CAMBRIDGE
International Education

Cambridge International AS & A Level

PSYCHOLOGY **9990/22**

Paper 2 Research Methods **May/June 2024**

MARK SCHEME

Maximum Mark: 60

Published

This mark scheme is published as an aid to teachers and candidates, to indicate the requirements of the examination. It shows the basis on which Examiners were instructed to award marks. It does not indicate the details of the discussions that took place at an Examiners' meeting before marking began, which would have considered the acceptability of alternative answers.

Mark schemes should be read in conjunction with the question paper and the Principal Examiner Report for Teachers.

Cambridge International will not enter into discussions about these mark schemes.

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Generic Marking Principles

These general marking principles must be applied by all examiners when marking candidate answers. They should be applied alongside the specific content of the mark scheme or generic level descriptions for a question. Each question paper and mark scheme will also comply with these marking principles.

GENERIC MARKING PRINCIPLE 1:

Marks must be awarded in line with:

- the specific content of the mark scheme or the generic level descriptors for the question
- the specific skills defined in the mark scheme or in the generic level descriptors for the question
- the standard of response required by a candidate as exemplified by the standardisation scripts.

GENERIC MARKING PRINCIPLE 2:

Marks awarded are always **whole marks** (not half marks, or other fractions).

GENERIC MARKING PRINCIPLE 3:

Marks must be awarded **positively**:

- marks are awarded for correct/valid answers, as defined in the mark scheme. However, credit is given for valid answers which go beyond the scope of the syllabus and mark scheme, referring to your Team Leader as appropriate
- marks are awarded when candidates clearly demonstrate what they know and can do
- marks are not deducted for errors
- marks are not deducted for omissions
- answers should only be judged on the quality of spelling, punctuation and grammar when these features are specifically assessed by the question as indicated by the mark scheme. The meaning, however, should be unambiguous.

GENERIC MARKING PRINCIPLE 4:

Rules must be applied consistently, e.g. in situations where candidates have not followed instructions or in the application of generic level descriptors.

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GENERIC MARKING PRINCIPLE 5: Marks should be awarded using the full range of marks defined in the mark scheme for the question (however; the use of the full mark range may be limited according to the quality of the candidate responses seen).
GENERIC MARKING PRINCIPLE 6: Marks awarded are based solely on the requirements as defined in the mark scheme. Marks should not be awarded with grade thresholds or grade descriptors in mind.

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Social Science-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 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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Guide to marking annotations

BOD	benefit of doubt	✓	correct point [use **one tick per mark** except in last question part (a)]	✗	incorrect point	✓a ✓b ✓c ✓d	use for each point of description of a **required feature** in part (a) of last Q
NBOD	no benefit of doubt	GM	indicates a point is a Generic Mark	CONT	continued (use 'link' icon)		
A	'something is missing'	?	unclear point	NAQ	not answering question		
REP	repetition (of stem/ within response)		use wiggly underline/ highlighter to bring attention to a key part	✓a	underline letter-tick when required feature is in enough ***detail***	L1 L2 L3 L4 L5	use to show Level 1, 2, 3, 4 or 5 in part (a) of last Q

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Important marking guidelines for reference

NR or zero	**Award No Response (NR):** • if there is nothing written at all in the answer space • if there is any comment un elated to the question being asked (e.g. 'can't do', 'don't know') • if there is any sort of mark which isn't an attempt at the question (e.g. a dash, a question mark). Note: you can press the # or / key to enter NR **Award Zero (0):** • if there is any attempt that earns no credit, eg the candidate copying all or some of the question, or any working that does not earn any marks, whether crossed out or not.
Crossed out work	Please note that if a candidate crosses out a question and does not re-attempt the same question, you must attempt to mark the crossed out work.
Annotate every question	Please place a marking icon on **every question** and to indicate each mark awarded (**number of ticks = number of marks** on all questions except part (a) of the last question). However, you do **not** need to put 'seen' on NR spaces.

Question	Answer	Marks	Guidance
1(a)(i)	**State the <u>two</u> main features of a case study.** Single unit / person is studied = 1 (definitive) In depth / detailed study = 1 (definitive). **Accept** two points on one line	**2**	Longitudinal / over a long time = 0 Aim to give therapy = 0 Rare case = 0 Lots of data = 0
1(a)(ii)	**Explain why the study by Saavedra and Silverman (button phobia) was a case study, in relation to these <u>two</u> main features.** Just one boy (and his mum) = 1 (single unit) History of his phobia; (in depth) Measurement of his phobia; (in depth) Monitoring change in his phobia; (in depth)	**2**	Why single unit = 1 **Why** in depth = 1

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Question	Answer	Marks	Guidance
1(b)	**Explain <u>one</u> way to improve validity in a case study.** Triangulation / use several different sources of data; (way) to confirm that each data source support the same findings / interpretation; (detail) e.g., using interviews, with them and family, questionnaires, observations; (any two) Use pre-validated measures; (way) e.g., standardised tests of personality; (detail) this would reduce researcher bias; (detail) Use several different methods to get in depth data; (way) e.g., use observations and interviews; (detail) as people might do things you can see that they would not say in interview; (detail) Use both qualitative and quantitative data; (way) to balance depth and being able to compare / analyse / measure; (detail) e.g., to get opinions about what something feels like and measure it with a machine; (detail) Maintain distance between the researcher and P; (way) to ensure objectivity; (detail) because if they built a relationship the researcher might become biased; (detail) Use standardisation / operationalisation (of data collected); (way) to ensure objectivity / avoid bias; (detail) e.g., if observing have categories with definitions; (detail)	**3**	Way = 1 Detail = 2 (detail can include any example)

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Question	Answer	Marks	Guidance
2	**Kanav wanted to recruit participants from his town for his study. He put an advertisement into the window of every shop in his town and used all the people who responded as his sample.**		
2(a)(i)	**Explain the sampling technique Kanav used.** Volunteer / self-selecting = 1 (definitive) Using people who **choose** to participate / **respond** to a request /advertisement to participate = explanation. The participants are those who were willing to take part = explanation;	**2**	Identification of sampling technique = 1 Explanation = 1
2(a)(ii)	**Suggest <u>one</u> weakness of using this sampling technique in Kanav's study.** Low generalisability / poor representation (of variety in the population); (weakness) Sample will only include shoppers / ones who responded to his advert; (link) Could include people who are not 'from his town' (e.g., delivery people, visitors); (link).	**2**	Weakness = 1 Link = 1

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Question	Answer	Marks	Guidance
3(a)	**A study has the hypothesis 'Four-year-old children make more language mistakes than eight-year-old children.' State whether this hypothesis is a:** • **directional hypothesis** • **non-directional hypothesis** • **null hypothesis** directional hypothesis (definitive)	**1**	
3(b)	**Explain the reason for your choice in part <u>(a).</u>** It says which level of the IV will be better/higher; (generic) It says which IV level, in this case **older children**, will be '**better'**; (link) As it states the causal effect of **older age** causing **fewer mistakes**; (link)	**2**	Generic response = 1 Linked response = 2 'Shows *direction* of results' = 0 = **REP**

Question	Answer	Marks	Guidance
4	**The study by Hassett et al. (monkey toy preferences) used animals.** **Outline <u>two</u> named ethical guidelines in relation to the use of animals in this study.** minimising harm / pain, suffering and distress / reward, deprivation and aversive stimuli; Not physically / psychologically hurting monkeys; monkeys sense pain; Replacement; use alternatives e.g., previous videos of monkeys; species; monkeys are clever so useful as human models; numbers; use as few (monkeys) as possible; (procedures) housing; Animals need enough space / monkeys are big, move; they need to be kept with conspecifics.	**4**	Name of animal guideline = 1 ×**2** Link to monkeys / Hassett = 1 ×**2** **Note:** 'Lots of space and controlled temperature' = 0 = **NAQ as just description.**

Question	Answer	Marks	Guidance
5	**In the study by Baron-Cohen et al. (eyes test), a control task was used to be certain that the AS / HFA participants could use information from pictures of eyes to make simple judgements.**		
5(a)	**Identify this control task.** Gender (recognition) = 1 (definitive)	**1**	Accept judgement of male / female
5(b)	**Outline what participants were required to do in this control task.** To judge the gender/sex of each person in each **photograph** / of **the eyes** = 1 (**definitive**)	**1**	'To say whether they/ a person was male of female' = 0 'To say whether a (person in) a **photograph** was male of female' = 1

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Question	Answer	Marks	Guidance
6	**Describe how variables in correlations can be measured, using any example(s).** 'How' may be interpreted as the technique, the measurement, or the operationalisation of the variable. Any is acceptable. *Interview / questionnaire*: (closed Qs with ratings, numerical scores assigned to Likert scales, open questions used to generate continuous score); *tests / tasks*: generating numerical values; percentages; totals; *observations:* tallying of behavioural categories; durations. Baron-Cohen: AQ / IQ / eyes test; Dement & Kleitman: number of words in narrative and dream duration / time in REM sleep; Piliavin et al.: group size (number of individuals) and frequency of helping;	**6**	1 mark per definition/point of detail, max 2 for each term / concept. 1 mark per example, max 2 for each term / concept. Examples can be any studies (core studies, other studies, candidate's own). Max 4 if no examples or if only one term / concept. Only 1 example needed to access 6 marks. **Note:** Any point **must** relate to a **continuous variable**, otherwise = 0 for that point.

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Question	Answer	Marks	Guidance
7	**Chyou is conducting a self-report about students' subject choices.** **Four of her questions are:** **A Describe how much you like maths.** **B How much do you enjoy studying science? 0 = do not enjoy it at all, 5 = enjoy it a lot.** **C "I have always known what subjects I want to study." To what extent do you agree with this statement? strongly agree/ agree/ neither agree nor disagree/ disagree/ strongly disagree.** **D Write about whether you would like to be a doctor.**		
7(a)	**Identify <u>one</u> closed question from A to D.** 1 mark for B or C (definitive)	**1**	
7(b)	**Identify <u>one</u> open question from A to D.** 1 mark for A or D (definitive)	**1**	
7(c)	**Chyou has written two questions to investigate the process of students choosing their subjects.** **E How old were you when you decided you did or did not like science?** **F Describe how you felt when you made your final decision about subject choices.**		
7(c)(i)	**State <u>one</u> strength of question E.** **Question E** quantitative data **so** can be used to compare between participants / can be analysed statistically	**1**	Strength = 1 (generic or linked) **Note:** a term alone is not an explanation.
7(c)(ii)	**State <u>one</u> strength of question F.** **Question F** qualitative data **so** provides detail (of feelings)	**1**	Strength = 1 (generic or linked) **Note:** a term alone is not an explanation.

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Question	Answer	Marks	Guidance
7(d)	**Suggest <u>two</u> questions Chyou could ask to investigate factors affecting students' subject choices.** 1 Explain how members of your family / teacher / hobbies / work experience affected your choice of subjects. 2 Do you think being an only child affected your subject choices?	**2**	1 mark per question about factor **affecting subject choices** x2 Questions and be open, closed or one of each. Closed questions must have choices. Open questions must generate genuine qualitative data (Describe, explain, tell me…).

Question	Answer	Marks	Guidance
8	**Daku is observing the obedience of boys and girls to teachers and older pupils when they are waiting for their lunch. Fig. 8.1 is a graph of Daku's results.**  		
8(a)	**Daku's conclusion is that girls are more obedient than boys. Daku's colleague, Jedda, has looked at Daku's graph and disagrees with Daku's conclusion. Explain <u>one</u> reason why Daku's conclusion may be incorrect. Do <u>not</u> refer to the sample size in your answer.** The difference is very small; (reason) so it might not be significant / important / big enough to matter / could be due to chance; (detail)	**2**	Reason why Daku is incorrect = 1 Detail = 1

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Question	Answer	Marks	Guidance
8(b)	**Dr Jedda suggests that Daku needs a bigger sample. Explain <u>one</u> benefit of increasing the sample size in this study.** Better generalisability from a larger sample; (reason) Because it should contain a bigger variety of children with different obedience levels; (detail)	**2**	Reason why = 1 Detail = 1 Because a small difference in a large sample is more reliable than a small difference in a small sample = (2) Improve reliability/replicability = 0
8(c)	**Daku has identified a problem caused by an uncontrolled variable. The boys had to wait longer for their lunch than the girls.**		
8(c)(i)	**Explain whether this problem is caused by a situational variable or a participant variable.** Situational **because** this was an external/environmental factor affecting the likelihood of being disobedient.	**1**	Explanation of situational variable = 1 **Note:** No mark for stating 'situational variable', the mark is for the **explanation.** Don't accept reverse argument, i.e., 'not participant'?
8(c)(ii)	**Explain how this problem would have affected Daku's results.** The boys would have been more likely to be disobedient than the girls because they were provoked / irritated / hungrier by being kept in a queue (whereas the girls did not need to queue).	**1**	Explanation = 1

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Question	Answer	Marks	Guidance
9	**Carol is investigating how music in a sports centre affects the amount that people exercise. On each visit she listens to the music that is playing. She measures the music by counting the number of musical beats per minute (faster music has more musical beats per minute than slower music).**		
9(a)	**Suggest <u>one</u> problem with Carol's measure of the music.** Carol may not count / time accurately; (weakness) so her analysis of the music may be unreliable; (detail) Other aspects of music (than tempo) may matter; (weakness) e.g., major / minor key / lyrics / genre (detail)	**2**	Weakness = 1 detail = 1
9(b)	**Carol records the time each person in the sports centre starts and stops exercising. All of the sports centre members have given permission for this to happen. Explain <u>two</u> reasons why Carol obtained permission to gather her data, in relation to the ethical guidelines.** Informed consent; (reason) Sports centre-goers need to know about / agree to, having their **exercise** watched; (linked detail) Privacy; (reason) (Carol is observing people and) they may not want to be watched when **exercising**; (linked detail) People may stop **exercising** early; (linked detail) Psychological harm; (reason) People may be embarrassed about being **unfit**; (linked detail)	**4**	Reason = 1 (×2) **Linked** detail = 1 (×2)

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Question	Answer	Marks	Guidance
9(c)	**Explain <u>one</u> reason why it is important that Carol visits the sports centre at different times of day.** e.g., morning people may be more fit; (reason) So might **exercise** for longer regardless of musical tempo; (linked detail) The music tempo may vary over the day; (reason) e.g., faster music in the evening so **exercise** would be more active then; (linked detail) type of people; (reason) e.g., old people come in the morning and are less **fit**; (linked detail)	**2**	Reason = 1 Linked detail = 1

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<table>
<tr><th>Question</th><th>Answer</th><th>Marks</th><th>Guidance</th></tr>
<tr><td>10</td><td colspan="3">Chloë is studying behaviour in the workplace. She wants to investigate how people behave during mealtimes at work. A range of food is available to the workers, which can be eaten in different ways. The workers also vary in how sociable they are during meals. Chloë intends to produce a detailed description of the variety of behaviours during meals at work.</td></tr>
<tr><td>10(a)</td><td>Describe how Chloë could conduct an observational study using participant observation to record the variety of behaviours during meals at work.

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

The four required features for this participant observation are:

(a) participant observation (outlined): (how the observer(s) will be engaged in the social context of eating / servers in the canteen)

(b) overt/covert: (explicit and separate from participant)

(c) naturalistic / controlled; (probably naturalistic – but impacted by nature of food being served / time of day)

(d) structured (behavioural categories) / unstructured: (probably structured – ‘foods they eat, how they eat them, how social’ – but unstructured would allow for ‘detailed description of variety’)

Other appropriate responses should also be credited.</td><td>10</td><td>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.

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

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<table>
<tr><th>Question</th><th>Answer</th><th>Marks</th><th>Guidance</th></tr>
<tr><td>10(a)</td><td></td><td></td><td>
<table>
<tr><th>Level</th><th>The response:</th></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>
</td></tr>
</table>

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Question	Answer	Marks	Guidance
10(b)(i)	**Describe <u>one</u> practical / methodological strength of the procedure you have described in your answer to part <u>(a).</u> Do <u>not</u> refer to sampling or ethics in your answer.** Strengths may relate to: Validity • operationalisation • situational / participant variables factors • controls / standardisation • Demand characteristics Reliability • inter-rater consistency • intra-rater consistency. Accept other practical / methodological strengths.	**2**	identification of generic strength = 1 detail = 1 (generic or linked).

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Question	Answer	Marks	Guidance
10(b)(ii)	**Describe <u>one</u> practical / methodological weakness of the procedure you have described in your answer to part <u>(a).</u> Do <u>not</u> refer to sampling or ethics in your answer.** Weaknesses may relate to: Validity • operationalisation • situational / participant variables factors • controls / standardisation • Demand characteristics Reliability • inter-rater consistency / two observers that were not standardised • intra-rater consistency. Accept other practical / methodological weaknesses.	**2**	identification of generic weakness = 1 detail = 1 (generic or linked).

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