

# PSYCHOMETRIC TESTS

## What They Are And How You Can Prepare For Them

### Introduction

The purpose of the selection process is for an employer to choose an appropriate person to fill their vacancy. They will be looking for someone who has the skills, abilities and personal qualities to do the job well. During the selection process a variety of assessment methods can be used; these almost always feature an application form/CV and an interview, but can also include other methods such as group exercises and discussions, presentations and psychometric tests. All selection methods are seeking to gather evidence that you have the abilities and qualities to be successful in the job, but different methods are better at measuring particular things. For example, an application form gathers information on your qualifications and work experience, and demonstrates your written communication skills; an interview allows you to demonstrate oral communication skills; psychometric tests measure whether you have specific abilities or appropriate personal qualities in relation to the job specification. Employers may therefore use a variety of methods to gain an overall view: the greater the variety of situations in which a selector can see you perform, and the greater the number of skills that are being tested, the more accurate and objective the assessment should be. So what are psychometric tests and how do they fit into the selection process?

### Psychometric Tests and Questionnaires

These are structured pencil and paper (or sometimes computer-based) exercises, often in the form of multiple choice questions. They are designed to assess your reasoning abilities, or how you respond to different situations. The tests should have been carefully researched and trialled to ensure that they are fair to all people sitting them. Your results are usually compared with how others have done in the tests in the past. There are two main types of psychometric tests:

- a) **Aptitude, cognitive, ability or intelligence** tests aim to assess your capabilities in tests of reasoning, that is, the level and nature of your thinking competencies.
- b) **Personality questionnaires** gather information about how and why you do things in your own particular way. They look at how you react or behave in different situations, and your preferences and attitudes. Questionnaires on interests and values are also produced, but are rarely used for selection purposes.

Let us examine these in more detail.

### Aptitude, Ability and Intelligence Tests

These test your logical reasoning or thinking performance, they are not tests of general knowledge. They are administered under exam conditions and are strictly timed. A typical test might allow 30 minutes for 30 or more questions.

The questions have definite "right" and "wrong" answers, which you often have to select from a range of alternatives.

Your Careers Service may have copies of practice leaflets or booklets, available on reference, loan or for purchase.

### Numerical Reasoning

Countdown to Mathematics, Volume 1. Lynne Graham and David Sargent, Addison Wesley.

Numeracy - What does it mean? ULCAS and BP Oil. (leaflet available from your Careers Service).

A Way with Numbers: a Practical Start to Improving Numeracy Skills, Terry Riley, BBC.

Refresher in Basic Mathematics, R.N. Rowe, D. P. Publications.

Maths Made Easy, D.J. Booth, Chapman and Hall.

### Example Question Answers

#### Example 1

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

#### Example 4

- N1. D
- N2. C
- N3. E
- N4. B

#### Example 2

5

#### Example 5

8

#### Example 3

1. 3
2. 13
3. 6

#### Example 6

- |     |   |      |   |
|-----|---|------|---|
| A1. | A | A6.  | A |
| A2. | B | A7.  | B |
| A3. | C | A8.  | C |
| A4. | C | A9.  | A |
| A5. | A | A10. | B |

This leaflet has been prepared by the AGCAS (Association of Graduate Careers Advisory Services) Psychometric Assessment Working Party. It may be freely reproduced within AGCAS Services for distribution to students and graduates. We would like to thank the employers and test producers who kindly gave permission to reproduce items from their tests.

This test is not a test of general knowledge and you should only base your answers on the information contained in the passage.

A principal objective of the Health and Safety at Work Act 1974 is to involve everybody in the workplace. The promotion of health and safety is an essential function of good management in all areas. The employer, however, also has a duty to protect other persons on the premises. The term 'premises' includes all workplaces, and in particular, includes any vehicle, vessel, aircraft, or any other installation on land. Regulations may be made exempting certain employers from the necessity to provide all employees with written copies of the Act.

1. The Health and Safety Act is the sole responsibility of the employee.
2. All installations on land, and vehicles are subsumed under the heading 'premises'.
3. The Act states that all employees must receive written copies.
4. There were no health and safety rules before 1974.

#### ANSWERS

1. (A) (B) (C)
2. (A) (B) (C)
3. (A) (B) (C)
4. (A) (B) (C)

**Example 2** (Reproduced by permission of Recruitment and Assessment Services, Civil Service)

#### DATA SUFFICIENCY TEST

This is a test of careful, logical reasoning. You have to identify from a number of pieces of information (all of which are true), those that are needed to solve a problem and record your answer by filling in the appropriate answer boxes.

#### EXAMPLE

Patrick lives in one of the houses in a terrace of three, which is separated by wide gaps from the neighbouring terraces. The three houses in the terrace differ from one another in plan. They are numbered 1, 2 and 3 in that order. Which ONE piece of information do you need to identify the house in which Patrick lives?

1. Patrick has one reception room and three bedrooms.
2. Numbers 1 and 2 each have one reception room.
3. Numbers 2 and 3 each have three bedrooms.
4. When working in his garden, Patrick is often annoyed by the smoke of his neighbour's bonfires.
5. Patrick can hear his neighbours' radios through the walls on both sides.

#### ANSWERS

1  2  3  4  5

- ✦ **Brush up on your maths.** Practise basic mental arithmetic with and without a calculator. Addition, subtraction, division, multiplication and calculations of percentages and ratios are commonly required. Some of the texts listed below may be helpful. Remember that unless the job requires a very high level of numeracy, numerical tests are not likely to be pitched at higher than GCSE level maths. The ability to extract information from charts and graphs is as important as the actual calculations in these tests. Reading financial reports, and studying data in charts (e.g. in the quality or financial press) could also be useful practice.
- ✦ **Examples of test questions.** Your Careers Service may have a reference file or practice leaflets containing examples of test questions, for example from test producers such as Saville and Holdsworth, or from employers, e.g. Civil Service.
- ✦ **Books with test questions.** A number of books contain sample test questions (see references below). These might be available in your Careers Service, the library, or from bookshops. A word of warning though - check the level at which questions are pitched - proficiency at questions aimed at school leavers will not prepare you adequately for graduate tests.
- ✦ **Verbal reasoning skills.** These are more difficult to quickly 'brush up', than mathematical techniques. Reading manuals, technical reports or academic or business journals may help. Practise extracting the main points from passages of information and summarizing their meaning. The verbal reasoning examples in the GMAT Review (see below) may be helpful, but bear in mind that these are pitched at a high level, so do not be discouraged if you find them tricky.
- ✦ **Sit a practice aptitude test.** Many Careers Services offer the facility of taking practice tests and will give feedback on your performance. This is probably the best practice you can have for a real test, since tests are administered under exam conditions.

N.B. Our licence to use these tests excludes the possibility of letting you 'browse' through the test booklets or letting you take them away. You can only have access to them by sitting them 'for real'.

- ✦ **Discuss tactics.** Have a chat with a careers adviser to discuss test-taking strategies

### On The Day

- Try to get a good night's sleep the evening before the test.
- If you usually wear glasses and/or a hearing aid take them with you.
- Arrive in good time at the test location.
- Avoid alcohol and inform the test administrator if you are on medication which makes you feel drowsy.
- If you have a disability and you require special provision, discuss this with the employer in advance of the test session.
- Ensure that you know exactly what you are required to do - do not be afraid to ask questions.
- Follow the instructions you are given exactly.
- Read through the questions and answer choices very carefully.
- Eliminate as many wrong answers as possible. For example, with numerical tests, a quick estimate may help you to discard several of the options without working out every alternative.

N1 Assuming equal amounts of urban, motorway driving. Which car is the most expensive to run on 4 star?

- A Topper    B Executive    C Laser    D Medallion    E Proteus

N2 What is the minimum I would spend on fuel using any car to go 100 miles around town?

- A £6.50    B £6.87    C £6.66    D £8.75    E £6.88

N3 Which car can be run most cheaply assuming equal amounts of urban and motorway driving?

- A Topper    B Executive    C Laser    D Medallion    E Proteus

N4 How cheaply could I travel 1200 miles assuming I do 75% motorway driving (to the nearest £)?

- A £53.00    B £56.00    C £59.00    D £60.00    E £62.00

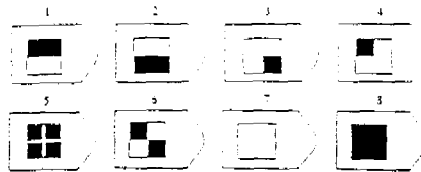
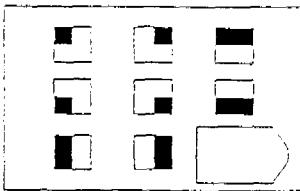
**ANSWERS**

	A	B	C	D	E
N1					
N2					
N3					
N4					

Example 5 (Copyright © J.C. Raven Ltd. Reproduced by permission)

**ADVANCED PROGRESSIVE MATRICES**

The first part of the problem is a pattern with a bit cut out of it. Look at the pattern, think what the piece needed to complete the pattern correctly, both along and down must be like. Then find the right piece out of the bits shown below.



**ANSWER**

## Personality Questionnaires

How successful you will be in a job depends not only on your abilities, but also on your personal qualities. Interviews and group exercises can be used to assess social skills, but personality questionnaires can further explore the way you tend to react to, or deal with, different situations. They are self-report questionnaires which means that a profile is drawn up from your responses to a number of questions or statements. These focus on a variety of personality factors such as: how you relate to other people; your workstyle; your ability to deal with your own and others' emotions; your motivations and determination, and your general outlook.

Unlike aptitude tests, there are no "right" or "wrong" answers and questionnaires are usually untimed. The selectors will not be looking for a rigid "typical" personality profile, although certain characteristics will be more or less appropriate for that particular job (e.g. independence, social confidence and persuasiveness are important characteristics for sales personnel).

From your responses the selector gains information about your style of behaviour - how and why you do things in your own way. You may receive some feedback on the profile which your answers produce, and occasionally it might form the basis for discussion at a subsequent interview.

Questionnaires exploring your interests or values are much less commonly used in selection. These are designed to clarify what fields of work interest you or what factors make work worthwhile for you. You are more likely to come across them in a careers guidance setting, or in an appraisal/development context once in work.

The best way to approach all of these questionnaires is just to answer them as straightforwardly as you can. Guessing what the employer is looking for is difficult and could well be counter-productive - after all, you do not want to be given a job which really does not suit you.

Some examples of personality questionnaire items are given below:

### **Example 7 (© Consulting Psychologists Press Inc. Reproduced by permission)**

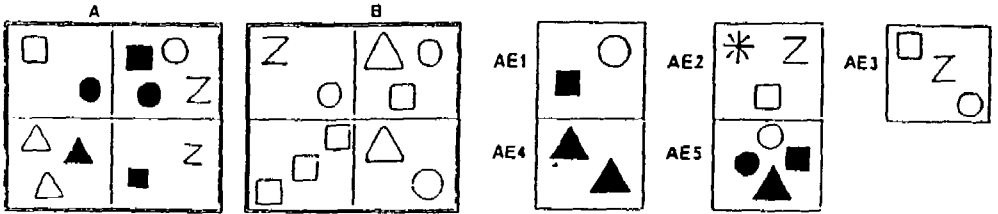
Please respond to the following items by answering true (T) or false (F).

1. When the community makes a decision, it is up to a person to help carry it out even if he or she had been against it
  
2. We should cut down on our use of oil, if necessary, so that there will be plenty left for the people fifty or a hundred years from now
  
3. People who have no children should not have to pay for education through rates and taxes
  
4. I have not lived the right kind of life

**ABSTRACT REASONING**

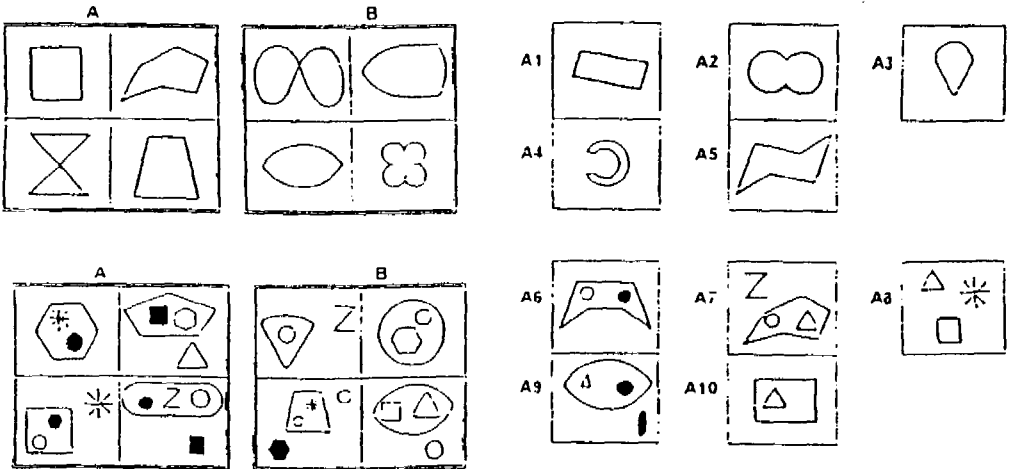
These tests examine your skill at finding similarities and differences in groups of patterns. All patterns in Group A are in some way similar to each other and all those in Group B are similar to each other. However, the groups are different and your task is to decide whether the separately numbered patterns belong to Group A, Group B or neither - which will be called Group C.

**Examples**



In this example each pattern in group A consists of a mixture of solid and non-solid shapes. Group B patterns are all non-solid shapes. Therefore AE1 and AE5 belong with Group A, AE2 and AE3 belong with Group B and AE4 belongs to neither group - answer C.

Check that you understand this answer and then try the following (A1 - A10) by marking your answers in the answer box



**ANSWERS**

	A	B	C
A1			
A2			
A3			
A4			
A5			
A6			
A7			
A8			
A9			
A10			

**Example 8 (Reproduced by permission of ASE)**

1. If I had my life to live over again, I would:
  - a. **plan it differently**
  - b. ?
  - c. **live it pretty much as I have.**
  
2. When I have to catch a plane or train, I feel hurried or anxious even though I have enough time.
  - a. **true**
  - b. ?
  - c. **false**
  
3. I enjoy routine, constructive work, using an effective piece of machinery or apparatus.
  - a. **true**
  - b. ?
  - c. **false**

**Example 9 (Reproduced by permission of ASE)**

1. If you are in a group of people do you feel annoyed to see someone else getting all the attention?

- a. **Yes.**
- b. **No.**

2. If you were involved in a time-consuming routine task, would you more likely to:

- a. **want to finish it yourself;**
- b. **hand it over to someone else if possible.**

3. If you happened to meet an old school friend for the first time in years would you be:

- a. **interested to find out how the person's achievements compared to yours;**
- b. **not interested in making such a comparison?**

***How to Prepare***

Careers Services are often asked if we can supply practice questions to prepare for employers' aptitude tests. Your service may have a variety of useful sources, but you will not be able to look at the actual tests used by employers. You cannot buy psychometric tests, take copies of them or get 'past papers' since companies feel that it would undermine the tests' effectiveness if candidates could practise limitlessly. Also unlike in examinations the same test questions are used for several years. There are, however, a number of things you can do to prepare yourself.

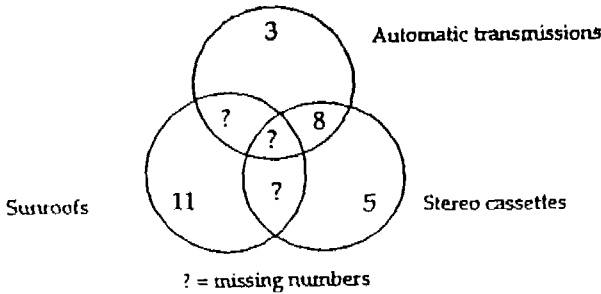
- ☛ **Puzzles.** Having a go at word games, mathematical teasers, puzzles with diagrams, etc. may help to get you into a logical and analytical frame of mind.



Example 3 (Reproduced by permission of B.T.)

**QUANTITATIVE REASONING**

Numbers of cars with specific refinements, manufactured by a small company in a short period, are distributed as follows:-



**ANSWERS**

- 1.
- 2.
- 3.

1. How many cars have automatic transmissions but no other refinements?
2. How many cars have a stereo cassette but no sunroof?
3. Overall, 17 cars have 2 out of any of the 3 refinements. If 42 cars were manufactured altogether, how many have all 3 refinements?

Example 4 (Reproduced by permission of the Test Agency)

**NUMERICAL CRITICAL REASONING**

CAR MODEL	URBAN miles per gallon	MOTORWAY miles per gallon	FUEL TYPE
TOPPER	40	60	4 Star only
EXECUTIVE	10	20	Unleaded or Super
LASER	30	40	4 Star or Unleaded
MEDALLION	25	40	4 Star, Unleaded or Super
PROTEUS	30	50	Diesel only

FUEL TYPE	PRICES £
4 Star	2.75
Diesel	2.00
Unleaded	2.50
Super	3.00

In the following questions, make only approximate calculations and choose the answer that is closest to the price you would pay.

Example NE1 Which car is the most expensive to run?

- A Topper    B Executive    C Laser    D Medallion    E Proteus

The answer is B. Check that you understand and then try the following (N1-N4) by marking your answers in the answer box.

- ◆ Work as quickly and accurately as you can. Both speed and accuracy are important - don't spend too long on any one question, and keep an eye on the clock.
- ◆ Do not waste time on difficult questions. If you are stuck on a question, leave it and move on. Whether it is advisable to guess answers will depend on how the test is being marked. Some tests award marks for correct answers whilst others also penalise wrong ones. If you are not told the marking policy during the introduction to the test, you can always try asking, to help determine your strategy. The best approach is probably to go for your best choice, but to avoid wild guessing.
- ◆ Don't worry if you do not finish all the questions in the time, but if you do, go over your answers again to check them.

### Final Thoughts

Practice will help prepare you and familiarize you with the demands made by aptitude tests. This can help you to feel more confident in facing tests. However, don't spend too much time on preparation for tests, especially if you are in your final year. Although improvement is possible, it is unlikely that people can improve their scores beyond a certain level. Do not neglect your course work, as your degree result will be more significant in your future career than an aptitude test result.

If you have not done well on a test, remember that there can be a number of reasons for poor performance. These could include: feeling tired or under the weather; being unable to concentrate due to personal problems; misunderstanding what you had to do; answering questions too slowly; panicking; a lack of practice, e.g. in mental arithmetic. So poor test results on the day do not necessarily mean you are lacking in ability, and you may like to discuss your test technique with a careers adviser, or sit a practice test to gain feedback on what might be going wrong.

It is, however, a fact that just as some students always have difficulties with exams, so some people just cannot do aptitude tests. This does not reflect on your intelligence - it may only mean that you are not primarily a logical person. You may have a much more intuitive approach to solving problems, which could be equally valuable in a successful career.

Remember that as in any test, you can only try your best. Test performance is not the be all and end all, and even if you don't get this job there will be others!

## **Good Luck!**

### References

#### Practice Questions

The following are some examples of publications containing practice questions. Remember to check the level at which such questions are pitched. Your Careers Service can advise you on the sources they consider most helpful.

Check Your Own I.Q.; Know Your Own I.Q.; Know Your Own Personality  
H. J. Eysenck, Penguin.

How to Pass Graduate Recruitment Tests, Mike Bryon, Kogan Page.

How to Pass Selection Tests; How to Pass Technical Selection Tests, Mike Bryon and Sanjay Modha, Kogan Page.

The Official Guide for GMAT Review, 1994-96, PasTest.

As you go through the tests, the questions may become more difficult, and there are frequently more questions than you can comfortably complete in the time. It does not matter if you do not finish the test (though you should complete as many questions as possible), it is the number of correct answers which counts. Your score is then compared with how other people have done on the test in the past. This group (the "norm group") could be other students/graduates, current job holders or a more general group. This enables selectors to assess your reasoning skills in relation to others, and to make judgements about your ability to cope with tasks involved in the job.

Obviously the validity of such tests rests on how closely they assess abilities necessary to the job. For this reason there are a variety of tests, for example tests of reasoning with written information ('verbal reasoning' tests), numbers, charts and graphs ('numerical reasoning') or abstract figures ('diagrammatic' or 'spatial reasoning'). The choice of tests used should be related to the work tasks involved in the job.

Tests are often used in conjunction with other selection methods, so it is your overall performance which is important - the tests do not carry more weight than other elements. However, aptitude tests are sometimes used prior to a first interview, and at this stage there is often a "pass mark" or cut off score, which you have to achieve to continue your application.

Employers may send you some sample questions before you sit the test to give you an idea of what to expect. You should also be given some practice examples at the start of the test session itself. Some example questions, from real tests, are given below. The correct answers are given at the end of the leaflet.

**Example 1** (Reproduced by permission of Saville and Holdsworth Ltd)

### VERBAL REASONING

This test looks at your ability to understand and reason with written information. The test consists of a series of passages, each of which is followed by several statements. Your task is to evaluate each statement in the light of the passage which precedes it and to mark the appropriate circle, following the rules given below.

**Mark Circle A**

if the statement is **TRUE** or follows logically, given the information or opinions contained in the passage.

**Mark Circle B**

if the statement is **FALSE** or the opposite follows logically, given the information or opinions contained in the passage.

**Mark Circle C**

if you **CANNOT SAY** whether the statement is true or false without further information.

# Aptitude Testing...

GENERAL ABILITIES PROFILE

PRACTICE LEAFLET SERIES 3

Tests are used by care  
look at the suitability  
Tests also include  
Types of train  
Some p  
Page  
the

trainers, colleges  
of training  
and in  
and in  
the



# How to Pass GRADUATE RECRUITMENT TESTS

## TESTS



Numeracy - What does it mean?  
only  
numeracy is required  
graduate graduate preferred  
venture capital organization  
ent products with numerical  
manages  
must be num  
and data  
change negoti  
your company  
able but must  
telephone ma  
from recent ci  
ates in any the  
app

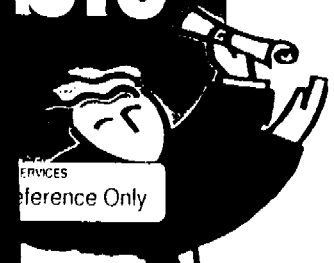


# How to Pass COMPUTER SELECTION TESTS



# How to Pass SELECTION TESTS

## TESTS



SERVICES  
Reference Only

These books and resources are held on reference in the Aptitude Testing File on the Starting Points Shelf in Careers.

Practice Aptitude Tests

Are held regularly throughout the year. Contact Student Services Reception for details. Tel: 0121 331 5588

Mike Bryon Sanjay Modha