to draw definite conclusions regarding the truth or falsehood of the statement.

11. When it comes to methods of determining whether or not somebody is lying, using a lie detector is little better than probability due to chance.

Solution

The correct answer is **1** (true) insofar as the passage tells us that the lie detector machine was only able to distinguish between criminals (recognised as such because they had confessed to their crimes) and innocent people (recognised as such because they were cleared by the confessions made by the same criminals) in 59% of cases. The passage also states that 59% probability is “only slightly higher than the probability due to chance”. Lastly, the text describes this method as being barely more reliable than a horoscope. Answer **2** (false) is incorrect because the value of probability (59%) should not be considered greater than the probability due to chance. This is a personal opinion and we remind you that your answers must strictly be based on the views contained in the passage.

12. The people who had been interviewed about the crimes are likely to have committed them.

Solution

The correct answer is **2** (false) insofar as the passage tells us the exact opposite: “... a group of self-confessed criminals from a group of people who, when questioned about the same crimes, were cleared by the confessions made by the same criminals”. It was not, therefore, the people who were questioned about the crimes that committed them but the other people.

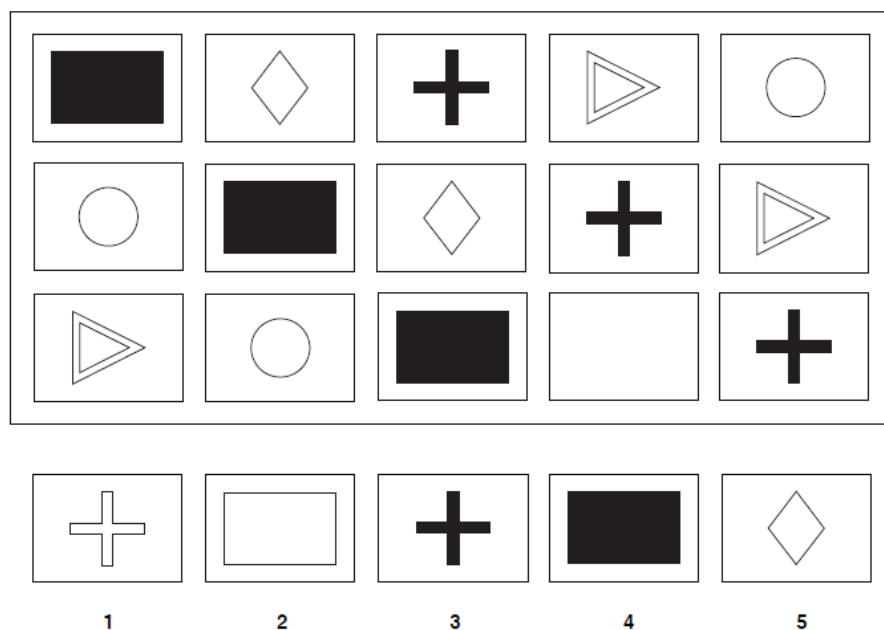
ABSTRACT REASONING /PROBLEM-SOLVING questions

Lastly, the test will also include some questions to assess your ability to analyse stimuli of an “abstract” kind (drawings). You will be required to identify a logical structure behind the stimuli and answer the questions that follow.

In the first question type you will be presented with a matrix, that is to say a table of elements or “pieces”, consisting of figures, arranged in lines and columns and missing an element: in order to answer correctly you have to identify the missing element from amongst those shown below, in keeping with the logic behind the matrix as a whole.

Here are some examples:

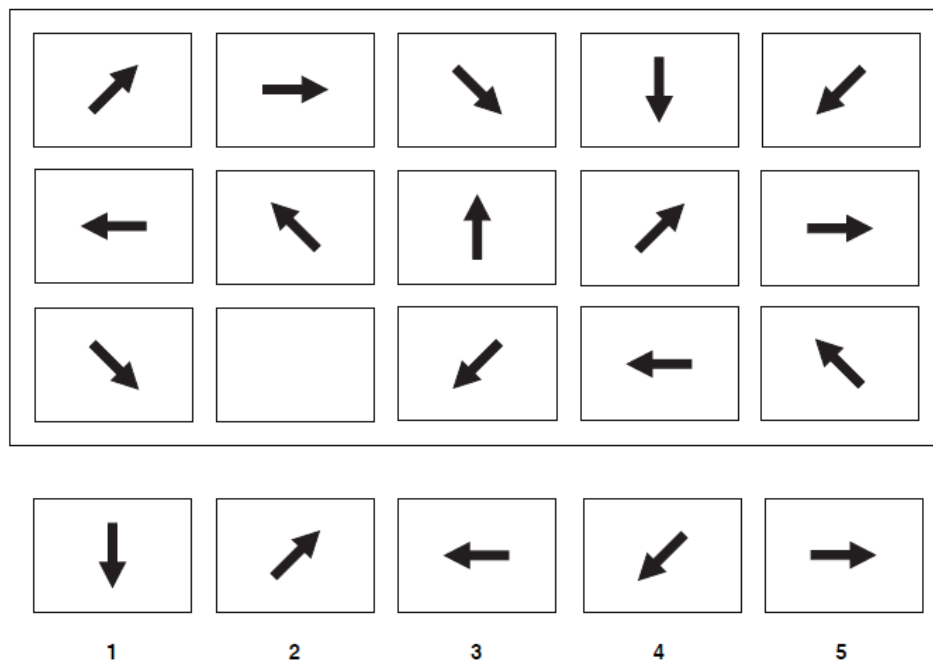
13. Which piece coherently completes the design?



Solution

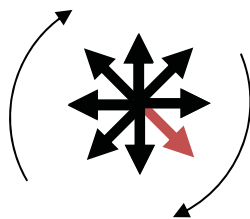
The correct answer is **5**. The matrix is arranged in lines. In fact, we can see that the relative layout of the symbols is the same in the first and second lines: the black rectangle is followed by a rhombus, which is followed by the “+” sign, in turn followed by the triangle and then the circle. The second line begins with another symbol (circle), but all the symbols are arranged in the same order, just one position out: the black rectangle is still followed by the rhombus, which is followed by the “+” sign, etc. The third line too (as far as we can see) follows the same pattern, but there is an empty space between the rectangle and the “+” sign. As we have already mentioned, the rectangle is always followed by the rhombus, which is included amongst the elements below in correspondence to the number 5.

14. Which piece coherently completes the design?



Solution

The correct answer is **1**. In this case too, we analyse the matrix line by line, observing that the arrow contained in each cell appears to be moving in a circle, 45 degrees clockwise each time. By observing the images presented, we can see that the arrow is only shown in eight positions, in keeping with the following diagram:



The red arrow matches that shown in first position in the third line. The following arrow, if we move clockwise, is that pointing down, as shown in the symbol identified by the number **1**.

If we analyse column by column the matrix, on the other hand, we can see that the arrow turns by 225 degrees clockwise line by line. The correct solution is once again that indicated by number **1**.

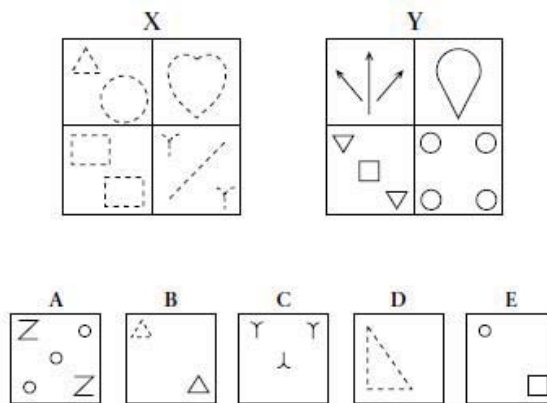
The second set of questions will present two groups of four figures, labelled with the letters **X** and **Y**, and five figures **A**, **B**, **C**, **D** and **E**. The figures in group **X** have a characteristic in common which differs from that shared by the figures in group **Y**: all the figures in group **X** are similar in some way, as are all the figures in group **Y**.

In order to answer the questions we need to understand the logic that governs which figures belong to the two groups, and to assess the logic according to which the five drawings below have been structured: according to the logical structure of group **X**, that of group **Y**, or neither of the two.

Remember that the drawings in groups **X** and **Y** have not been arranged in a particular order: there is no need to waste time looking for sequences amongst the elements, or pairings between the drawings in group **X** and those occupying the corresponding position in group **Y**.

Here are some examples:

Underneath the symbols X and Y are several groups which belong respectively to the two families, X and Y and share the characteristic features of the group.



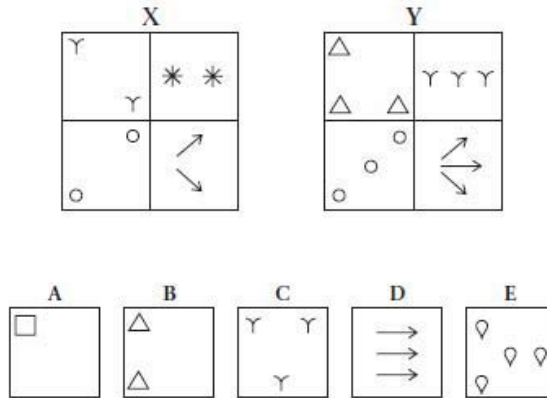
15. On the basis of the figures above, which statement is true?

- A does not feature the logical structure of either of the two groups** 1
- A and D have the logical structure of group X** 2
- A and C have the logical structure of group Y** 3
- None of the above statements is true** 4

Solution

In the example the correct answer is 3. In fact, the difference between the two groups lies in the style in which the outline of each element has been drawn: group **X** is only formed by figures and symbols with a dotted outline, while group **Y** is only formed by figures and symbols drawn with a solid outline. Alternative 1 is false, because drawing **A** follows the logic of group **Y** (all the elements contained in **A** are drawn with a solid outline). Alternative 2 is also false because the two drawings **A** and **D** do not both follow the logic of group **X**: as we have seen, drawing **A** follows the logic of group **Y**. Lastly, alternative 3 is correct, both drawings **A** and **C** follow the logic of group **Y**, that is to say they are both comprised of drawings of elements with a solid outline.

Underneath the symbols X and Y are several groups which belong respectively to the two families, X and Y and share the characteristic features of the group.



16. On the basis of the figures above, which statement is true?

- A has the logical structure of group X 1
- C has the logical structure of group Y 2
- A and B have the same logical structure 3
- B has the logical structure of group Y 4

Solution

The correct answer is **2**. The difference between the two groups is due to the number of elements in the figures that comprise them. The figures in group X always contain two elements, while the figures in group Y always contain three. Therefore, figure A does not have the logical structure of either group X or group Y, because it only contains one element; figure B presents the same logic as group X because it contains two elements; figure C has the same logic as group Y because it has three elements. The correct answer is therefore number **2**, because it is the only one that correctly assigns a figure to a certain group.