

2.8 Intelligence and Achievement

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

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

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

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

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

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]

3 Exam-style questions

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]

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]

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

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

(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]
