VERBAL AND NUMERICAL REASONING MCQ

for European institution competitions

A methodology
and
180 questions with answers

New 2008 edition
Devised for computer-based tests

Emmanuel HETRU
and Jean-Luc BIZEUR

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CONTENT

Who is the book for? 7

Part 1 **General presentation of the verbal and numerical reasoning MCQ** 11

Chapter 1 Principles of the test 13
Chapter 2 Features of the computer-based tests 15
Chapter 3 Time management 23
Chapter 4 Marking 25

Part 2 **Elements of verbal logic** 27

Chapter 5 The principle of deduction 29
Chapter 6 Logical deduction 33
Chapter 7 Interpretation 39

Part 3 **General methodology for verbal reasoning questions** 43

Chapter 8 Verbal analysis 45
Chapter 9 Logic and intuition 49

Part 4 **Typology of statements** 51

Chapter 10 Absurd statements and statements that conflict with reality 53
Chapter 11 Restrictive statements 55
Chapter 12 Uncertainty 57
Chapter 13 Relative quantities 59
Chapter 14 Priority 61

Part 5 **Typology of verbal questions** 63

Chapter 15 Identifying the type of question 65
Chapter 16 Precise questions 71
Chapter 17 General affirmative questions 75
Chapter 18 General negative questions 79
Chapter 19 General uncertain questions 85

Part 6 **General methodology for numerical reasoning questions** 89

Chapter 20 Description of the numerical questions 91
Chapter 21 Long questions 93
Chapter 22 Equations with an unknown factor 95

Part 7 **Method of calculation** 97

Chapter 23 How to use the calculator 99
Chapter 24 Avoid intermediate calculations 101
Chapter 25 Do approximate calculations 103
Chapter 26 Determine the units digit 105

Part 8 **Typology of numerical questions** 109

Chapter 27 What you must be able to do 111
Chapter 28 Distribution problems 113
Chapter 29 Direct proportions 117
Chapter 30 Variations and variation rates 119
Chapter 31 How to add up variation rates 121
Chapter 32 Simple averages 123
Chapter 33 Weighted averages 125

Part 9 **Tests** 131

Test AST1 135
Test AST2 151
Test AST3 169
Test AD1 187
Test AD2 203
Test AD3 221

Part 10 **Answers to tests** 239

Part 11 **Explanatory answers** 253

Test AST1 257
Test AST2 273
Test AST3 291
Test AD1 309
Test AD2 327
Test AD3 345

Who we are 363

CHAPTER 11 - RESTRICTIVE STATEMENTS

1. DEFINITION

A statement is less restrictive if it can be deduced from a large number of assertions.

Let us look at the following four statements:

a) Some members of parliament voted in favour of the draft.
b) All the members of parliament voted in favour of the draft.
c) Most members of parliament voted in favour of the draft.
d) Over 50% of members of parliament voted in favour of the draft.

Statement a) is rather restrictive. It can be deduced from a large number of assertions, in particular from statements b), c) and d).

Statement c) is more restrictive than statement a). Statement a) can in fact be deduced from statement c), whereas the contrary is not true: statement c) cannot be deduced from statement a).

Statement d) is more restrictive than statement c). Statement c) can in fact be deduced from statement d), whereas the contrary is not true. "Most" does not in effect mean "over 50%" unless the population is split into two groups, for instance "those for" and "those against". When the population is split into more than two groups, most can mean "over 50%" as well as "45%". For instance, if 45% of the members of parliament voted in favour of the project, 40% voted against and 15% abstained, then "45%" is the majority.

Statement b) is very restrictive. It indicates a finite proportion and can only be deduced from a similar assertion. In particular, statement b) cannot be deduced from statements a), c) and d).

Classification of statements from the least restrictive to the most restrictive

1. Statement a): "Some"
2. Statement c): "Over 50%"
3. Statement d): "Most"
4. Statement b): "All"

2. PRINCIPLES

It is less likely that a statement can be deduced from the text if it is very restrictive.

By extension, it is more likely that a statement can be deduced from the text if it is not very restrictive.

In the following three chapters we will analyse three specific cases of restrictive assertions:

- statements expressing certainty (Chapter 12);
- statements indicating relative quantities (Chapter 13);
- statements indicating priority (Chapter 14).

CHAPTER 24 - AVOID INTERMEDIATE CALCULATIONS

1. EXAMPLE

Try to answer the following question within one minute. The answer is on the next page.

Electricity production

	Total production (in MW)	Share of renewable energy in total production
Poldavia	424 400	9%
Levonia	212 200	27%

Q18. What is the ratio of electricity production from renewable energy in Poldavia to electricity production from renewable energy in Levonia?

a) 1/3
b) 1/2
c) 2/3
d) 3/2
e) 3

2. ANSWER

The right answer to Question 18 is statement c).

3. METHOD

We have to work out the ratio:

$$\frac{\text{Electricity production from renewable energy in Poldavia}}{\text{Electricity production from renewable energy in Levonia}}$$

Production in Poldavia = 9% x 424 400 (1)
Production in Levonia = 27% x 212 200 (2)

We can first work out the result of equation (1), then the result of equation (2), and finally the ratio between them:

9% x 424 400 = 38 196
27% x 212 200 = 57 294
38 196 / 57 294 = 0.66... = **2/3**

In order to get the right answer, we did three calculations. They involved either the use of the calculator or writing down the calculations in rough. In both cases we wasted time.

A faster way is to start with the whole equation and not do the intermediate calculations:

Electricity production from renewable energy in Poldavia / Electricity production from renewable energy in Levonia
= (9% x 424 400) / (27% x 212 200)
= (9%/ 27%) x (424 400 / 212 200)
= (1/3) x 2
= **2/3**

In this way, we have the result directly without doing complicated calculations.

If Mars is a frozen world with a rarefied atmosphere, the fascination of Venus lies, by contrast, in the infernal conditions prevailing on its surface: an atmospheric pressure 90 times greater than that on Earth, an average temperature of 465°C, and a toxic atmosphere made up almost entirely of carbon dioxide, so thick that the sun would remain permanently invisible to an observer on its rocky and arid surface. These conditions are all the more fascinating in that early in their history Venus and the Earth were probably much alike (in diameter, mass, comparable chemical composition).

155. Which one of these statements is correct?

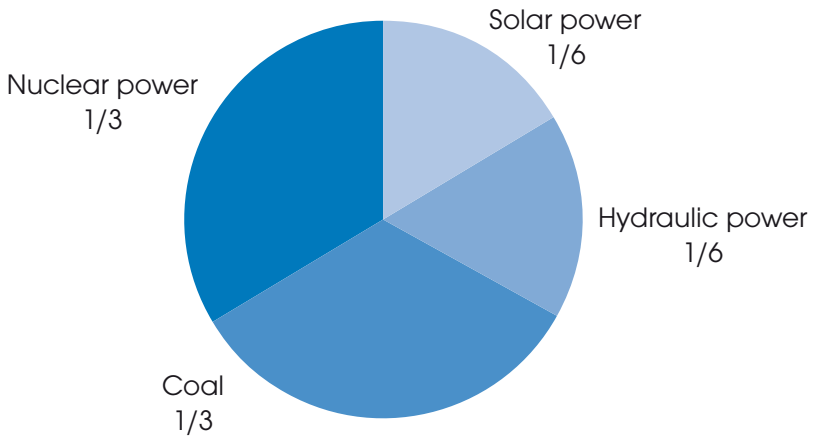
a) The atmosphere of Venus is so toxic that it is impossible to see the sun from its surface.
b) The atmosphere of Venus consists only of carbon dioxide.
c) Originally, the average temperature of Venus was lower than 465°C.
d) None of the above statements is correct.

The EU has 27 members states and 23 official languages, including Gaelic. Citizens may use any one of these languages in their contacts with the administration and when consulting the EU's official documents. There are some who point out that the United Nations, which has eight times as many members as the EU, only confers the status of official language on a quarter of those spoken by its member nations.

156. Which one of these statements is correct?

a) The number of official languages in the EU is higher than in the United Nations.
b) The number of official languages in the United Nations is higher than in the EU.
c) 75% of the United Nations member states use a language that does not have official language status.
d) None of the above statements is correct.

Breakdown in energy production in Galonia (2006)



175. If Galonia reduces its nuclear power production by one-third and if its total energy production does not change, what will be the share of nuclear power in its total energy production?

a) 1 / 12
b) 1 / 9
c) 2 / 9
d) 1 / 6
e) 1 / 4

Trend in goods transport

	1995	2000
Road	64%	80%
Rail	18%	12%
Inland waterways	18%	8%
Total	100%	100%

176. Which one of the following statements concerning the transport of goods by road between 1995 and 2000 is correct?

a) It rose by 16%.
b) It rose by 16% only if total transport of goods did not change between 1995 and 2000.
c) It rose by 25%.
d) It did not change if total transport of goods fell by 20%.
e) It did not fall.

79 ►D

⏩ Strategy

This is a general affirmative question. Statement c) is absurd: it implies that scientific institutions use primates used in human consumption. Statement b) is quite restrictive ("most"). Statement a) contains a percentage that can easily be picked out in the text.

Analysis order: a), then if necessary d), then if necessary b).

⏩ Explanations for each statement

a) is not the right answer.
26% of *primate species* – not primates – are threatened with extinction.

b) is not the right answer.
We do not know the opinion of the members of Parliament about this issue.

c) is not the right answer.
The text simply says that it will be difficult to protect primates from human consumption if the West continues to use primates in experiments.

d) is the right answer.
There are important differences between *humans and other primates*. Therefore humans are also primates.

80 ►C

⏩ Strategy

This is a general affirmative question. Statement a) is absurd: a priori, only the Commission staff are allowed to access showers in the Commission's buildings. Statement b) is very restrictive ("only"). Statement c) contains dates that can easily be picked out in the text.

Analysis order: c), then if necessary d), then if necessary b).

⏩ Explanations for each statement

a) is not the right answer.
Only the cyclists working at the Commission can take a shower in the Commission's buildings.

b) is not the right answer.
The Commission service bicycles are increasingly popular for short-work related trips. This does not mean that the Commission staff use them *only* for short trips.

c) is the right answer.
For the first six months of 2007, there is an increase of 30% (hence almost one-third) in the use of service bicycles compared to the same period in 2006 (hence the first six months of 2006).

d) is not the right answer.
Not necessarily. It can be reduced-price.

EXPLANATORY ANSWERS FOR THE NUMERICAL QUESTIONS NUMBERED FROM 81 TO 90

81 ▶E

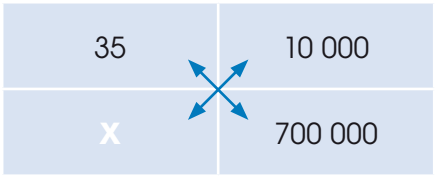
⏩ Comprehension of the question

The number of prisoners (men or women) is directly proportional to the number of inhabitants. We can thus use the rule of three and cross-multiply.

The number of men, as the number of women, is different for each statement. In order to find out the right answer, we can thus work out either the number of men or the number of women. The second solution is easier and can be performed without the calculator.

⏩ Solution

Let X be the number of women detained.



10 000 x X = 35 x 700 000
X = 700 000 x 35 / 10 000 = 70 x 35 = **2 450 women**

82 ▶B

⏩ Comprehension of the question

We first have to work out the average temperature in the six towns together. This is a simple average. Then we have to add 5% to this average and compare the result to the table data. It is advisable to use the calculator.

⏩ Solution

Average temperature: (12 + 12.6 + 10.6 + 12.8 + 9.8 + 14.2) / 6 = 72 / 6 = 12°C

12 + (5% x 12) = 12 + 0.6 = 12.6°C

Towns in which the average temperature is over 12.6°C: **Denitz and Farek**.