CAMBRIDGE
International Education

Cambridge International AS & A Level

PSYCHOLOGY **9990/22**

Paper 2 Research Methods **February/March 2025**

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.

Cambridge International is publishing the mark schemes for the February/March 2025 series for most Cambridge IGCSE, Cambridge International A and AS Level components, and some Cambridge O Level components.

This document consists of **14** printed pages.

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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.

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 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.

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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
Highlighter	Use to bring attention to a key part
On page comment	
Off-page comment	
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
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
1(a)	**Outline what is meant by an overt observation.** Outline = 1 When the role of the observer is not hidden/ is obvious; When people know / are aware that they being observed;	**1**
1(b)(i)	**Suggest <u>one</u> reason why an overt observation may be better than a covert observation.** (Comparative) suggestion = 1 Detail / comparison = 1 **<u>Must</u>** make comparison for 2 marks **More** ethical (when overt); (suggestion) As easier to obtain **consent** / people can withdraw because they know they are in a study; (detail) but Ps will not know to withdraw if it is covert; (comparison)	**2**
1(b)(ii)	**Suggest <u>one</u> reason why an overt observation may <u>not</u> be better than a covert observation.** (Comparative) suggestion = 1 Detail / comparison = 1 **<u>Must</u>** make comparison for 2 marks **Higher** risk of social desirability (when overt) (suggestion); As Ps will respond to the observer's expectations (detail); but in covert they have no reason to act more favourably; (comparison)	**2**

Question	Answer	Marks
2	**Dr Bryan has been asked to investigate the effects of a new drug for people with a psychological disorder. Each week, Dr Bryan's patients visit him to receive the drug and to report their symptoms.** **Explain what makes this investigation a longitudinal study.** Explanation = 2 link = 1 **<u>same</u> participants/patients** tested repeatedly; (explanation) over a (**long) period of time**/over multiple weeks; (explanation) Because they will need to see how well the drug works after **several prescriptions**; (link) will need to track changes in **symptoms over time**; (link) Visit him **every week** to take the **drug**; (link/explanation)	**3**

Question	Answer	Marks
3	**In the study by Hölzel et al. (mindfulness and brain scans), two participants withdrew from the sample due to the MRI scan being uncomfortable.** **Explain why the withdrawal of these two participants could have reduced the validity of the study.** Explanation = 1 (generic or specific) Detail of specific effect on validity in Hölzel = 1 Smaller sample size; (generic) Sample would be biased/increased effect of individual differences; (specific) Because the participants who withdrew might have been more **stressed**; (specific detail) Both **male** participants who withdrew so would have introduced a *gender* bias (Specific) One gender might be **more stressed / more responsive** to MBSR (1)	**2**

Question	Answer	Marks
4	**In studies in cognitive psychology, groups of participants are often given tests that produce numerical data so that the groups can be compared.**	
4(a)	**Outline the <u>most</u> appropriate measure of central tendency to use for a maths test in which each question is equally difficult.** Measure of central tendency = 1 [Mean (definitive)] link = 1 Mean; (definitive) Of the (maths test) scores/(test) scores/scores (on test); (link)	**2**
4(b)	**In a study, the measures of central tendency from the maths tests of two groups of participants could be compared.** **State the <u>most</u> appropriate type of graph to use for this data.** Type of graph = 1 [bar chart/graph definitive]	**1**

Question	Answer	Marks
5	**In the study by Fagen et al. (elephant learning), one way that data was collected about elephant learning was the performance test.**	
5(a)	**Suggest <u>one</u> way that the performance test could have lacked validity. Justify your answer.** Suggestion = 1 Justification = 1 The elephant only had to reach 80% correct; (suggestion) The other 20% may have been 'a bit' or 'a lot' wrong; (justification)	**2**
5(b)	**Suggest <u>one</u> way that the validity of the performance test could have been improved.** Suggestion = 1 Expecting the elephant to reach 90/100% correct; Add more specific operationalisation; E.g. trunk height / trunk orientation;	**1**

Question	Answer	Marks
6	**Describe quantitative data and qualitative data, 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. *quantitative data:* numerical data / can be measured / counted; from closed questions /Likert scales /rating scales (in self reports); behavioural categories (in observations); can be analysed using statistics/represented on graphs; e.g. Andrade participants' recall of names/places; e.g. Milgram participants' voltage levels; e.g. Piliavin et al. helping/not helping totals; e.g. maths test; *qualitative data:* descriptive/in-depth data; from open questions (in self reports); from non-focused observations; from thematic analysis; from transcripts of interviews; media e.g. radio, newspapers; e.g. Saavedra and Silverman descriptions of the boy's phobia; e.g. Milgram participants' reactions; e.g. Piliavin et al. verbal comments;	**6**

Question	Answer	Marks
7	**Jacinda, a factory manager, is planning a study about her workers' interpersonal distance preferences.**	
7(a)	**Jacinda arranges the distance between workstations. In one section of the factory the distance between workstations is large and in another section the distance between workstations is small.**	
7(a)(i)	**Suggest <u>two</u> situational variables that should be controlled so that they are the same for the two sections of the factory.** Situational variable = 1 × 2 Temperature (of the workplace); Amount of noise; Whether there is music playing; Lighting; If the work means they need to interact; If they have workstations /structure of the workstations; The type of job; Hours worked; How physical their work is; Number of people / workstations (in each section); Number of participants = 0	**2**
7(a)(ii)	**For <u>each</u> of your suggestions in part (ai):** **Explain why <u>each</u> situational variable would be relevant to Jacinda's study.** Explanation = 1 Detail = 1 If people are too hot, being cramped together would seem **worse**; So this might affect their preference; So they might want a **bigger** personal space; To interact people might need to be closer; So they would be happier with a smaller personal space; Fixed workstations would mean they know their colleagues; So they would be happier with a smaller personal space	**4**
7(b)	**Suggest how Jacinda could obtain a volunteer sample for her study.** Suggestion related to volunteering = 1 [can be generic] Detail about how = 1 [can be generic detail] Link (to Jacinda's study) = 1 Send an email/put up flyers/advertise in a newspaper (suggestion) At their company email address/on their workstations/that is distributed to the workforce (link to study) Use people who reply/give contact details so can reply (Generic detail)	**3**

Question	Answer	Marks
7(c)	**Suggest how Jacinda could measure her participants' interpersonal distance preference, other than by using an interview.** Suggested method / technique / format for how = 1 Linked detail = 1 Questionnaire; (method) E.g. ask 'How close could a colleague's workstation be to yours without being distressing?' (linked detail) Use an open question; (format) Describe how far away from you someone needs to sit at work for you to feel comfortable; (detail) Ask them to mark on a visual scale / SIDs; (technique) The distance in metres they would be happy with; (detail)	**2**

Question	Answer	Marks
8	**Dr Foster is conducting research about cognition using monkeys in a laboratory. He wants to provide ethical housing for them so will investigate which materials the monkeys prefer to sleep on inside their cages. The monkeys will be given two choices: leaves or paper.**	
8(a)(i)	**Suggest <u>one</u> ethical reason why it is important that the monkeys are comfortable in the environment in which they are housed when they are <u>not</u> being tested.** **Do <u>not</u> refer to the ethical guideline of 'housing'.** Suggestion = 1 [description of pain/distress or reference to guideline] (Lack of comfort would not be ethical because it could break the ethical guideline of) 'pain and distress'; The monkeys on leaves/paper may be uncomfortable/frightened; Could also refer to guideline of deprivation – of natural/normal/preferred material (of twigs/fur/soil etc) Note: psychological harm = 0 [human guideline]	**1**
8(a)(ii)	**Suggest <u>one</u> methodological reason why it is important that the monkeys are comfortable in the environment in which they are tested.** Suggestion = 1 If they are not comfortable/have not slept well they would not behave **normally**, so the study would lose validity;	**1**

Question	Answer	Marks
8(b)	**Suggest <u>one</u> way to measure which material the monkeys prefer inside their cages.** Way = 1 Detail = 1 Put out known weight/volume of different materials; (way) Measure the weight/volume of each after nesting; (detail) Set up an observer / camera and different materials; (way) Record each time each material is taken; (detail) Record the number of hours sleep the monkeys have; (detail) Record the amount of time spent inside the cage/asleep; (detail)	**2**
8(c)	**Identify <u>two</u> features that are important in the 'housing' guideline in relation to animal ethics.** **Do <u>not</u> refer to the material inside an animal's cage.** Feature = 1 × 2 Food / water; Space; Companions / isolation; Temp; Light;	**2**

Question	Answer	Marks
9	**A psychologist is investigating whether there is a relationship between happiness and exercise. He thinks that either:** • **being happier would make people exercise more** • **exercising more would make people happier** • **happiness and exercise are both affected by another variable.**	
9(a)	**Explain why it is better to use a correlation than an experiment for this investigation.** Explanation = 1 Detail = 1 The relationship may not be causal; (explanation) Unethical to manipulate happiness (explanation) So it would not be possible to isolate the IV; (detail)	**2**
9(b)	**Suggest <u>one</u> way that exercise could be measured in this investigation.** Way = 1 Number of steps a day; Calories used / distance covered; Duration;	**1**

Question	Answer	Marks
9(c)	**For the way of measuring exercise that you suggested in part (b):**	
9(c)(i)	**Suggest <u>one</u> strength of this way of measuring exercise.** Strength = 1 Detail = 1 *Number of steps a day:* Can use a wearable counter / smart watch /Fitbit; (strength) Accurate so valid; (detail) Not inconvenient so Ps will be likely to participate; (detail) *Calories used:* Different types of exercise could be measured; (strength) Such as swimming or running; (detail)	**2**
9(c)(ii)	**Suggest <u>one</u> weakness of this way of measuring exercise.** Weakness = 1 Detail = 1 *Number of steps a day:* Some people walk faster; (weakness) So exercise more (for the same number of steps); (detail) Which would be unreliable; (detail) Reporting number of steps might be embarrassing; (weakness) Because it breaks the ‘protection’ guideline; (detail) *Calories used:* People who are overweight will use more calories; (weakness) So they will look like they are exercising more; (detail) Which lower validity; (detail)	**2**

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Question	Answer	Marks
10	**Dr Anand is interested in conversations that children aged 8–10 years old have with their parents. He wants to know about different features of these conversations, such as:** • **how long they talk for** • **what they talk about** • **how positive they feel about talking to each other.** **He intends to study these conversations using structured interviews.**	
10(a)	**Describe how Dr Anand could use structured interviews to study conversations that 8–10 year old children have with their parents.** **Do <u>not</u> describe sample/sampling technique or ethical issues/guidelines in your answer.** 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) for **detail**. Use L1, L2, L3, L4, L5 at the end of the response to indicate the **level**. The four required features for this structured interview are: **(a) question format** (**open** / **closed** questions, fillers) **(b) examples** of questions (at least **two features** and **two responses**) **(c)** question **scoring / interpretation** (e.g. use of numerical scoring / measures of central tendency / analysis of qualitative data) **(d) format** (description of **structured:** all Ps receive same questions, same number of questions, same order of questions, same tone, same clothes) **Level** — **The response:** **Level 5** 9–10 marks — • 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. **Level 4** 7–8 marks — • 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. **Level 3** 5–6 marks — • 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.	**10**

<table>
<tr><th>Question</th><th>Answer</th><th>Marks</th></tr>
<tr><td>10(a)</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><td></td></tr>
<tr><td>10(b)(i)</td><td>Explain how <u>one</u> feature of the procedure you described in part (a) helps to make the study reliable.

Do <u>not</u> refer to sampling or ethics in your answer.

Identification of feature = 1
explanation (generic or linked) = 1

Part of procedure may relate to:
• standardisation
• consistency within and between raters.

Accept other practical influences on reliability</td><td>2</td></tr>
<tr><td>10(b)(ii)</td><td>Explain how <u>one</u> feature of the procedure you described in part (a) could be a problem for reliability of the study.

Do <u>not</u> refer to sampling or ethics in your answer.

Identification of feature = 1
explanation (generic or linked) = 1

Part of procedure may relate to:
• standardisation
• consistency within and between raters.

Accept other practical influences on reliability</td><td>2</td></tr>
</table>