CAMBRIDGE
International Education

Cambridge International AS & A Level

PSYCHOLOGY **9990/23**

Paper 2 Research methods **May/June 2026**

MARK SCHEME

Maximum Mark: 60

Published

This mark scheme contains the instructions and marking guidance that our examiners used to mark candidate responses for this component.

Before they start marking, examiners complete a standardisation process. They review a range of candidate responses and discuss the mark scheme in detail to agree which answers can and cannot be accepted. Examiners award marks where it is clear that candidate responses have met the requirements of the mark scheme. These requirements may vary between different components or different versions of the same component, depending on the exact requirements of the question and the candidate responses seen during the standardisation process.

Sometimes, our mark schemes may allow marks to be awarded to responses which contain elements that are factually incorrect or for content not covered by the syllabus. We do this in response to the demands of a specific question to support candidates and make sure that our assessments are fair. However, these allowances should not be used as a guide for teaching and learning.

We cannot discuss the mark scheme with schools, and we recommend that schools read the mark scheme together with the assessment material and the Principal Examiner Report for Teachers.

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General marking principles

All examiners must apply these marking principles when marking candidate responses.

1	Examiners must award marks for each response in line with: • the specific **content** defined in the mark scheme • the specific **skills** defined in the mark scheme or in the level descriptions • the **standard of response** required as exemplified by the standardisation scripts.
2	Examiners must award **whole marks** (not half marks, or other fractions).
3	Examiners must award marks **positively**. This means that: • marks are not deducted for errors or omissions • marks are awarded for correct/valid answers as defined in the mark scheme and also for **other valid answers** which go beyond the scope of the syllabus and mark scheme referring to your team leader as appropriate • the quality of spelling, punctuation and grammar are judged **only** when the mark scheme indicates that these features are **specifically assessed** in the question. However, the meaning of all responses must be unambiguous.
4	Examiners must **consistently** apply the requirements of the mark scheme and any rules for what to do when candidates have not followed instructions correctly.
5	Examiners must use the **full range of marks** defined in the mark scheme, unless limited by the quality of the candidate responses seen.
6	Examiners must award marks according to the mark scheme and **must not** award marks with grade thresholds or grade descriptions in mind.

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Social Sciences-Specific Marking Principles
(for point-based marking)

1 Components using point-based marking:

- Point marking is often used to reward knowledge, understanding and application of skills. We give credit where the candidate's answer shows relevant knowledge, understanding and application of skills in answering the question. We do not give credit where the answer shows confusion.

From this it follows that we:

a DO credit answers which are worded differently from the mark scheme if they clearly convey the same meaning (unless the mark scheme requires a specific term)
b DO credit alternative answers/examples which are not written in the mark scheme if they are correct
c DO credit answers where candidates give more than one correct answer in one prompt/numbered/scaffolded space where extended writing is required rather than list-type answers. For example, questions that require *n* reasons (e.g. State two reasons …).
d DO NOT credit answers simply for using a 'key term' unless that is all that is required. (Check for evidence it is understood and not used wrongly.)
e DO NOT credit answers which are obviously self-contradicting or trying to cover all possibilities
f DO NOT give further credit for what is effectively repetition of a correct point already credited unless the language itself is being tested. This applies equally to 'mirror statements' (i.e. polluted/not polluted).
g DO NOT require spellings to be correct, unless this is part of the test. However spellings of syllabus terms must allow for clear and unambiguous separation from other syllabus terms with which they may be confused (e.g. corrasion/corrosion)

2 Presentation of mark scheme:

- Slashes (/) or the word 'or' separate alternative ways of making the same point.
- Semi colons (;) bullet points (•) or figures in brackets (1) separate different points.
- Content in the answer column in brackets is for examiner information/context to clarify the marking but is not required to earn the mark (except Accounting syllabuses where they indicate negative numbers).

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3 Calculation questions:

- The mark scheme will show the steps in the most likely correct method(s), the mark for each step, the correct answer(s) and the mark for each answer
- If working/explanation is considered essential for full credit, this will be indicated in the question paper and in the mark scheme. In all other instances, the correct answer to a calculation should be given full credit, even if no supporting working is shown.
- Where the candidate uses a valid method which is not covered by the mark scheme, award equivalent marks for reaching equivalent stages.
- Where an answer makes use of a candidate's own incorrect figure from previous working, the 'own figure rule' applies: full marks will be given if a correct and complete method is used. Further guidance will be included in the mark scheme where necessary and any exceptions to this general principle will be noted.

4 Annotation:

- For point marking, ticks can be used to indicate correct answers and crosses can be used to indicate wrong answers. There is no direct relationship between ticks and marks. Ticks have no defined meaning for levels of response marking.
- For levels of response marking, the level awarded should be annotated on the script.
- Other annotations will be used by examiners as agreed during standardisation, and the meaning will be understood by all examiners who marked that paper.

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Annotations guidance for centres

Examiners use a system of annotations as a shorthand for communicating their marking decisions to one another. Examiners are trained during the standardisation process on how and when to use annotations. The purpose of annotations is to inform the standardisation and monitoring processes and guide the supervising examiners when they are checking the work of examiners within their team. The meaning of annotations and how they are used is specific to each component and is understood by all examiners who mark the component.

We publish annotations in our mark schemes to help centres understand the annotations they may see on copies of scripts. Note that there may not be a direct correlation between the number of annotations on a script and the mark awarded. Similarly, the use of an annotation may not be an indication of the quality of the response.

The annotations listed below were available to examiners marking this component in this series.

Annotations

Annotation	Meaning
	Correct point
	Incorrect point
BOD	Benefit of doubt
REP	Repetition (of stem or within response)
	Unclear point
GM	Generic mark
L1 L2 L3 L4 L5	Used to show Level 1, 2, 3, 4, or 5 in the 10-mark planning Q
NAQ	Not answering question

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Annotation	Meaning
	Acknowledge blank pages
	Something is missing
	Used for each point of description of a required feature in the 10-mark planning Q

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Question	Answer	Marks	Guidance
1(a)	**Define 'participant variable'.** Definition of participant variable = 1 • Individual differences between participants that can affect the dependent variable (and therefore confound results) = 1 • Internal differences between participants that can skew the results. • A trait that the participant has which may affect the results of the study.	**1**	
1(b)	**In the study by Bandura et al., participants were matched for aggression.** **Suggest how <u>one</u> other participant variable could have affected the levels of aggression shown by the children in this study.** Identification of a participant variable = 1 Effect on level of aggression = 1 Sensitivity to authority/authoritarian personality (identification) • If the child was very likely to obey, it might tend to copy the model more, so seem more aggressive; (effect) Age; (identification) • The older children in the sample might know aggression was not seen as socially acceptable.	**2**	Children's level of aggression = 0 unless they say matching was inadequate in some *specific* way

Question	Answer	Marks	Guidance
2	**Outline <u>one</u> way that the procedure was standardised in the study by Baron-Cohen et al. (eyes test).** Way standardised = 1 • All Ps given glossary; • All completed eyes test in a quiet room; • All were alone for the eyes test.	**1**	

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Question	Answer	Marks	Guidance
3	**A researcher is studying sex differences in attention. He puts an advertisement online for opposite-sex twins. He tests the attention of all the twins who respond and divides the results into 'males' and 'females' to compare the sexes.**		
3(a)(i)	**Identify the experimental design used in this study.** **Justify your answer.** Name **matched pairs** = 1 justification = 1 matched pairs (design); (name) • because the individuals in each group are similar as they are twins; (justification) Independent groups (design); (name) • as they were opposite sex twins, they would likely not be identical so there were some differences.	**2**	
3(a)(ii)	**Explain <u>one</u> strength and <u>one</u> weakness of the experimental design used in this study.** Strength/weakness = 1 ×**2** Detail ×**2** Strength: (matched pairs) overcome individual differences; (strength) • because twins are so similar; (detail) • there will be few differences other than the IV/gender; (detail) Weakness: There could still be differences/ are non-identical twins; (weakness) • This could affect the DV/could make the genders look more different than they really are; (detail) **IF independent groups are justified and scores 2 on part 3ai then full marks available for this section.**	**4**	

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Question	Answer	Marks	Guidance
3(b)	**Identify the sampling technique used in this study.** **Justify your answer.** Identification of **volunteer** = 1 [**definitive**] justification = 1 volunteer/self-selected; (identify) • because the individuals respond to an advert; (justification) • they choose to participate by replying to the online post; (justification)	**2**	

Question	Answer	Marks	Guidance
4	**Explain what is meant by 'subjectivity', using the study by Milgram (obedience) as an example.** explanation = 1 Milgram example = 1 Subjectivity is the tendency to take a personal viewpoint; (explain) it is taking an internal/self-related perspective; (explain) • When Milgram interpreted participants comments, he may have interpreted them on the base of his own expectation; (example) • He thought the stuttering was nervousness because of the obedience/authority but maybe they just stuttered; (example) **Note:** Do **not** accept what subjectivity is **not**.	**2**	

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Question	Answer	Marks	Guidance
5	**Describe counterbalancing and random allocation, using any example(s).** 1 mark for each definition/point of detail, up to a maximum of 2 for each term/concept. 1 mark for each example, max 2 for each term/concept. Examples can include examples from any studies (core studies, other studies, candidate's own studies). Max 4 if no examples or if only about one term/concept. Only 1 example needed to access 6 marks. ***Counterbalancing***: • by having different groups of participants do the conditions in different orders/ABBA technique; (definition) • it controls for order /fatigue/practice effects; (detail only accept once) • e.g. one group does 'before eating' one day and 'after eating' the next day and the other group does 'after eating' one day and 'before eating' the next day; (own example) **Example** • Andrade could have had two phone calls and had half the Ps doodle with one first and not doodle second and the other half the other way round; (core study) • Hassett used counterbalancing to switch the wheeled and plush toys. • Pozzulo counterbalanced the sequence (cartoon or human) of stimuli participants were tested on. ***Random allocation*:** • Each participant has an equal chance of being assigned to each group / condition / level of the IV; (definition) • E.g. give all Ps a number, putting them in a hat and the first half of the numbers pulled out go in one condition; (definition/detail) • Helps to reduce order /fatigue/practice effects; (detail only accept once) • Sample of students and use school roll numbers in a random number generator to allocate them to the two IV levels; (detail)	**6**	Random sampling = 0 [incorrect]

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Question	Answer	Marks	Guidance
5	**Example** • After matching participants for aggression Bandura randomly allocated participants to the aggressive and non-aggressive condition. • Andrade randomly allocated participants to the doodling and non-doodling group.		

Question	Answer	Marks	Guidance
6	**Callum conducted an experiment to test whether there is a difference in dream content between people who exercise daily and people who do <u>not</u> exercise daily.**		
6(a)	**Callum's hypothesis predicted that 'People who exercise daily will have more dreams about physical activity than people who do <u>not</u> exercise daily.'**		
6(a)(i)	**Explain whether Callum's hypothesis was directional (one-tailed) or non-directional (two-tailed).** 1 mark for **explanation** of why directional • Directional **because** he says which way the difference will be; • Directional **because** he says the exercisers will have more active dreams than the non-exercisers; Directional [DEFINITIVE] but mark is for **explanation**	**1**	

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<table>
<tr><th>Question</th><th>Answer</th><th>Marks</th><th>Guidance</th></tr>
<tr><td>6(a)(ii)</td><td>Callum’s results are shown in <u>Table 6.1</u>.

State <u>one</u> conclusion from Callum’s results about the mean number of dreams.

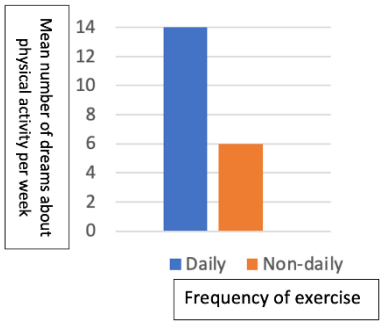
1 mark for conclusion / why accept hypothesis
The exercisers had more active dreams than the non-exercisers;
He should accept his hypothesis as People who exercise daily had more active dreams;

<table><tr><th>Table 6.1</th><th>Mean number of dreams about physical activity per week</th><th>Standard deviation</th></tr><tr><td>People who exercise daily</td><td>14</td><td>2.1</td></tr><tr><td>People who do not exercise daily</td><td>6</td><td>5.3</td></tr></table></td><td>1</td><td>No marks for repeating the results.</td></tr>
<tr><td>6(a)(iii)</td><td>Explain what the standard deviation shows about the participants’ dream content.

1 mark for explanation about spread/difference etc
1 mark for detail;
For 2 marks the answer must be linked

Bigger numbers indicate more spread; (generic explanation)
• So, the non-exercisers (5.3) showed more variation in dreams than the exercisers (2.1); (linked detail)
• The non-daily exercisers’ results were more spread; (linked explanation)
• Which showed that some of them had hardly any active dreams but some had lots; (detail)
• The daily exercisers’ results were less spread; (linked explanation)
• Because they all had similar amounts of active dreams whereas the non-exercisers varied more; (detail)</td><td>2</td><td></td></tr>
</table>

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Question	Answer	Marks	Guidance
6(a)(iv)	**Draw a bar chart of Callum's results about the mean number of dreams from Table 6.1, on the axes provided. You must label the axes.** 1 mark for each correct feature. Max 3 marks if bars are not separate.  *x*-axis label: 'Exercise level of participants (or wording to that effect) *x*-axis units: Daily / Non-daily; *y*-axis label: Mean number of dreams (about physical activity per week) *x*-axis units: at least 6–14; all bar heights correct;	**4**	

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Question	Answer	Marks	Guidance
6(b)	**Suggest how Callum could have controlled <u>two</u> of the following extraneous variables in his study:** • **age** • **hours of sleep per night** • **stress levels.** Suggestion = 1 ×**2** Justification in relation to Callum's study = 1 ×**2** *Age:* e.g. taking some people from each age group/taking people similar age groups; (control) • as older people who used to be active might still have active dreams (even if they do not exercise much now); (justification) *Hours sleep per night:* e.g. record hours of sleep and check there is a spread/make sure they are similar; (control) • because if they slept less they would have fewer dreams anyway (so fewer would be active); (justification) *Stress*: e.g. ask how stressed they feel and check there is a spread/that they are similar/none are too stressed (control) • as stress might cause 'running away' dreams which would be active (even without exercise); (justification)	**4**	Note: 'Have two **age** etc groups' **= 0 [NAQ]** (another IV, not a control) Control of hours of sleep-in multiple groups **= 1** Control of stress in multiple groups **= 0 [not ethical]** **Ensure they are similar in terms of sleep/stress levels is creditworthy.**

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Question	Answer	Marks	Guidance
7	**Kirra is using her local cinema to conduct a naturalistic, participant observation. She is studying the way that people respond to film scenes. She has collected data about people's responses, using the following behavioural categories:** • **laughing** • **smiling** • **yawning.**		
7(a)(i)	**Suggest how Kirra could operationalise <u>two</u> of these behavioural categories.** **Behavioural category 1: ……..** **Behavioural category 2: ……..** 1 mark for operationalisation (**must** be observable) **x2** • *Laughing*: noise from open mouth • *Smiling*: upward turn of lips • *Yawning*: open mouth for more than one second	**2**	These are examples, there will be many acceptable definitions (consider cultural differences).
7(a)(ii)	**For <u>each</u> of your suggestions for the operationalisation of categories in <u>7(a)(i)</u>:** **Explain why Kirra could incorrectly categorise the behaviour of a participant.** **1: ……..** **2: ……..** 1 mark for explanation ×**2**. (**not** for identifying the category or for suggestion alone, must refer to **incorrect categorisation**). • *Laughing*: may not be able to hear **so** call it a yawn; • *Smiling*: dark so hard to see **so** can't see if it is yawning or laughing; • *Yawning*: people may put their hand over their mouth **so** it could be smiling;	**2**	These are examples, there will be many acceptable responses.

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Question	Answer	Marks	Guidance
7(b)	**Kirra wants to repeat her study as a controlled, non-participant observation, using the same behavioural categories.** **Suggest how Kirra would change her procedure. You do <u>not</u> need to refer to the behavioural categories in your answer.** 1 mark for describing controlled observation 1 mark for link to Kirra 1 mark for describing non-participant observation 1 mark for link to Kirra *Controlled observation*: set up situation to be observed; (describe) • E.g. use lab to show film; (link) *Non-participant observation*: observer (role) hidden/observer does not get involved in the situation; (describe) • E.g. use a camera / one way mirror; (link)	**4**	

Question	Answer	Marks	Guidance
8	**Wesley is interviewing people who completed a mindfulness course. He wants to investigate whether the course was useful.**		
8(a)	**Suggest <u>two</u> different question formats that Wesley could use.** **Format X:…….** **Format Y:…….** 1 mark per format, ×2 [definitive] Open questions Closed questions	**2**	Examples, e.g. Likert/rating scales = 0

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Question	Answer	Marks	Guidance
8(b)	**Wesley needs <u>two</u> questions to find out whether the mindfulness course was useful.** **Using your question formats from <u>8(a)</u>:** **Suggest <u>two</u> questions that Wesley could use. <u>One</u> question should use Format X, and <u>one</u> question should use Format Y.** **Question using Format X:……** **Question using Format Y:…….** 1 mark per complete question related to topic x 2 Max 1 mark if both questions use the same format *Open*: • Describe whether the mindfulness course was helpful or not; • Explain how mindfulness has helped you; • Tell me what was most positive about the mindfulness course; *Closed:* • Rate how useful you found the course (0 *Not useful* to 5 *Very useful*); • Which of the following has the mindfulness helped you with? Health / well-being / sleep / pain (tick all that apply); • Was the course helpful *<u>or not</u>*?;	**2**	Age / sex / ethnicity = 0 [NAQ]

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Question	Answer	Marks	Guidance
8(c)	**Suggest <u>one</u> advantage of using <u>one</u> of the questions that you suggested in <u>8(b)</u>, compared to your other question.** strength without comparison = 1 mark linked advantage in relation to alternative question = 2 marks Question X (open) would be better because it would give detail = 1 As QX (open) has descriptions of mindfulness uses it gives more detail than QY which just gives totals = 2 QX (open) is more detailed but QY is only quantitative = 1 (no link) QY (closed) can be analysed/compared easily = 1 QY (closed) can be analysed easily but QY needs interpretation = 1 (no link) QY (closed) allows easy comparison of usefulness of the course but QX needs interpretation = 2	**2**	Note: X and Y may be the other way round

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Question	Answer	Marks	Guidance
9	**When Lorna is travelling on public transport, many passengers are wearing headphones to listen to music. She wants to investigate whether there is a relationship between the amount of time people spend on public transport and their musical knowledge.**		
9(a)	**Describe how Lorna can conduct a correlational study to investigate the relationship between the amount of time spent on public transport and musical knowledge.** **Do <u>not</u> describe sample / sampling technique or ethical issues / guidelines in your answer.** The four required features for **correlational study** are: (a) **identifying two co-variables** i.e. ***time*** *travelling by public transport* and **<u>level of</u>** *musical knowledge* [i.e. must be a **correlation**] (b) **measure of time travelling**: (e.g. number of hours/minutes e.g. on train. How this is **measured**, e.g. observation-categories? /questionnaire-Qs?) (c) **measure of musical knowledge**: (**operationalisation** e.g. **how**? questionnaire/ interview, actual **measure**, e.g. questions, score) (d) **nature of relationship**: (what will be done with the data, e.g. totals, tables, scatter graph) To mark **Q10(a)**, create four 'imaginary columns' down one margin, using one column for each of the four required features. Tick each feature (**tick-a, tick-b, tick-c, tick-d**) when it appears, then underline the letter (a) for **detail**. Use L1, L2, L3, L4, L5 at the end of the response to indicate the **level**.	**10**	

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<table>
<tr><th>Question</th><th>Answer</th><th>Marks</th><th>Guidance</th></tr>
<tr><td>9(a)</td><td>Use the table below to mark candidate responses to this question.

<table>
<tr><th>Level</th><th>The response:</th></tr>
<tr><td>Level 5
9-10 marks</td><td>• has all the required features, all with <u>detail</u>, with mostly appropriate terminology.
AND
• clearly applies knowledge of methodology involved in planning an investigation.</td></tr>
<tr><td>Level 4
7–8 marks</td><td>• has all the required features, but only some of these with <u>detail</u>, with some appropriate terminology.
AND
• applies knowledge of methodology involved in planning an investigation.</td></tr>
<tr><td>Level 3
5–6 marks</td><td>• has some of the required features with <u>detail</u> / all of the required features with <u>no</u> <u>detail</u>, and some appropriate terminology.
AND
• applies a basic knowledge of methodology involved in planning an investigation.</td></tr>
<tr><td>Level 2
3–4 marks</td><td>• has at least two of the required features, with little appropriate terminology.
AND
• attempts to use knowledge of methodology involved in planning an investigation.</td></tr>
<tr><td>Level 1
1–2 marks</td><td>• has one of the required features and uses little appropriate terminology.
AND
• makes a limited attempt to use knowledge of methodology involved in planning an investigation, e.g. may not use the method required by the question.</td></tr>
<tr><td>0 marks</td><td>No creditable response.</td></tr>
</table>

Other appropriate responses should also be credited.</td><td></td><td></td></tr>
</table>

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Question	Answer	Marks	Guidance
9(b)(i)	**Explain <u>one</u> strength of your measure of musical knowledge.** **Do <u>not</u> refer to sampling or ethics in your answer.** Identification of = 1 **explanation** (generic or linked) = 1 Part of procedure may relate to: • operationalisation • situational / participant variables factors • standardisation • consistency within/between raters. Accept other practical strengths	**2**	Not quantitative data as it has to be for correlational data. **No marks for: ethics or sampling as instructed not to**
9(b)(ii)	**Explain <u>one</u> problem with the validity of your measure of musical knowledge.** **Do <u>not</u> refer to sampling or ethics in your answer.** Identification of = 1 **explanation** (generic or linked) = 1 Part of procedure may relate to: • operationalisation • situational / participant variables factors • standardisation Accept other practical influences on validity	**2**	Not quantitative data as it has to be for correlational data. **No marks for: ethics or sampling as instructed not to**

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