Psychology 2019 v1.4

IA1 sample marking scheme

August 2022

Data test (10%)

This sample has been compiled by the QCAA to model one possible approach to allocating marks in a data test. It matches the examination mark allocations as specified in the syllabus (~ 30% apply understanding, ~ 30% analyse evidence and ~ 40% interpret evidence) and ensures that a balance of the objectives are assessed.

Assessment objectives

This assessment instrument is used to determine student achievement in the following objectives:

2. apply understanding of localisation of function in the brain, visual perception, memory, or learning to given algebraic, visual or graphical representations of scientific relationships and data to determine unknown scientific quantities or features
3. analyse evidence about localisation of function in the brain, visual perception, memory, or learning to identify trends, patterns, relationships, limitations or uncertainty in datasets
4. interpret evidence about localisation of function in the brain, visual perception, memory, or learning to draw conclusions based on analysis of datasets.

Note: Objectives 1, 5, 6 and 7 are not assessed in this instrument.

Queensland Government
QCAA Queensland Curriculum & Assessment Authority
220943
For all Queensland schools

Instrument-specific marking guide (ISMG)

Criterion: Data test

Assessment objectives

2. apply understanding of localisation of function in the brain, visual perception, memory, or learning to given algebraic, visual or graphical representations of scientific relationships and data to determine unknown scientific quantities or features
3. analyse evidence about localisation of function in the brain, visual perception, memory, or learning to identify trends, patterns, relationships, limitations or uncertainty in datasets
4. interpret evidence about localisation of function in the brain, visual perception, memory, or learning to draw conclusions based on analysis of datasets

The student work has the following characteristics:	Cut-off	Marks
• consistent demonstration, across a range of scenarios about localisation of function in the brain, visual perception, memory, or learning, of – selection and correct application of scientific concepts, theories, models and systems to predict outcomes, behaviours and implications – correct calculation of quantities through the use of algebraic, visual and graphical representations of scientific relationships and data – correct and appropriate use of analytical techniques to correctly identify trends, patterns, relationships, limitations and uncertainty – correct interpretation of evidence to draw valid conclusions.	> 90%	10
	> 80%	9
• consistent demonstration, in scenarios about localisation of function in the brain, visual perception, memory, or learning, of – selection and correct application of scientific concepts, theories, models and systems to predict outcomes, behaviours and implications – correct calculation of quantities through the use of algebraic, visual and graphical representations of scientific relationships and data – correct use of analytical techniques to correctly identify trends, patterns, relationships, limitations and uncertainty – correct interpretation of evidence to draw valid conclusions.	> 70%	8
	> 60%	7
• adequate demonstration, in scenarios about localisation of function in the brain, visual perception, memory, or learning, of – selection and correct application of scientific concepts, theories, models and systems to predict outcomes, behaviours and implications – correct calculation of quantities through the use of algebraic, visual and graphical representations of scientific relationships and data – correct use of analytical techniques to correctly identify trends, patterns, relationships, limitations and uncertainty – correct interpretation of evidence to draw valid conclusions.	> 50%	6
	> 40%	5

• demonstration, in scenarios about localisation of function in the brain, visual perception, memory, or learning, of elements, of – selection and correct application of scientific concepts, theories, models and systems to predict outcomes, behaviours and implications – correct calculation of quantities through the use of algebraic, visual or graphical representations of scientific relationships or data – correct use of analytical techniques to correctly identify trends, patterns, relationships, limitations or uncertainty – correct interpretation of evidence to draw valid conclusions.	> 30%	4
	> 20%	3
• demonstration, in scenarios about localisation of function in the brain, visual perception, memory, or learning, of elements of – application of scientific concepts, theories, models or systems to predict outcomes, behaviours or implications – calculation of quantities through the use of algebraic or graphical representations of scientific relationships and data – use of analytical techniques to identify trends, patterns, relationships, limitations or uncertainty – interpretation of evidence to draw conclusions.	> 10%	2
	> 1%	1
• does not satisfy any of the descriptors above.	≤ 1%	0

Task

See the sample assessment instrument for IA1: Data test (10%) (available on the QCAA Portal).

Sample marking scheme

Criterion	Marks allocated	Provisional marks
Data test Assessment objectives 2, 3, 4	10	—
Total	**10**	—

Marking scheme symbols and abbreviations

Symbol or abbreviation	Meaning
✓	The preceding section of the expected response is worth one mark.
/	Separates acceptable alternative wordings in the expected response.
()	Terms in brackets are not necessary in the response for the mark to be awarded.
shaded and underlined text	Shaded and underlined text must be included in the response for the mark to be awarded.
Accept converse.	Award the mark even if the answer is stated in its converse form, e.g. 'A comes before B' can be stated as 'B comes after A'.
Accept *min–max*.	Award the mark for any numerical answer that falls within the specified range, e.g. 'Accept 1.5–1.9' means that any answer between 1.5 and 1.9 should be considered correct. This is used in questions that involve a multi-step calculation where differences in rounding in the intermediate steps could result in slight differences in the final answer.
Allow for FT error …	Means 'allow for follow-through error'. Initial errors should only be penalised once. Marks should be awarded for subsequent steps that are correct.
Allow FT error for transcription only.	Follow-through error is only allowed if the student has written down information incorrectly but processed it correctly.
AND	Separates two parts of the response that are both required for the mark to be awarded.
Correct d.p. required.	The answer must be stated to the number of decimal places indicated in the question for the mark to be awarded.
Correct s.f. required.	The answer must be stated to the correct number of significant figures indicated in the item for the mark to be awarded.
Max. # marks.	The maximum number of marks that can be awarded for the question is indicated by #.
OR	Separates acceptable alternative wordings.
OWTTE	Means 'or words to that effect'. This is used in questions where students are unlikely to use the exact wording given in the expected response. If the student's response has the same meaning as the expected response, then the mark should be awarded.
Working not required.	Evidence of working, reasoning or calculations is not required for the mark to be awarded.

The annotations are written descriptions of the expected response for each question and are related to the assessment objectives.

Assessment objective	Marking scheme	Mark allocation Note: ✓ = 1 mark
Apply understanding The question uses the cognitive verb 'determine'. The expected response is an unknown scientific quantity.	**Question 1 (1 mark)** Number of faces = 260 ✓	1 mark for correct identification from Figure 1.
Apply understanding The question uses the cognitive verb 'determine'. The expected response is an unknown scientific quantity.	**Question 2 (2 marks)** Number of faces = 150 ✓	1 mark for correct identification from Figure 1. Accept 148–152.
Apply understanding The question uses the cognitive verb 'calculate'. The expected response is an unknown scientific quantity.	**Question 3 (2 marks)** Med. = 60, 150, 180, 220, 260, 320. Med. = $\frac{180 + 220}{2}$ ✓ Med. = 200 ✓	1 mark for correct working. 1 mark for correct answer. Allow FT error for transcription only.
Analyse evidence The question uses the cognitive verb 'identify'. The expected response identifies a relationship.	**Question 4 (1 mark)** The relationship is linear and positive. ✓	1 mark for identification of the relationship.
Analyse evidence The question uses the cognitive verb 'contrast'. The expected response identifies a relationship.	**Question 5 (1 mark)** Pearson's correlation coefficient / r for the current research is higher (by 0.28) / shows a stronger relationship than what was observed in the previous research. OWTTE ✓	1 mark for identification of the relationship.
Interpret evidence The question uses the cognitive verb 'draw conclusions'. The expected response draws a conclusion based on analysis.	**Question 6 (1 mark)** As age increases, so does the identification of faces in ambiguous figures. OWTTE ✓	1 mark for identification of the relationship.

Apply understanding The question uses the cognitive verb 'calculate'. The expected response is an unknown scientific quantity.	**Question 7 (2 marks)** $\bar{x}\ mismatching = \frac{4+5+4+3+5+5+4+4+3+5}{10}$ ✓ $\bar{x}\ mismatching = 4$ ✓	1 mark for correct use of formula. 1 mark for the correct mean.
Analyse evidence The question uses the cognitive verb 'identify'. The expected response identifies a relationship.	**Question 8 (1 mark)** There were no obvious outliers. OR The experiment used interval measurement. OR The raw data is discrete.✓	1 mark for the identification of a characteristic of the data that makes the mean an appropriate measure of central tendency.
Analyse evidence The question uses the cognitive verb 'distinguish'. The expected response identifies a relationship.	**Question 9 (1 mark)** Data for the matching condition had a greater standard deviation (1.17) than the data for the mismatching condition (0.79). ✓	1 mark for the identification of the difference in standard deviation between conditions.
Interpret evidence The question uses the cognitive verb 'infer. The expected response reaches a conclusion based on analysis.	**Question 10 (1 mark)** Matching condition ✓	1 mark for the identification of the matching condition as having a greater variability in the data.
Analyse evidence The question uses the cognitive verb 'identify'. The expected response identifies a relationship.	**Question 11 (2 marks)** Any two of the following three characteristics: Independent groups design. OR Non-parametric as small sample size. OR Population variance is unknown. ✓✓	2 marks for identification of any two relevant characteristics of the data.
Interpret evidence The question uses the cognitive verb 'infer'. The expected response draws a conclusion based on analysis.	**Question 12 (1 mark)** This *p* value indicates that there is a statistically significant difference between the matching and mismatching conditions. ✓	1 mark for correct inference about the *p* value for the dataset.

Interpret evidence The question uses the cognitive verb 'draw conclusions'. The expected response draws conclusions based on analysis.	**Question 13 (1 mark)** The Case condition had the longest confidence interval (CI) indicating the greatest amount of uncertainty in the data. OR The Sentence condition had the shortest confidence interval (CI) indicating the least amount of uncertainty in the data. OR The length of the confidence interval (CI) for the Rhyme condition was between that of the Case and Sentence conditions, indicating this condition had neither the greatest nor least amount of uncertainty in the data. OWTTE ✓	1 mark for correct interpretation of length of CIs from figure.
Interpret evidence The question uses the cognitive verb 'deduce'. The expected response reaches a conclusion based on analysis.	**Question 14 (1 mark)** The result for the Case condition is statistically different from the Sentence condition. OWTTE ✓	1 mark for correct interpretation.
Interpret evidence The question uses the cognitive verb 'draw conclusions'. The expected response draws a conclusion based on analysis.	**Question 15 (2 marks)** The result for the Case condition is not statistically different from the Rhyme condition. OWTTE ✓ Reason: The confidence intervals for the Case and Rhyme conditions overlap by more than 50%. OWTTE ✓	1 mark for correct interpretation. 1 mark for correct identification of relationship between confidence intervals.
Interpret evidence The question uses the cognitive verb 'draw conclusions'. The expected response draws conclusions based on analysis.	**Question 16 (1 mark)** The Sentence condition had the highest response latency. OWTTE ✓	1 mark for correct interpretation of response latency from figure.