

## 2.8 Intelligence and Achievement

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Name: \_\_\_\_\_ Class: \_\_\_\_\_ Date: \_\_\_\_\_

Total: 18 marks

**KEY WORDS** intelligence 智力 • reliability 信度 • normal distribution 正态分布  
• stereotype threat 刻板印象威胁 • validity 效度

### Objective

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Build the skills to answer exam questions on **intelligence** 智力 and its measurement.

You must be able to:

- state what **general intelligence** 一般智力 claims and one alternative view
- explain **reliability** 信度, **validity** 效度 and **standardisation** 标准化
- describe a **normal distribution** 正态分布 of scores
- discuss **stereotype threat** 刻板印象威胁 and test bias

### 1 Worked examples

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Study these first. Each one shows the method for a task used later.

#### ■ One factor or several

The **general intelligence** view holds that performance across different mental tasks correlates, implying a common factor. Alternative theories propose several relatively independent intelligences or types, and disagree about how much a single score can capture.

#### ■ Three test properties

**Reliability**: the test gives consistent results. **Validity**: it measures what it claims to measure. **Standardisation**: scores are interpreted against a representative comparison group. A test can be reliable and still invalid.

#### ■ The distribution

Standardised intelligence scores form a **normal distribution**: most people cluster near the average, with symmetrical tails. The mean and standard deviation are set by the standardisation sample.

#### ■ Stereotype threat

When a negative stereotype about one's group is made salient, performance can drop. This is a situational effect on the **score**, not evidence about ability, and it is one reason score gaps require careful interpretation.

## 2 Practice

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**2.1** State the difference between reliability and validity. [2]

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**2.2** Explain what standardisation of a test involves. [2]

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**2.3** A test gives the same score to the same person on two occasions, but the score does not predict school performance at all.

(a) State which property it has. [1]

(b) State which it lacks. [1]

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## 3 Exam-style questions

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**3.1** In a normal distribution of test scores, most people score [1]

- |   |   |
|---|---|
| A | B |
| C | D |
- A** near the extremes
  - B** near the mean
  - C** identically
  - D** above the mean

**3.2** Reminding candidates of a negative stereotype before a test can lower their scores. This is [1]

- |   |   |
|---|---|
| A | B |
| C | D |
- A** evidence of lower ability
  - B** stereotype threat
  - C** test-retest unreliability
  - D** standardisation

**3.3** A test is standardised on one national group and used with another.

- (a) State one problem this may create. [1]
- (b) Explain why a score difference between the groups would be hard to interpret. [2]

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**3.4 Applied research task.** A test of reasoning is given to 2 000 people. Scores form a normal distribution with a mean of 100 and a standard deviation of 15. The test is re-administered to the same people six months later; the two sets of scores correlate at  $r = 0.91$ . Scores on the test also correlate at  $r = 0.62$  with school grades three years later.

- (a) State what percentage of people score between 85 and 115, and explain your answer. [2]

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- (b) Name the property shown by the  $r = 0.91$  result and the property shown by the  $r = 0.62$  result. [2]

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- (c) Explain the difference between fluid and crystallised intelligence, and state which the test is more likely measuring. [2]

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- (d) Explain what stereotype threat is, and how it could lower a group's average score on this test without any difference in ability. [1]

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