3.8 Evaluating Fitness Test Results: Reliability, Validity and Normative Data: Test Pack

AQA 8582 · Calculators not allowed · about 15 minutes

Total Marks

Name: _____ Date: ____ / ____ / _____

Answer ALL questions. Show all your working.

1 In the context of fitness testing for a school PE class, tick one box to identify the term meaning that a test gives very similar results when repeated under the same conditions.

- ☐ A) Validity
- ☐ B) Reliability
- ☐ C) Objectivity
- ☐ D) Practicality

(Total for Question 1 is 1 mark)

2 State the meaning of 'quantitative data' as it applies to fitness testing, giving one example of a quantitative measurement a fitness test could produce.

(Total for Question 2 is 1 mark)

3 State the meaning of 'validity' in fitness testing as it applies to deciding whether a test is appropriate for a particular sport, for example whether a multi-stage fitness test measures a swimmer's endurance.

(Total for Question 3 is 1 mark)

4 State one reason why normative data should be age- and gender-banded when interpreting fitness test results.

(Total for Question 4 is 1 mark)

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5 Table C shows normative data for the multi-stage fitness test (bleep test), male age 16. Use the table to rate the two scores below.

Table C, male age 16 normative bands (level reached)
Multi-stage fitness test: Excellent ≥ level 12.0, Good level 10.0-11.9, Average level 8.0-9.9, Below average < level 8.0

(a) For a multi-stage fitness test result of level 9.2, state the rating from Table C for a male aged 16. **(1)**

(b) For a multi-stage fitness test result of level 11.4, state the rating from Table C for a male aged 16. **(1)**

(Total for Question 5 is 2 marks)

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6 Identify one practical reason a school might choose a fitness test that is less valid but more practical than an ideal laboratory test.

(Total for Question 6 is 1 mark)

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7 State one factor that could reduce the reliability of a 30 m sprint test when the same athlete repeats the test on two different days.

(Total for Question 7 is 1 mark)

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8 A teacher uses hand timing with a stopwatch for a 30 m sprint. State one weakness of hand timing compared with electronic timing that affects reliability.

(Total for Question 8 is 1 mark)

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9 Explain, using an example, why a fitness test being reliable does not automatically mean it is also valid.

(Total for Question 9 is 3 marks)

10 A school tests the whole of Year 11 for cardiovascular endurance across three different PE lessons on three different days. State one factor, other than the test itself, that could reduce the reliability of comparing results across the three days.

(Total for Question 10 is 1 mark)

11 Explain why an elite sports science team might still choose to use a fitness test with poor practicality, such as a laboratory VO2 max test, despite the extra cost and time it needs.

(Total for Question 11 is 2 marks)

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Mark scheme · 3.8 Evaluating Fitness Test Results: Reliability, Validity and Normative Data: Test Pack

Question 1

B **B1**

Answer: B (Reliability)

Question 2

numerical/measurable data, e.g. a sprint time in seconds or a jump height in cm, oe **B1**

Answer: Quantitative data is numerical, measurable data, for example a 30 m sprint time recorded in seconds.

Question 3

it measures whether a test actually tests what it claims to measure, oe **B1**

Answer: Validity, it means the test actually measures what it claims to measure.

Question 4

because physical capacities change with growth and hormonal differences, so comparing like-for-like (age and gender) gives fairer interpretation, oe **B1**

Answer: Because physical capacities change with growth and between genders, using age and gender bands allows fairer comparisons.

Question 5

(a) Average **B1**

(a) Answer: Average

(b) Good **B1**

(b) Answer: Good

Question 6

examples such as: easier to set up / cheaper equipment / quicker to administer / can test many pupils at once, oe **B1**

Answer: For example, it is quicker to administer to a whole class and needs no expensive equipment.

Question 7

any one of: different wind conditions / different surface / inconsistent timing methods / fatigue or illness, oe **B1**

Answer: Different surface (one test on grass and the other on astroturf) which affects times.

Question 8

human reaction time introduces variable start/stop delays, reducing consistency between trials, oe **B1**

Answer: Human reaction time when starting and stopping the stopwatch introduces variable delays, reducing consistency.

Question 9

reliability is about the CONSISTENCY of repeated results, not what the test is measuring, oe **B1**

validity is about whether the test measures the intended component of fitness, oe **B1**

example showing a test can give consistent results while still measuring the wrong thing, e.g. a sit-and-reach test used repeatedly and consistently to judge a sprinter's speed, oe **B1**

Answer: Reliability only shows a test gives consistent results; it says nothing about whether the test measures the right thing. A sit-and-reach test could be repeated with very consistent results, but it would still be an invalid way to judge a sprinter's speed.

Question 10

weather/temperature or surface conditions could differ between the three days, oe **B1**

Answer: Weather conditions, such as temperature or a wet surface, could differ between the three days and affect performance.

Question 11

at elite level a small margin of performance matters greatly, so the highest possible validity/accuracy is prioritised, oe **B1**

elite programmes usually have the funding, equipment and small squad size to absorb the extra cost and time, unlike a whole-school test, oe **B1**

Answer: At elite level, small differences in fitness matter, so the most accurate and valid result is worth the extra cost and time. Elite programmes also usually have the funding, equipment and small squad sizes needed to absorb that cost, unlike a whole school year group.

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