Cambridge Assessment International Education

Cambridge International AS & A Level

PSYCHOLOGY **9990/22**

Paper 2 Research Methods **May/June 2022**

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 May/June 2022 series for most Cambridge IGCSE, Cambridge International A and AS Level and Cambridge Pre-U components, and some Cambridge O Level components.

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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 descriptors 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.

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)

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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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Question	Answer	Marks
1	**State what is meant by 'reliability'.** 1 mark for simple explanation Consistency of a procedure/task/measure/study/research = 1 Getting the same results when the procedure is the same = 1 To be reliable, measures must measure the phenomenon in the same way each time = 1 mark Consistency of results/findings = 0 Reliability is about consistency = 0 Replication = 0 [e.g. 'Extent to which a study can be replicated' = 0] BUT 'Extent to which a study can be replicated and produces the same results' = 1 Getting the same results in different situations = 0	**1**

Question	Answers	Marks
2	**Explain the difference between 'qualitative data' and 'quantitative data'.** 2 marks for difference, most likely to be through two separate definitions Quantitative data is numerical / produces a count/totals in categories = 1 Qualitative data is descriptive/detailed / in depth = 1 Quantitative is objective / qualitative is subjective = 0	**2**

Question	Answer	Marks
3(a)	**Schachter and Singer (two factors in emotion) was a laboratory experiment.** **The participants in this study were all male. A new experiment could explore gender differences in the effect of epinephrine. However, the stooge may influence emotions differently in males and females.** **Suggest how a difference between the influence of the stooge on males and females could affect the results about gender differences in the effect of epinephrine.** 1 mark for suggestion 1 mark for effect on results The angry stooge might make females more/less angry (than it made males); (suggestion) So females would appear to be more/less affected by epinephrine; (effect on results) The happy stooge might make females more/less happy (than it made males); (suggestion) So females would appear to be more/less affected by epinephrine; (effect on results) Note: If the response only talks about the gender of the *stooge* = 0 [NAQ] Note: If response restating aim = 0 e.g., 'males and females react to / interact with the (male) stooge differently = 0	**2**

Question	Answer	Marks
3(b)(i)	**A second new experiment could include a stooge who claims to feel ill because of the injection.** **Suggest how <u>one</u> participant variable could affect the results of this second new experiment.** 1 mark for suggestion of participant variable (e.g., personality, feeling ill already) 1 mark for effect on results (e.g., more or less ill, NOT whether they helped or not) Some participants might feel ill anyway; (suggestion) The stooge would have a bigger effect / the cognitive factor would look greater; (effect on results) Participants might feel ill and withdraw; (suggestion) This would make the results less valid (as the sample size would be smaller); (effect on results) Anxiety level; (suggestion) More anxious participants might be more affected by the stooge / would feel more ill; (effect on results) Note: A participant variable that could also have affected the original Schachter and Singer study is acceptable.	
3(b)(ii)	**Explain <u>one</u> ethical problem with this second new experiment.** 1 mark for ethical problem (can be generic) 1 mark for link Feeling ill is distressing; (link) So little protection from harm; (ethical problem) They will believe the ill stooge is sick; (link) So they were deceived; (ethical problem)	**2**

Question	Answers	Marks
4	**In the study by Baron-Cohen et al. (eyes test), eight problems of validity were identified with the original version of the eyes test. Two of these problems were that:** • **the task involved a forced choice between only two response options (the two words presented)** • **the test included basic mental states.**	

Question	Answer	Marks
4(a)	**Explain why each of these problems affected the validity of this study.** **The task involved a forced choice between only two response options.** **The test included basic mental states.** 1 mark for identifying validity problem} ×2 1 mark for explanation } Forced choice: can be correct by chance / can guess / narrow score range so poor discrimination / ceiling effect; (validity problem) only two choices of words, so likely to be correct on half of the trials; (explanation) basic mental states: questions very easy narrow score range / poor discrimination / ceiling effect / all participants get high scores; (validity problem) the basic mental states were too easy to answer; (explanation);	**4**
4(b)	**Explain how solving <u>one</u> of these problems improved the validity of the eyes test.** 1 mark for identifying improvement 1 mark for how it improves validity Both marks must be about the same problem (i.e., only forced choice or basic and complex mental states) Forced choice: Make more/4 choices; (improvement) So reason is they can't guess (so range reflects actual ability at detecting states); (how it improves validity) basic and complex mental states: Only use complex mental states; (improvement) Test detects greater range of abilities to detect mental states; (how it improves validity)	**2**

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Question	Answer	Marks
5	**In the study by Milgram (obedience), the sample included a wide range of occupations.** **Name <u>two</u> of these occupations.** 1 mark for identifying two groups from this DEFINITIVE list: students, postal clerks, high school teachers, salesmen, engineers, and laborers	**1**

Question	Answer	Marks
6	**Describe the use of 'open questions' and 'closed questions' in research, using any examples**. 1 mark for each definition, up to a maximum of 2, for each question type. 1 mark for each linked example, from any studies (core, other, candidate's own). Max 2 for each question type. Max 4 if only open or only closed questions. Max 4 if no examples. Open questions: Allow participants to answer freely / give answers in their own words / provide detail / can elaborate; produce qualitative data; (more) subjective. Examples may include Describe…, Explain how, why…, X, why? … To earn credit, examples of questions must not be closed questions with no options. Andrade: Half the participants were then asked to recall the names of party-goers and, when they had done that, of the places mentioned. Dement and Kleitman: (if they could recall a dream) they had been asked to relate their dream content; Dement and Kleitman: When the participant finished speaking some were asked about a particular point of the dream; Laney: experiences with asparagus as a child Closed questions: Participants answer from fixed options / only chose the answer / alternative answers are provided; produce quantitative data; (more) objective; Dement and Kleitman: Participants were first instructed to state whether or not they had been dreaming; Canli et al.: Subjects chose from four buttons to indicate emotional arousal on a scale from 0 ("not emotionally intense at all") to 3 ("extremely emotionally intense") Canli et al.: In the unexpected recognition test participants were asked whether they had seen each picture before; Laney: rating scales on RQ and FHI; Canli et al.: For scenes judged as previously seen, subjects reported whether they remembered with certainty ("remember") or had a less certain feeling of familiarity ("know"). Baron-Cohen et al.: IQ test Baron-Cohen et al.: AQ Baron-Cohen et al.: Eyes test	**6**

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Question	Answer	Marks
7	**Geoffrey is conducting structured interviews about people's use of social media. He is investigating how much time people spend on social media and how positive they feel about it.**	
7(a)	**Geoffrey finds that the time people spend on social media is normally distributed**. **Sketch the shape of this normal distribution using the axes below.** **You <u>must</u> label the axes**. 1 mark for symmetrical normal distribution shape 1 mark for 'time spent on social media' on x-axis 1 mark for 'frequency' / 'The number of people (who spend different amounts of time on social media)';  'The number of people who feel positive people feel about social media' = 0 [irrl]	**3**
7(b)	**Geoffrey finds that some participants give interesting responses, but he does not explore their use of social media further.**	
7(b)(i)	**Explain <u>one</u> practical reason why using a structured interview means that Geoffrey <u>cannot</u> explore these participants' use of social media further.** 1 mark for explanation 1 mark for linked detail Cannot add extra questions / has to stick to standard questions; (explanation) Which may not cover the interesting issue raised; (link) Geoffrey couldn't ask more about social media than was in his original questions; (link)	**2**

Question	Answer	Marks
7(b)(ii)	**Explain <u>one</u> ethical reason why Geoffrey may choose <u>not</u> to explore these participants' use of social media further.** 1 mark for ethical explanation 1 mark for detail 1 mark for link Protection from harm; (explanation) might feel uncomfortable answering questions; (detail) privacy; (explanation) may not want to answer questions about personal lives; (detail) people might be using social media for reasons they don't want to explain; (link/detail) they may be embarrassed / they may be telling lies on social media/the posts may be illegal; (link/detail)	**3**

Question	Answers	Marks
8	**Faolan is investigating teachers' attitudes and behaviours towards students doodling. She has conducted a semi-structured interview and has observed the teachers in the classroom.**	
8(a)(i)	**Faolan asks each teacher to rate how annoyed they feel when a student in their class doodles.** **Suggest a scale that Faolan could use to measure how annoyed the teachers are.** 1 mark for any numerical or word scale. 1 = not at all annoyed, 10 = very annoyed;	**1**

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Question	Answer	Marks
8(a)(ii)	**Explain <u>one</u> problem with the scale that you have suggested in (a)(i), including how this would affect the results.** 1 mark for explaining problem (identifying validity/reliability etc. is not enough, not 'explaining') 1 mark for link to results There is not exact mid-point to the scale (5 and 6 are in the middle); (problem) So if they wouldn't feel cross or not cross, they wouldn't be able to answer; (link to results) People may interpret the scale in different ways; (problem) For example, '6' might be quite cross for one teacher and hardly cross at all for another; (link to results)	**2**
8(b)	**Faolan is interested to know whether teachers show the same behaviours in the classroom when students doodle as they reported during the interview.**	
8(b)(i)	**Suggest <u>two</u> reasons why the teachers' interview responses may differ from their behaviour in the classroom. Your answers should <u>not</u> relate to the scale you suggested in (a)(i).** 1 mark for suggestion ×2 1 mark for detail The teachers may not be aware of how cross they get; (suggestion) So might under/over-estimate their feelings (in the interview compared to in the classroom); (detail) The teachers may not want to admit to Faolan how cross they get / may lie; (suggestion) So might under-estimate their feelings (in the interview); (detail) The teachers may be feeling very cross the day they are interviewed/observed; (suggestion) So might be much more/less cross than normal; (detail)	4

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Question	Answer	Marks
8(b)(ii)	**If Faolan finds that teachers do not show the same behaviours in the classroom as they report during the interview, this raises an ethical issue.** **Suggest why it could be difficult for Faolan to follow the ethical guideline of 'protection from harm' when she explains her results to the participants.** 1 mark for suggestion The teachers will be upset/cross because they are harsher/kinder than they thought they were; The teachers may feel they have been tricked; The teachers may be worried as they appear to have lied;	**1**

Question	Answers	Marks
9	**Tulip is conducting a study on social behaviour in animals. She is investigating whether animals are more sociable when they are in a large laboratory cage or a small laboratory cage.**	
9(a)	**Tulip has to decide which species to use.** **Explain how <u>one</u> ethical guideline relating to animals would affect her decision.** 1 mark for identifying a relevant guideline 1 mark for explanation No mark for which species chosen (Some animals/chimps are more likely to experience) distress; (guideline) E.g., if they are more intelligent (than rats); (explanation) Species (and strain) (says she needs a suitable type of animal/rats / small animals); (guideline) Because they are less likely to suffer distress (in a small cage); (explanation) Housing (must be suitable for the animal chosen); (guideline) So the small cages mustn't be too small for them; (explanation)	**2**

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Question	Answer	Marks
9(b)	**Tulip is finding a median. She puts her scores in order.** **State what a researcher should do to find the median if there are two middle numbers.** 1 mark for explaining that when there are two middle scores they must be added together and divided by 2. Add them up and halve the total; Sum the two together and divide by 2;	**1**
9(c)	**Explain how Tulip would find the range of the number of sociable behaviours of the animals in the small cage.** 1 mark for explanation of how to find out the range 1 mark for link Find the largest number of sociable behaviours and the smallest number of sociable behaviours (from the small cage data) (and take one from the other) (and add one) = 2 (linked) Take the smallest number from the biggest number (and add one) = 1 (generic) Find the difference between the greatest and least number of social behaviours (per animal) = 2 (linked)	**2**
9(d)	**Explain why it would be appropriate for Tulip to use counterbalancing if she chose a repeated measures experimental design.** 1 mark for identification of 'order effects' (by name or description) 1 mark for the nature of that effect on the animals 1 mark for linked consequence for the study/results There must be a link to this study for full 3 marks Order effects; (identification) Animals might be more tired (with repeated measures); (generic nature of effect) more tired animals might show less sociable behaviours / be more aggressive; (linked consequence) Animals might be more/less sociable the second time; (linked nature of effect) so if they were less sociable the second time because they had been in the smaller cages first, they would look less sociable in the big cages but this would not be a valid result; (linked consequence) you wouldn't be able to tell whether this was the effect of the IV or not; (unlinked consequence)	**3**

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Question	Answer	Marks
10(a)	**Enfys wants to investigate whether different types of shopper are more relaxed than others. For example, whether shoppers with trolleys/carts are more relaxed than shoppers with baskets.** **Describe how Enfys could conduct a natural experiment to investigate whether some types of shopper are more relaxed than other types of shoppers. You may choose to compare shoppers with trolleys/carts and baskets, or any other different types of shopper.** Three majors for a natural experiment are: (a) IV: e.g., trolley/basket (How recorded e.g., by observing what the shopper chose or by asking which they used in a questionnaire) (b) DV: e.g., relaxed (happy/tense/aggressive) (detail: behavioural categories, event/time sampling, questions) (c) Where: shop / type of shop (location of observer, e.g., hidden at till, disguised as a shopper / questionnaire given as participant leaves the shop) The minors are: who: shoppers (e.g., only adults?) controls Other details for replication: sampling technique sample size ethical issues description of how data will analysed, e.g. use of averages/bar charts Other appropriate responses should also be credited.	

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<table>
<tr><th>Question</th><th>Answer</th><th>Marks</th></tr>
<tr><td>10a)</td><td>Mark according to the levels of response criteria below:

<table>
<tr><td>Level 3 (8–10 marks)
• Response is described in sufficient detail to be replicable (i.e., what and how).
• Response may have a minor omission (i.e., who or where).
• Use of psychological terminology is accurate and comprehensive.</td></tr>
<tr><td>Level 2 (5–7 marks)
• Response is in some detail.
• Response has minor omission(s) (i.e., who and/or where).
• Use of psychological terminology is accurate.</td></tr>
<tr><td>Level 1 (1–4 marks)
• Response is basic in detail.
• Response has major omission(s).
• If response is impossible to conduct max. 2.
• Use of psychological terminology is mainly accurate.</td></tr>
<tr><td>Level 0 (0 marks)
No response worthy of credit.</td></tr>
</table>
</td><td></td></tr>
</table>

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<table>
<tr><th>Question</th><th>Answer</th><th>Marks</th></tr>
<tr><td>10(b)</td><td>
Identify <u>one</u> practical weakness/limitation with the procedure you have described in your answer to part (a) and suggest how your study might be done differently to overcome the problem.
Do <u>not</u> refer to ethics or sampling in your answer.

Answer will depend on problem identified. If the problem was an obvious omission in (a), fewer marks will have been awarded in (a), so they can be awarded here.

Problems may, for example, be matters of:

Validity
• operationalisation
• difficulty with lying / social desirability
• difficulty with response biases

Reliability
• inter-rater consistency
• intra-rater consistency.

This list is not exhaustive and other appropriate responses should also be credited.

<table>
<tr><th>Marks</th><th>Comment</th></tr>
<tr><td>3-4</td><td>Appropriate problem identified.
Appropriate solution is clearly described.</td></tr>
<tr><td>2</td><td>Appropriate problem identified.
plus
EITHER Explanation of why it is a problem
OR Ineffectual but possible solution described.</td></tr>
<tr><td>1</td><td>Appropriate problem identified.
Little or no justification.</td></tr>
<tr><td>0</td><td>No response worthy of credit</td></tr>
</table>
</td><td>4</td></tr>
</table>

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