

# CONTENT

	<b>Who is this book for?</b> .....	7
■ <b>Part I</b>	<b>Organisation of the admission tests</b> .....	9
Chapter 1	How are the competitions organised? .....	11
Chapter 2	Scoring .....	15
Chapter 3	Computer-based tests .....	17
■ <b>Part II</b>	<b>General methodology</b> .....	25
Chapter 4	Test principles .....	27
Chapter 5	The analytical approach .....	31
Chapter 6	Identifying the rhythms .....	37
Chapter 7	Alternating sequences .....	43
Chapter 8	The global approach .....	45
Chapter 9	Visualising sequences .....	47
Chapter 10	Diagrams with instructions .....	55
Chapter 11	Mixed series .....	63
■ <b>Part III</b>	<b>Transformations</b> .....	65
Chapter 12	Modifications to the properties of an element .....	67
Chapter 13	Translations .....	71
Chapter 14	Rotation .....	75
Chapter 15	Symmetry and permutation .....	79
Chapter 16	Enumeration .....	85
Chapter 17	Hidden elements .....	89
■ <b>Part IV</b>	<b>Preparing for the test</b> .....	95
Chapter 18	The keys to success .....	97
Chapter 19	Making the most of each question .....	101
Chapter 20	Taking things further .....	105
■ <b>Part V</b>	<b>Tests</b> .....	111
	Test presentation .....	113
	Test 1 .....	115
	Test 2 .....	125
	Test 3 .....	135
	Test 4 .....	145

Test 5 .....	155
Test 6 .....	165
Test 7 .....	175
Test 8 .....	185
Test 9 .....	195

<b>■ Part VI</b>	<b>Answers to tests.....</b>	<b>205</b>
------------------	------------------------------	------------

<b>■ Part VII</b>	<b>Explanatory answers.....</b>	<b>213</b>
-------------------	---------------------------------	------------

Test 1 .....	215
Test 2 .....	221
Test 3 .....	227
Test 4 .....	233
Test 5 .....	239
Test 6 .....	245
Test 7 .....	251
Test 8 .....	257
Test 9 .....	263

<b>Who are we?.....</b>	<b>269</b>
-------------------------	------------

# Who is this book for?

---

This book is aimed at all candidates taking European Institution competitions who wish to prepare for the abstract reasoning tests in the best possible way.

## 1. A DIFFICULT TEST

---

Abstract reasoning tests are designed to assess your ability to solve problems, grasp complex ideas and develop strategies. Each question is composed by a series of five diagrams containing geometric shapes that are repeated or modified according to a logical sequence. For each question, you have to identify the underlying logic and find, among five options, the correct diagram that completes the series.

The abstract reasoning test is a visual test. It doesn't use any verbal or numerical concepts<sup>1</sup>. You need to observe the shapes contained in the diagrams and visualise the logical sequence.

Abstract reasoning tests are also logic tests. To pass these tests you must:

- be capable of establishing analogies between shapes and different combinations of shapes;
- know how to spot changes: colour change, movement, superposition of shapes, etc;
- master certain notions of geometry such as rotation, translation and symmetry;
- know how to identify different logical sequences: continuous and alternating sequences;
- identify and understand the meaning of symbols inside diagrams.

The abstract reasoning test is also a speed test. You have an average of one minute per question. In order to succeed, you have to:

- assimilate the methodological elements and acquire automatic techniques;
- practise carefully.

---

<sup>1</sup> For some questions, you might need at most to count some of the elements of the diagrams.

## 2. GIVING YOURSELF EVERY CHANCE OF SUCCESS

---

This book will give you every opportunity to be successful in the abstract reasoning tests.

Part I gives you some information about the admission tests (organisation and scoring). It also enables you to familiarise yourself with the computer-based tests (how to validate an answer, how to identify questions for which you are not sure of the answer, etc.).

Part II shows you two methods to efficiently deal with an abstract reasoning question. It will also teach you how to identify the different types of logical sequences and to understand diagrams with instructions.

Part III will teach you how to visualise the different types of transformation that occur in the elements inside the diagrams: changes to their properties (colour, size, shape), movement, and enumeration.

Part IV gives you some precious advice on how to prepare for your exams (how to plan your study time, how to remain confident, etc.). It also shows you how to make the most of the questions contained in this book.

Part V provides 9 tests of 20 questions.

The questions we provide here are similar to those used in the competitions organised by EPSO from 2015 onwards.

The answers to the tests are given in part VI. All the detailed explanations can be found in part VII.

**Good luck with your preparations!**

## CHAPTER 4 - TEST PRINCIPLES

### 1. TEST PRESENTATION

The abstract reasoning test consists of 10 or 20 multiple choice questions (MCQs)<sup>10</sup>. Each question comprises a series of 5 diagrams that follow a logical sequence and/or that contain a set of underlying rules (diagrams with instructions<sup>11</sup>). From the five options given, you must find the diagram that completes the series.

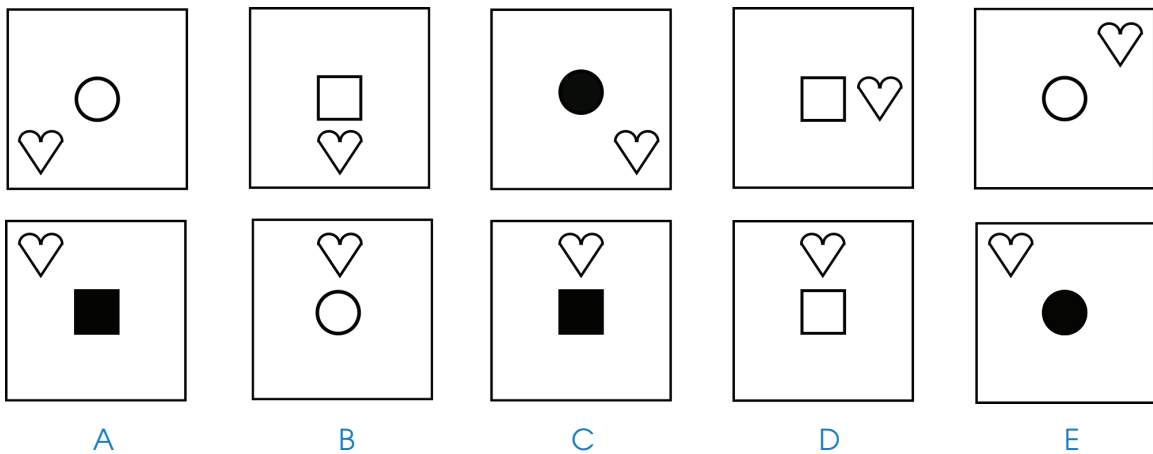
#### Please note!

The transformations used in Part II will be explained in detail in Part III. Feel free to return to any questions in Part II that you may not have fully understood once you have studied the different transformations in Part III.

### 2. EXAMPLE

Here is an example question. Take your time answering it. The answer and explanations appear on the following page.

Q1. From the five options A, B, C, D and E, choose the diagram that completes the series.

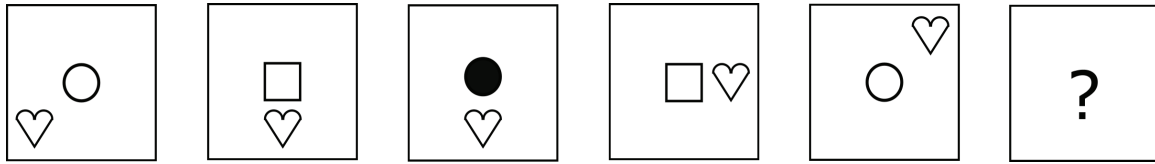


<sup>10</sup> The number of questions is stated in the notice of competition.

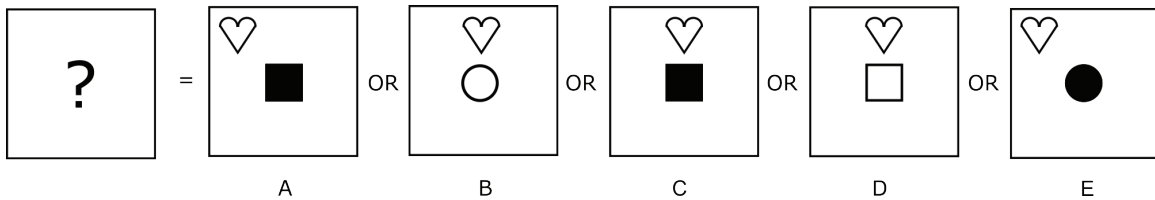
<sup>11</sup> See chapter 10.

### 3. UNDERSTANDING THE QUESTION

The question is formed by the five diagrams at the top. They are arranged in a line and are always read from left to right. You must find the diagram that completes the series, in other words, the sixth diagram:



The missing diagram is one of the five diagrams shown on the bottom line: diagram A, B, C, D or E. There is only one correct answer.

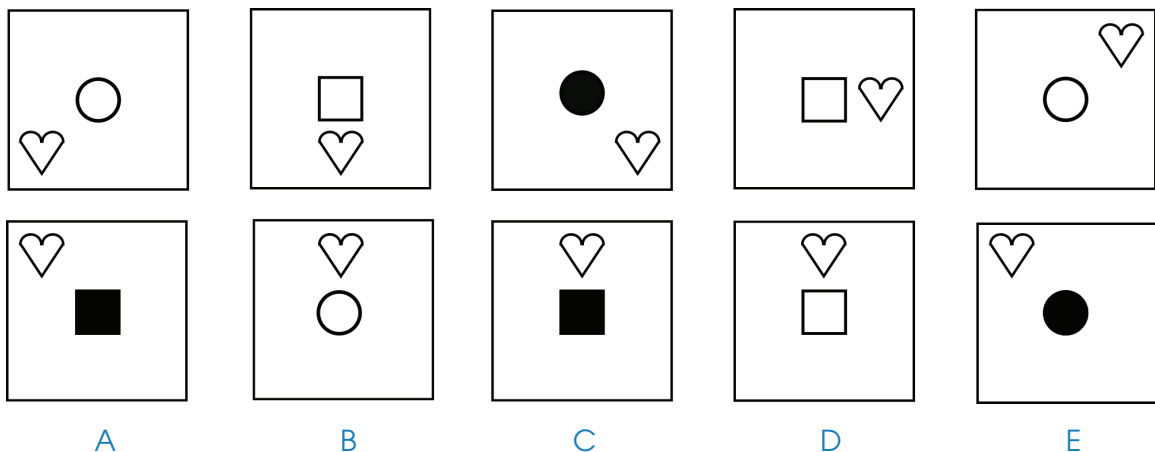


The question diagrams are not arranged at random. They are ordered according to a logical sequence. A logical sequence is a series of transformations that are repeated every X diagrams.

To find the missing diagram in the series, you need to visualise the logical sequence and to do that you must:

- identify the elements contained in the diagrams;
- see how these elements are repeated or modified from one diagram to another.

### 4. SOLUTION



Each diagram contains two figures: one in the centre (a circle or a square) and one on the periphery (a heart).

The form of the central figure changes each time. As the central figure is a circle in diagram 5, it must be a square in the answer diagram. So, the correct answer must be one of A, C or D.

The colour of the central figure is black in every three diagrams. As it is white in diagram 5, it must be black in the answer diagram. So, the correct answer must be A or C.

The heart moves in the same way each time: it rotates in relation to the centre of the diagram by one position anticlockwise. As it is at the top right in diagram 5, it must be at the top middle in the answer diagram.

**Diagram C is therefore the correct answer.**

### **Please note!**

If you don't understand the solution, don't worry. It simply means that you're not yet familiar with this type of exercise. Read the following methodology carefully and then come back to this question. The solution may seem obvious to you then!

## **5. TIME MANAGEMENT**

---

You must answer, depending on the competition, the 10 questions in 10 minutes, or the 20 questions in 20 minutes. In both cases, this means an average of 1 minute per question.

Not all the questions are of the same level of difficulty. Some questions will seem obvious to you and you will be able to answer these in a few seconds. Others, however, will appear more difficult and you will probably need more than a minute to answer them.

In any case:

- do not spend more than 2 minutes on one question;
- make sure you have answered at least 5 questions during the first 5 minutes.

If you get stuck on a question:

- select the answer that seems most likely;
- mark the question;
- at the end of the test, if time allows, go back to the question.