CAMBRIDGE
International Education

Cambridge International AS & A Level

PSYCHOLOGY **9990/21**

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.

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.

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).

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.

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

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

Question	Answer	Marks	Guidance
1(a)	**Outline what is meant by the 'aim' of a study.** Outline = 1 An aim is the: • purpose/intention/goal/reason/objective of a study;	**1**	An aim is what the researcher intends to investigate = 1. What they are trying to *prove*; IVs & DVs, 'like a hypothesis' = 0 (NAQ) Where there are two answers, mark first only
1(b)	**Describe <u>one</u> aim from the study by Saavedra and Silverman (button phobia).** Brief description = 1 Detail = 1 (one of these marks must be **linked** to the study) To study button phobia in a **9-year-old / boy;** (brief description) To **treat/reduce** a (9-year-old) boys button phobia (brief description) To explore the cause of his phobia; (description OR detail) • such as exploring the cause of his phobia; (desc/detail) • using classical conditioning / exposure therapy (detail) • using self-control strategies; (detail) and reduce his fear/disgust related to buttons; (detail)	**2**	'To study button phobia' = 0 [REP]

Question	Answer	Marks	Guidance
2	**In the study by Dement and Kleitman (sleep and dreams), an EEG (electroencephalogram) was used. Explain why an EEG was used.** explanation of EEG function = 1 or 2 linked detail = 1 or 2 **Explanation** • an EEG detects brain waves/activity; • an EEG detects eye movements; • An EEG helps to study sleep stages / whether someone is dreaming; **Linked detail** • used to measure eye movements so they can link it to dream content; (link) • used to know when to wake people in either REM/NREM sleep; (link) • used to wake people to ask for a dream description/narrative; (link) • used to time length of REM to compare to dream length; (link)	**3**	Must have minimum 1 function of the EEG and 1 link mark for full 3 marks (so cannot have 3 function points, for example – measure brain waves, sleep stages and eye movements)

Question	Answer	Marks	Guidance
3(a)	**From the study by Pozzulo et al. (line-ups):** **State <u>one</u> similarity between the sample of adults and the sample of children.** Similarity = 1 • size of sample (adults 53, children 59); • genders (both had males and females); • all from Canada/(Eastern) Ontario; • awareness of Dora and Diago.	**1**	Do **not** credit sampling method. Cartoons = 0 (too vague)
3(b)	**Suggest <u>one</u> other way that the samples should have been similar. Justify your answer in relation to the study by Pozzulo et al.** Suggestion of a way = 1 Justification (linked)= 1 **Suggestion of a way.** • Ethnicity; (way) • Experience of court proceedings; (way) • Intelligence/memory; (way) **Justification**. • Because that may make faces more/less recognisable • Because practice at line-ups may improve recognition • If one sample had better memories it would skew the results.	**2**	Equal number of adult and children = 0 (they were too similar to be a problem) Same amount in terms of gender = 0 *Accept*: • Left & righthanded • Eyesight Age/Gender = 0

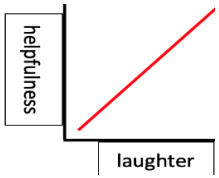
Question	Answer	Marks	Guidance
4(a)	**Define 'ecological validity'**. Definition = 1 • Whether **results** from one situation would apply to another; • Whether **results** can be generalised/applied to real-world settings. • Whether **performance on a test** can predict behaviour in the real world / everyday life. Whether **tasks/procedures** are relevant to / representative of everyday life.	**1**	Whether results from a lab apply to the real world' = 0 Extent to which research can be applied to real life settings = 1 Accept 'everyday life' and 'natural setting/environment'
4(b)	**Explain <u>two</u> ways that the study by Perry et al. (personal space) had low ecological validity.** Identification of way = 1 × 2 Explanation = 1 × 2 Needs to be **<u>related to Perry et al.</u>** in some way for any marks. i.e. it was done in a lab is generic so would get 0. • (Some) Ps were given **oxytocin**; (way) • This is not routinely given to people; (explanation) • The '**approaching figures'** (in Exp 1/CID) were not real; (way) • Ps might react differently to actual people; (explanation) • One '**approaching figure'** was a ball, which is artificial/not relevant as it's not a person; (way the task is artificial) • As in real life you wouldn't count a ball as invading your personal space (as you'd catch it normally); (explanation) • As in real life you wouldn't want a ball to stop a certain distance away from you (explanation)	**4**	

Question	Answer	Marks	Guidance
4(b)	• The **'choosing room'** in (Expt 2) was not real; (way) • We make decisions about furniture in offices or houses normally; (explanation) • Which means that decisions made in real life will be based upon other factors i.e. space/use etc (explanation) • The **choosing room** had very little in it / we cannot move furniture in public; (way) • There is not the same scope to move furniture in real room (as there is not space)s; (explanation)		

Question	Answer	Marks	Guidance
5	**Describe the following ethical guidelines relating to animals, using any example(s):** • **replacement** • **species.** 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. ***Replacement:*** • replace animal experiments with alternatives where possible; (definition) • as replacement avoids harm/distress to animals; (animal guidelines only – only use point once) • use videos from previous studies; (detail or e.g.) • computer simulations; (detail or e.g.) • technological progress means that some studies previously using animals are now possible on humans; modern studies on brain function are less invasive e.g. use EEG/ fMRI; (detail or e.g.) • human emotion/behaviour/cognition different from animals; • the effects of doodling in Andrade's study could not be studied in animals; (detail or e.g.) **Note**: 'Replacement' is not about replacing one individual animal with another in a study nor about replacing one species with another that will suffer less (this relates to 'species and strain')	**6**	Do not accept anything that suggests about replacing animals in the study if they are harmed. *Replacement:* Accept: Cells/tissues/embryos *Species*: Use fewer of a species = 0 = NAQ (about numbers not species)

Question	Answer	Marks	Guidance
5	***Species:*** • use the species that will suffer the **least**; (description) e.g. sentient animals will suffer more; (detail) • use a species that will fulfil the aim of the research; (description or detail) e.g. one like us that was social/ had colour vision/ is clever; (detail) e.g. if you are using small or narrow spaces you should get a small animal such as a rat. • use mice as they suffer **less** than chimps; (detail) • Use species that are not endangered = 1 (max) (description only) **Example** • Hassett et al. used monkeys as they socialise and play similarly to humans therefore can fulfil the aim. • Fagan et al. used elephants as the aim of the study was to improve tuberculosis (TB) testing		

Question	Answer	Marks	Guidance
6(a)(i)	**Petra thinks that people who laugh more are more helpful. She decides to conduct a correlational study to investigate whether there is a relationship between these two variables.** **Petra needs to measure laughter.** **Suggest <u>two</u> ways that Petra could measure laughter.** 1 mark for way to measure laughter × **2** **This needs to be measurable therefore "observe them laughing" is not enough.** • Observe **time** spent (laughing) • Record **frequency** of laughing; • Measure **volume** of laughter; • Record laughter and **time it** afterwards; • **Rating scale** (e.g. 1–10) to assess how much someone was laughing	**2**	Must be measure of **laughter**, not indicators, so oxytocin, blood pressure, pulse rate etc = 0 = **NAQ**
6(a)(ii)	**For <u>one</u> of the ways you suggested in <u>6(a)(i)</u>:** **Explain <u>one</u> advantage of this way compared to your other suggestion.** 1 mark for advantage of one way to measure laughter 1 mark for comparison Record laughter, time it after is better as it can be covert; (ad) • Whereas observing/having a decibel meter could cause demand characteristics (as it is obvious to Ps); (comparison)	**2**	If 1 creditworthy measurement, they can get 1 mark for a strength but not the second mark (as there is no comparison) A term, e.g. 'not valid' is not enough. If no answer in **6(a)(i)**, can't give credit in **6(a)(ii)**.

Question	Answer	Marks	Guidance
6(a)(ii)	Timing the laughing is better as 'longer' means more laughter; (ad) • But volume of laughter can depend on the individual's voice; (comp) Timing is an objective measure • whereas a rating is a subjective measure.		
6(b)(i)	**The results show that there is a positive correlation between laughter and helpfulness** **Sketch a graph to show these results. You <u>must</u> label the axes.**  **Axis labels**: laughter **and** helpfulness (either way round) **Line/line of points**: must be positive slope	**2**	For full 2 marks, must be a scatter graph.

Question	Answer	Marks	Guidance
6(b)(ii)	**Petra's colleague says that young people laugh more than old people and young people are also more helpful. This is <u>not</u> the only explanation for the positive correlation between laughter and helpfulness.** **Suggest <u>two</u> other explanations for this positive correlation.** 1 mark for a suggested explanation [× 2] • People who laugh more are kinder, so help more; • People who laugh more are more sociable so will be more helpful; • People who work in caring professions need a sense of humour, so laugh a lot, but are also more likely to help than non-care workers; • Laughing increases dopamine/oxytocin, which encourages helpfulness.	**2**	If they suggest issues with the way that they measured as an explanation for their results i.e. as used a questionnaire then it may be due to issues of social desirability than the variables then credit. Answers about age are 0 = **NAQ**

Question	Answer	Marks	Guidance
7(a)	**A researcher is conducting a case study of a teenager, Jilbert, whose doodling helps him to concentrate in lessons. The researcher will study Jilbert's emotions, behaviour and thoughts.** **The researcher plans to give Jilbert a questionnaire to complete. Suggest <u>three</u> open questions that could be included, <u>one</u> to investigate each of Jilbert's:** • **emotions** • **behaviour** • **thoughts.** 1 mark for open question for each of thoughts, emotions and behaviours. If it is not clear which the point relates to, max 1 mark. *Emotions:* 'Explain how you feel when you can/cannot doodle?' *Behaviour:* 'Tell me about how you doodle.' *Thoughts:* 'Describe why you doodle?'	**3**	Not how or what "why" is creditworthy

Question	Answer	Marks	Guidance
7(b)	**The researcher plans to interview Jilbert's teacher about his behaviour. Suggest <u>two</u> closed questions that could be used.** 1 mark for each closed question. 1 mark for answer choices (acceptable if choices within question) How long does Jilbert doodle for? 5, 10, 15 minutes; When does he doodle most; before or after lunch? Rate on a scale of 1 to 10 how frequently Jilbert doodles in lessons: Never doodles 1 2 3 4 5 6 7 8 9 10 Always doodling	**4**	
7(c)	**Suggest <u>one</u> reason why the information obtained in this study may <u>not</u> be valid.** Reason for poor validity (generic) = 1 Linked detail = 1 Demand characteristics as he knows about the study; (reason) • so, he could doodle more/less than usual; (detail) Teachers may be biased in their reporting (if they have told him off for doodling/are very impressed with his doodling); (reason) • so, they may under / over report his doodling; (detail)	**2**	Do **not** credit generalisability related to a single participant as NAQ

Question	Answer	Marks	Guidance
7(d)	**Suggest <u>one</u> ethical problem with this study.** Ethical difficulty = 1 Linked detail = 1 He cannot give **valid** consent; (problem) • Because he is in **school**; (detail) He may **feel** he cannot withdraw; (problem) • Because he is always in trouble/is scared of his **teachers**/teachers and researchers are **adults** so seen as **authority figures**; (detail) There may be issues with confidentiality; (problem) • Because the research mentioned the boy's **name/Jilbert** so he could be identified; (detail) They may invade the boy's privacy; (problem) • Because **he** may not want to talk about **his personal** thoughts and feelings; (detail) There may be issues of distress/psychological harm; (problem) • Because **he** may feel embarrassed talking about **his thoughts** and feelings/doodling; (detail)	**2**	A second mark for confidentiality cannot be given if they link it to the fact it is only one person alone. Do **not** credit deception and debriefing Consent **cannot** be given (from child or parent) unless: • 'valid' or 'felt forced' (1 mark) [Because school/adults etc (2)] • it is accompanied by a creditworthy justification (2 marks) Right to withdraw **cannot** be given unless: • 'feel they cannot' (1 mark) [Because school/adults etc (2)] • it is accompanied by a creditworthy justification (2 marks)

Question	Answer	Marks	Guidance
8(a)(i)	**Nolan is planning a longitudinal study. He aims to investigate whether there are changes in theory of mind during late adolescence and early adulthood.** **Nolan will use a volunteer sample of 17-year-olds and study them until they are 27 years old.** **Outline what is meant by a 'volunteer sample'.** 1 mark for outline • Self-selecting group; • People who choose to become part of the sample;	**1**	From/use an advertisement = 0
8(a)(ii)	**Suggest <u>one</u> way that Nolan could recruit a volunteer sample for his study.** 1 mark for suggestion (can be generic) 2nd mark for link to adolescents (e.g. wording or location) Put up an advert; (generic suggestion) • Asking for 17-year-olds; (link) Request for participants on TV; (generic suggestion) • Between types of shows that adolescents like; (link)	**2**	Need some link to teenagers/adolescents/17-year-olds for the second mark

Question	Answer	Marks	Guidance
8(b)(i)	**Nolan will need to recontact his participants for retesting during the study. However, he knows that he may lose contact with some participants.** **Suggest <u>one</u> way that Nolan could recontact his participants to retest them. Justify your suggestion.** 1 mark for identification 1 mark for justification Postal address; • because people do not move often; • more formal (so better for research); Phone number; • because people keep their phone number (even when they change phone); • people always carry phones; email address; • because people have email on their phones; • can tell when they have been received/read; Social media; • because young people use it a lot; • quicker than post;	**2**	**Accept** reasons 'against' other methods

Question	Answer	Marks	Guidance
8(b)(ii)	**Explain <u>one</u> reason why being unable to recontact participants could affect the results of Nolan's study.** 1 mark for explanation of impact (can be generic) 1 mark for detail linked to results on theory of mind Results could become biased; (generic explanation) • If Ps with worst theory of mind drop out; (linked detail) Results won't represent the people who cannot be contacted; • So, if they are all one group, e.g. best theory of mind they won't be included; (linked detail) • Which means that the results will not be generalisable to the development of theory of mind in 17-year-olds • Cannot see changes over time; As changes could happen after they have been lost	**2**	Don't accept generalisability for first mark. Accept less representative of population "unable to test changes over time" = 1

<table>
<tr><th>Question</th><th>Answer</th><th>Marks</th><th>Guidance</th></tr>
<tr><td>9(a)</td><td>Gladys is interested in the toy preferences of girls and boys. She is going to conduct a field experiment in a children's nursery.

Describe how Gladys could conduct a field experiment in a children's nursery to investigate which toys girls prefer and which toys boys prefer.

Do <u>not</u> describe sample/sampling technique or ethical issues/ guidelines in your answer.

The four required features for this field experiment are:
(a) independent variables: sex [and toy type] (girls and boys, indication of any way the two samples are alike, e.g. age [how toy type decided / examples of 'girls' and 'boys' toys)]
(b) dependent variable: interest in toys (e.g. time spent looking at/touching/playing with them, number played with, how measured e.g. observe)
(c) controls/standardisation; 2 aspects identified (e.g. size / noisiness / familiarity of toys).
(d) experimental design: must be independent measures for sex: males compared/between/or females [must be repeated measures for toy type, 'counterbalancing' = just enough for a single tick-d] One or the other IV must have detail for underline, e.g. 'naturally occurring IV' IV sex, males and females.

Other appropriate responses should also be credited.</td><td>10</td><td>To mark Q9(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.

<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>
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.</td></tr>
</table>

<table>
<tr><th>Question</th><th>Answer</th><th>Marks</th><th>Guidance</th></tr>
<tr><td>9(a)</td><td></td><td></td><td>
<table>
<tr><th>Level</th><th>The response:</th></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>
</td></tr>
</table>

Question	Answer	Marks	Guidance
9(b)(i)	**Explain <u>one</u> ethical problem that could arise in the study you have described in <u>9(a)</u>.** **Do <u>not</u> refer to sampling in your answer**. Brief explanation = 1 **detailed or linked explanation** = 2 Ethical problem may relate to: • children generally • valid consent • privacy • withdrawal • protection from harm (e.g. disappointed if cannot have toy / embarrassed about wanting 'other sex' toy) **No marks for: sampling technique as instructed not to**	**2**	
9(b)(ii)	**Explain how the ethical problem you described in <u>9(bi)</u> could be reduced.** **Do <u>not</u> refer to sampling in your answer**. brief explanation = 1 **detailed or linked explanation** = 2 Reduction of problem may relate to: • consent from children/parents/presumptive • debriefing Other appropriate responses should also be credited.	**2**	