Cambridge Assessment International Education

Cambridge International AS & A Level

PSYCHOLOGY **9990/22**

Paper 2 Research Methods **February/March 2023**

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 2023 series for most Cambridge IGCSE™, Cambridge International A and AS Level components and some Cambridge O Level components.

This document consists of **15** printed pages.

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.

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)

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.

Question	Answer	Marks
1	**A hypothesis is 'There will be no difference between how quickly men and women blink in response to a flash of light'.** **Name this type of hypothesis.** 1 mark for null (hypothesis) (definitive)	**1**

Question	Answer	Marks
2	**Table 2.1 shows some results from the experiment by Canli et al. (brain scans and emotions).** **Table 2.1** **Emotional intensity rating (0 = 'not intense at all' to 3 'extremely intense')** **0** / **1** / **2** / **3** Percentage of images forgotten: 44 / 41 / 42 / 22	
2(a)	**Draw a graph of the data in Table 2.1 using the axes below. You must label the axes.**  1 mark: x-axis label (Emotional intensity rating (of image)) 1 mark: x-axis categories (0, 1, 2, 3) 1 mark: y-axis label (percentage of images forgotten) 1 mark: y-axis scale (at least 22–44) 1 mark: correctly plotted Must be correctly plotted for full 4 marks	**4**
2(b)	**Outline one finding about emotional intensity rating and level of forgetting, using the data in Table 2.1.** 1 mark for outline For scenes with the highest emotional intensity rating, forgetting is lowest; ORA As emotional intensity rating increases, percentage images forgotten decreases = 1 As emotional intensity rating decreases, percentage images forgotten increases = 1	**1**

Question	Answer	Marks
3	**Explain the importance of the ethical guideline of 'housing' in relation to animals.** 1 mark for importance + 2 additional marks for detail Or 2 marks for importance (different reasons) + 1 additional mark for detail to avoid 'pain and distress' (because this is an ethical guideline for animals); by providing for essential needs for species / age / sex / reproductive stage / activity level; e.g. warmth/cover; (suitable) food / water; nest sites / safe / shelter; sufficient space for exercise/'roaming'; So that social animals have company (and are not distressed by being alone/isolated); So that solitary animals do not experience trauma from not being able to get away from other individuals; So that there is no overcrowding which could cause aggression; by not cleaning too frequently (change of smell could be upsetting); by not locating animals where they could become distressed (e.g. near natural predators);	**3**

Question	Answer	Marks
4	**In the study by Laney et al. (false memory), questionnaires were used to collect data.**	
4(a)	**Outline <u>one</u> difference between a questionnaire and an interview.** 1 mark for difference Questionnaires are written but interviews are spoken; Questionnaires are completed by the participant alone but interviews are face-to-face / the interviewer is present; Participants fill out questionnaires whereas interviews are controlled by the researcher; Questionnaires can be done at the participant's own speed / sent later however interviews collect data in real time;	**1**

Question	Answer	Marks
4(b)	**Explain <u>one</u> advantage of collecting data using questionnaires compared to interviews.** 1 mark advantage 1 mark comparison to interviews (Accept ORA i.e. disadvantages of interviews where relevant and explicit e.g. 'more') Low(er) risk of social desirability bias; (advantage) presence of interviewer means researcher has greater influence than in paper-based expectations; (comparison) Less time pressured for the participant; (advantage) So participant isn't worried about holding up the interviewer so can give more detailed responses; (comparison) Quicker to collect data from lots of people / because all the participants can fill them in at once; (advantage) Because it would take more time to interview each participant separately; (comparison)	**2**
4(c)	**Explain <u>one</u> weakness of using questionnaires in this study.** 1 mark for weakness 1 mark for linked explanation demand characteristics; (weakness) participants could suspect that a focus on asparagus is hidden in the questionnaire; (link) participants may not know their real reaction so can't report accurately (weakness) e.g. they may say they would choose asparagus but wouldn't actually in a restaurant; (link)	**2**

Question	Answer	Marks
5	**The research by Saavedra and Silverman (button phobia) was a case study. It used a variety of techniques including interviews and a scale (the feelings thermometer).** **Suggest <u>one</u> strength of using a variety of techniques in a case study.** 1 mark for advantage (does not have to be linked) 1 mark for detail (does not have to be linked but a link may be detail) Can collect qualitative and quantitative data; (advantage) So can compare (quantitative) and look at reasons/detail (qualitative); (advantage / detail) So increases validity; (detail) More valid as can compare different sources of data to see if they demonstrate the same finding / triangulation; (adv) E.g. Saavedra and Silverman could see if the feelings thermometer and the boy's comments were similar; (detail)	**2**

Question	Answer	Marks
6	**Describe what is meant by the research methods of correlations and experiments, using any examples.** Definitions/detail: up to a maximum of 4 marks for each method. Examples: maximum of 2 marks for each method. Examples can include examples from any studies (core studies, other studies, candidate's own studies). A correlation is a relationship / link between two measured variables; Positive correlation – as one variable increases, the other also increases; Has a coefficient above 0 up to +1; Negative correlation – as one variable increases, the other decreases; Has a coefficient below 0 down to -1; correlations can guide ideas for (future) experimental work; can study variables which cannot practically be manipulated (such as activity levels in dreams); can study variables which cannot ethically be manipulated (such as phobia strength); correlations cannot determine causal relationships between the variables being tested; i.e. whether one causes the other to changed; or whether they are both dependent on a third factor; e.g. Piliavin et al. found that as group size increased the likelihood of helping also increased (positive); e.g. Dement and Kleitman found dream duration positively correlated with number of words in dream narrative (positive); e.g. if a researcher tested helping and age, they might find that the older you are, the more helpful you are (positive); e.g. Piliavin et al. *expected* to find that as group size increased the likelihood of helping would decrease (negative); e.g. Baron-Cohen et al. found that as AQ score increased, eyes test scores decreased (negative / inverse); e.g. a correlation of obedience and education, might find that as education increased, obedience decreased (negative); Laboratory and field experiments have manipulated IV; and measured DV; they are looking for causal relationships / differences (between levels of the IV) / the effect of the IV on the DV; But in a natural experiment the IV is not manipulated by the experimenter; Laboratory experiments happen in an artificial environment; So there can be many controls; Field (and usually natural) experiments happen in the normal environment for the activity being investigated; So there can be some/few controls;	**6**

Question	Answer	Marks
6	Canli et al.: randomised the order of the pictures, thus controlling for familiarity of type; Canli et al.: controlled for participant concentration by having a fixation cross; Dement and Kleitman: controlled for factors affecting sleep as participants told not to drink alcohol/caffeine; Schachter and Singer: controlled the stooges' behaviours as they were scripted; Andrade: controls also given paper and pencil; all doodling condition given sheets to constrain doodling; Baron-Cohen et al.: access to a glossary controlled for understanding of the words; Laney et al.: controlled for processing of feedback by giving additional questions (imagine the setting…); Yamamoto et al.: same tool familiarisation process; Piliavin et al. IV the stooge / victim type (cane or drunk); Piliavin et al. DV measured the number of helpers / speed of helping; Piliavin et al. controlled the actions/clothing of the stooge;	

Question	Answer	Marks
7	**Gregor is planning an experiment to compare the feelings of adults who work indoors with the feelings of adults who work outdoors. He thinks that where a person works may influence how relaxed they feel at work.**	
7(a)	**Suggest a quantitative measure of 'feeling relaxed' that could be used in this study.** 1 mark for suggestion A scale of 0 not at all relaxed to 10 very relaxed; A closed question 'Rate your feelings from 0 = not at all relaxed to 10 = very relaxed'; Ask 'Describe your feelings' give 1 mark for every 'relaxed' statement and -1 mark for every 'not relaxed' statement; Observations of number of / time spent on relaxed (/ not relaxed) gestures; Pulse rate; 'A scale of 0 to 10' = 0 [what is it measuring?] 'A scale of very relaxed to very tense' = 0 [needs quantitative measure] 'Rate your mood from 1 to 5' = 0 [needs 'anchors', which end is 'relaxed'?] 'Rate your mood from relaxed to tense' = 0 [needs quantitative measure]	**1**

Question	Answer	Marks
7(b)	**Gregor thinks that variables other than where a person works could influence their feelings and he is therefore using a matched pairs design.**	
7(b)(i)	**Suggest <u>two</u> variables that would be relevant for matching participants in this study.** 1 mark for variable ×2 e.g. same type of job (e.g. vet) / same position e.g. manager / age / gender / intelligence / social class / pay / working hours	**2**
7(b)(ii)	**Explain why <u>each</u> of the two variables that you suggested in (b)(i) would be relevant in this study.** 1 mark for explanation + 1 mark for linked detail x2 *Age:* people who are older may tend to do more indoor jobs anyway; but may have more negative feelings if they are in pain because they are old; *Gender:* Males may tend to do more outdoor jobs because they are stronger; but may be more negative feelings / tense because men have fewer friends than women in general; *Intelligence*: More intelligent people may tend to do more indoor jobs because they require more qualifications; But these jobs may also earn more money, so they are calmer because they are wealthier not because they are indoors;	**4**

Question	Answer	Marks
8	**Elise is investigating whether children learn food preferences from their parents. She is conducting a self-report study to compare the food preferences of children and their parents.**	
8(a)	**Elise has some ethical concerns.**	
8(a)(i)	**Some parents could feel that questions about what they eat every day are too personal.** **Explain which ethical guideline Elise is concerned about here.** 1 mark for identification of guideline 'privacy' [definitive] 1 mark for linked explanation e.g. people feel what they eat is too personal because they are on a diet / eat or exclude foods for health reasons / for religious reasons; (linked explanation)	**2**

Question	Answer	Marks
8(a)(ii)	**When children answer questions about food they do not like, it could make them feel upset about their food preferences.** **Explain which ethical guideline Elise is concerned about here.** 1 mark for identification of guideline 'protection from harm' 1 mark for linked explanation e.g. that if children are asked to think about their food they may become more aware and decide they don't like certain foods / they may decide they eat too much / it may put them at risk of an eating disorder	**2**
8(b)	**Elise has decided to use volunteer sampling.**	
8(b)(i)	**Explain how Elise could use volunteer sampling in her study.** 1 mark for describing what a volunteer sample is / basic description 1 mark for detail 1 mark for link that would give an appropriate sample in this study Using a request to ask people to join in / advert / self selecting participants; (generic description) e.g. by email / post / online; (detail) e.g. at a parent and child club / a school / a parenting website; (link) use the people who reply to the request; (detail) incentives/money/sweets = 1	**3**
8(b)(ii)	**A friend suggests that Elise should use random sampling instead of volunteer sampling.** **Suggest <u>one</u> advantage of using random sampling instead of volunteer sampling in Elise's study.** 1 mark for generic advantage – more representative / generalisable / removes bias 1 mark for link to eating e.g. different families will have different relationships which could affect modelling of eating; (link) some children might not see their parents eat often; (link)	**2**

Question	Answer	Marks
8(c)	**Elise believes that learning is the only factor affecting the children's food preferences.** **Suggest why Elise's belief could lower the validity of her study.** 1 mark for validity e.g. 'because it means she isn't testing what she aimed to test' 1 mark for link e.g. she wouldn't know whether learning (or another factor such as) biology was the cause / children's food preferences might resemble their parents' because of genes (not learning) Because it means she isn't testing what she aimed to test; she wouldn't know whether learning (or another factor such as) biology was the cause; (link) children's food preferences might resemble their parents' because of genes (not learning); (link) She might be biased; This might cause her to interpret incorrectly; Ignoring children who don't have parents; (link) She might see all behaviour as learned; When it could be conformity / obedience;	**2**

Question	Answer	Marks
9	**Samir is comparing a parrot's learning of colour words and action words. His parrot is learning four colour words (red, blue, yellow, green) and must choose a box of the same colour to receive a food reward. The parrot is also learning four action words (hop, peck, jump, squawk) and must perform the correct action to receive a food reward.**	
9(a)	**Outline how Samir could operationalise the action 'jump' in his study.** 1 mark for operationalisation (The parrot) leaving the ground; (The parrot) moving temporarily up in air; OWTTE	**1**

Question	Answer	Marks
9(b)	**Samir's friend Daniel says the action of 'jump' is too similar to 'hop'. His advice is that Samir should use the action of 'nod' (moving the head up and down) instead of 'hop'.** **Explain why the study would be better if Samir follows Daniel's advice.** 1 mark for explanation (can be generic) [can be more than one explanation] 1 mark for link [max 2 with no link] 1 mark for detail Each category should be independent; (generic) Nod is easier to tell apart from hop/jump; (link/detail) So records of the number of jumps may be higher than they should be; (link) ORA It might be difficult to see if the parrot is on one leg or two; (link/detail)	**3**
9(c)	**Samir decides that he needs to video the parrot's responses so that he can score each response twice.** **Suggest why Samir made this decision.** 1 mark for suggestion = reliability [definitive] 1 mark for detail His findings will be more reliable / increase test-retest reliability; (suggestion) As he can make sure that his first and second records are the same / to ensure he is consistent; (detail) If they are not the same, he can recheck until he is scoring consistently (detail) E.g. he would always record nods when the parrot nodded; (detail)	**2**

Question	Answer	Marks
10	**When a person pays more attention to their mobile phone than the person they are with, this is called 'phone snubbing'. Wyatt intends to investigate phone snubbing in men and women using an overt observation.**	
10(a)	**Describe how Wyatt could conduct a study using an overt observation to investigate phone snubbing in men and women.** Three majors for an overt observation are: (a) Behaviours recorded (*definition/operationalisation*) time on phone, ignoring questions etc, structured/unstructured (b) overt status will be achieved (e.g. where the observer is / how the participants know they are being observed) (c) one of: – participant / non-participant – naturalistic / controlled (detail is how they are achieved) The minors are: where – location of participants when data is collected who – participants (must be people on phones) Other details for replication: • sampling technique • sample size • description of how data will analysed, e.g. use of measures of central tendency and spread, bar charts • ethical issues Other appropriate responses should also be credited. Mark according to the levels of response criteria below: **Level 3 (8–10 marks)** • Response is described in sufficient detail to be replicable. • Response may have a minor omission. • Use of psychological terminology is accurate and comprehensive. **Level 2 (5–7 marks)** • Response is in some detail. • Response has minor omission(s). • Use of psychological terminology is accurate. **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. **Level 0 (0 marks)** No response worthy of credit.	**10**

<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.

Problems may, for example, be matters of:

Validity
• operationalisation
• situational/participant variables factors

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>