Cambridge Assessment International Education

Cambridge International AS & A Level

PSYCHOLOGY **9990/23**

Paper 2 Research Methods **October/November 2021**

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 October/November 2021 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.

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)	**Outline what is meant by 'fatigue effects'.** 1 mark for definition 1 mark for detail A **decline** in participants' performance caused by experiencing an experimental task/situation **more than once**; (definition) It can result from tiredness/boredom; (detail) The reduction in performance on the DV is not affected by the IV (reduces validity); (detail)	**2**
1(b)	**In the study by Pepperberg (parrot learning), fatigue effects could have occurred.** **State <u>two</u> examples of the parrot's behaviour that suggest fatigue effects did occur.** 1 mark per way Stopped vocalising / refused to answer question; Preened; Became restless; Requested a different item; Asked to change location / go to gym / said 'wanna go see…';	**2**

Question	Answer	Marks
2	**Explain why opportunity sampling may not produce a representative sample.** 1 mark for explanation People taken by availability are likely to be similar; When the experimenter chooses participants they may be biased;	**1**

Question	Answer	Marks
3	**Studies using animals should follow the ethical guideline of 'deprivation and aversive stimuli'. The study by Yamamoto et al. (chimpanzee helping) followed this ethical guideline.** **Explain <u>one</u> feature of this study that ensured the chimpanzees were not exposed to deprivation/aversive stimuli.** 1 mark for generic explanation of how to follow deprivation/aversive stimuli. (one or other) 1 mark for link **deprivation** refers to not making animals do without necessities; (generic) **aversive stimuli** refers to not exposing animals to unpleasantness; (generic) ethical approval from (Kyoto) university means the chimpanzees were cared for (not deprived); (link) the chimpanzees were given rewards not punished/deprived; (generic) juice drink (reward); (link)	**2**

Question	Answer	Marks
4(a)	**In the study by Canli et al. (brain scans and emotions), several types of quantitative data were collected, including data from fMRI (functional Magnetic Resonance Imaging).** **Describe <u>two</u> quantitative measures in this study, other than the data from fMRI.** 1 mark for identifying quantitative measure + 1 mark for detail × 2 Rating of **emotional arousal/intensity**; On a scale of 0 = not / low to 3 = extremely emotionally intense / high; Memory / **recall** / recognition of slides / scenes; **Number / percentage** of slides **remembered, familiar** or **forgotten**;	**4**
4(b)(i)	**For one of the quantitative measures you described in (a):** **Explain <u>one</u> reason why it may be a valid measure.** 1 mark for reason, 1 mark for detail *Rating of emotional intensity:* It is a linear scale indicating greater intensity; Whereas data about remembered, familiar or forgotten was nominal/categorical so less informative; Scale is standardised; Each individual would be able to consistently say one stimulus was more (/less) intense; *Number/percentage of slides remembered, familiar or forgotten:* Recalling a slide/scene is objective / not subjective; Either it was forgotten/remembered/familiar or it wasn't; No interpretation is required like there is for the rating scale;	**2**
4(b)(ii)	**Explain <u>one</u> reason why it may not be a valid measure.** 1 mark for reason, 1 mark for detail **P may lie;** *Number/percentage of slides remembered, familiar or forgotten:* It does not allow for graded responses; Something might be remembered/familiar somewhat or very well and this cannot be recorded; *Rating of emotional intensity:* It is subjective / not objective; So interpretation of the scale is required by the participant, so there may be individual differences in use;	**2**

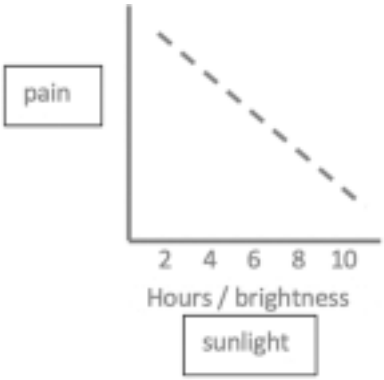
Question	Answer	Marks
5	**In the cognitive approach, studies often need to deceive participants. Explain why deception was necessary in the study by Andrade (doodling).** 1 mark for need for deception If the participants had known about the surprise memory test they would have deliberately remembered the place names; To avoid demand characteristics = 0 To avoid demand characteristics so the participants didn't deliberately doodle / make an effort to remember names / focus on the names in the message;	**1**

Question	Answer	Marks
6	**Describe covert observations and overt observations, using any examples.** Up to 4 marks for detail for each type of observation max 2 examples per type of observation. Examples can include examples from any studies (core studies, other studies, candidate's own studies). **Overt observation:** the role of the observer is obvious to the participants; such as if they are holding a clipboard; This can improve validity as it is easier to collect data / to be close to the participants; It raises few ethical issues as participants are aware so can give consent; Saavedra and Silverman: the boy knew the researchers were watching him during the in vivo button tasks; (example) **Covert observation**: the participants are **unaware** of role / existence of the observer; e.g. if **disguised** as a member of the social group; or physically **hidden**; such as using CCTV / a one-way mirror; This improves validity as participants cannot to be affected by being observed; so demand characteristics / social desirability are reduced; Bandura et al.'s observers were covert because they used a **one-way mirror** to watch the children; (example) Piliavin et al.'s observers were covert because they **pretended to be passengers** to watch on the subway; (ex) Schachter and Singer's observers were covert because they used a **one-way mirror**; (example) Milgram: observations were covert because they were made through a **one-way mirror**; (example) Yamamoto et al.: chimpanzees **videoed** (using three **cameras**); (example)	**6**

Question	Answer	Marks
7(a)	**Dhia is investigating when children learn to understand differences between shapes. She is comparing children aged 4 years and 8 years. Dhia will test their ability by asking them to sort wooden shapes into triangles, squares or circles.** **Suggest <u>two</u> ways that Dhia could measure a child's performance on this test.** 1 mark for a way × 2 How **quickly** they sort (all) the shapes; How **many** shapes they sort correctly / How many errors they make in sorting; Number of each type of shape: triangles, squares or circles;	**2**
7(b)	**Ethical guidelines suggest that even when consent has been given by a parent, a child should still be asked if they want to participate in a way that they will understand.** **Suggest how Dhia could attempt to obtain consent from the children in a way that they will understand**. 1 mark for making informing and gaining agreement child-friendly 2nd mark for suggested technique e.g. wording or further detail She should ask using easy words/language; (1st mark) asking if they want to play a **game**; (1st or 2nd mark) e.g. say 'Please can you sort these shapes out for me' (1st mark) 'you don't have to if you don't want to.' (2nd mark) e.g. say 'Will you play a shape sorting game with me'; (1st mark) 'or would you rather play on your own?' (2nd mark)	**2**
7(c)	**Children may express their right to withdraw in different ways from adults.** **Suggest how Dhia might know that a child wants to withdraw from her experiment**. 1 mark for brief suggestion, 1 mark for detail or second suggestion The child might get up / walk away from the study / walk out of the room; (brief suggestion) Stop participating / refuse to continue; (brief suggestion) because they are afraid/bored (detail) and child might look distressed/cry/scream/shout; (detail) as they want to find someone familiar; (detail)	**2**

Question	Answer	Marks
7(d)	**The 4-year-old children had been learning about shapes at school the week before Dhia's study.** **Explain the possible effect of this on Dhia's findings.** 1 mark for identifying reduction in validity, 1 mark for detail, 1 mark for link It will make her conclusion less valid; (identification) Because the 4-year olds will have learned to tell the shapes apart; (link) 'They would be able to sort' = 1 Because the DV would be affected by a variable other than the IV; (generic detail) Because the trip was only for the 4-year old children and not the 8-year old children; (linked detail) Learning about shapes could improve scores so they'd look better at shapes for their age; (linked detail)	**3**

Question	Answer	Marks
8(a)	**Bai is conducting a correlational study about pain and hours of daylight. He thinks that people experience more pain on days when there is less sunlight. He has asked for volunteers from a specialist centre for back pain. Bai plans to collect his data about pain using a questionnaire.** **Explain one reason why it may be better for him to use an interview to collect this data.** 1 mark for reason (generic) 1 mark for link Some people might not return questionnaires, biasing the data; (reason) People with worse back pain might find writing their answers more difficult than talking; (link) Interviews can tailor questions to individuals; (reason) Interviews can explain questions to individuals; (reason) Interviewer can build a relationship with the interviewee / develop trust; (reason) So obtain more information about their pain / exposure to sunlight; So Bai would be able to ask questions about the particular pain different patients feel / what they do when the weather is fine/dull; (link) Interviewer gains information from non-verbal cues / facial expressions / gestures / grimacing (to indicate pain); Can use more open questions / collect more qualitative data = 0	**2**
8(b)(i)	**Suggest <u>one</u> disadvantage of using participants from a specialist centre for back pain.** 1 mark for disadvantage 1 mark for detail The patients will *all* be in pain; So the findings may not generalise / may not be representative; to people with only mild pain / people from other areas; The patients are attending a pain clinic, so are being *treated*; The treatment may mean their pain doesn't fluctuate enough to see a pattern; They all have *back* pain; The findings may not generalise (to other sorts of pain); It might be unethical because it makes them *think about* their pain; This could cause harm as they may be more distressed;	**2**

Question	Answer	Marks
8(b)(ii)	**Suggest one alternative source of participants. Justify your answer.** 1 mark for source of participants 1 mark for justification The participants could include normal people who are experiencing occasional pain; Which would have greater generalisability to the whole population; A group of patients who are awaiting appointments / treatment; Then there are not receiving therapy / painkillers; The participants could come from a hospital; This would give a range of different sorts of pain; Patients from a GP surgery; A list could be used to get a more representative random sample;	**2**
8(c)	**Sketch a graph of the results Bai expects to find on the axes below. You must label the axes.** 1 mark for both 'pain' and 'daylight' as axis labels 1 mark for units (hours / brightness / light level) on daylight scale 1 mark for negative correlation (points or line of 'best fit')  	**3**

Question	Answer	Marks
9(a)	**Mitesh is investigating the effect of doodling on recall of animal noises. He provides pencils and doodling paper for all participants and tells them that they will hear a recording of animal noises that they will have to recall. Mitesh notes which participants doodle while they listen to the recording.** **Suggest how Mitesh could encourage participants to doodle, other than by telling them to doodle**. 1 mark for brief suggestion 1 mark for detail or second suggestion He could provide paper with marked shapes; (suggestion) Which he could tell them is to **keep themselves amused** (by doodling); (detail) He could tell them the noises are **boring**; (suggestion) So they might want to do something to keep themselves amused; (detail) Make the recording **long**; (suggestion) Make the recording **repetitive**; (suggestion) So they get bored; (detail)	**2**
9(b)	**The participants who doodled recalled more animal noises than the participants who did not doodle. However, Mitesh cannot conclude that doodling causes better recall.** **Suggest one reason why Mitesh cannot conclude that doodling causes better recall**. 1 mark for a brief/generic reason 2 marks for a clear and linked reason Mitesh did not control who doodled; (brief) So natural doodlers might have better memories anyway; (clear and linked) Participants were not randomly allocated to conditions; (brief and generic) People who doodle may have better auditory memory / memory for noises (than non-doodlers); (clear and linked) It might be improved concentration/attention (listening) that causes better recall; (brief) And doodling improves concentration/attention (listening); (clear and linked)	**2**
9(c)	**Mitesh did not deceive his participants.** **Explain why it was necessary for him to debrief his participants.** 1 mark for explanation (may be generic), 1 mark for link Participants should always be returned to the condition in which they entered the experiment; (explanation) His participants may have felt discouraged if they didn't recall many noises, he needed to correct this; (link) Participants not told the aim was to test the effect of doodling on recall; they needed to be informed; = 2 (linked explanation)	**2**

Question	Answer	Marks
10(a)	**Mandy wants to investigate the effects of phobias on the way people socialise, such as how friendly they are and the social groups or clubs they belong to.** **Describe how Mandy could conduct a study using a questionnaire to investigate the effects of phobias on the way people socialise**. Three **majors** for a **questionnaire** are: **a** **content of questions** (examples: **phobic** symptoms, **social** life) **b** **style of questions** asked (e.g. open/closed) **c** **people with phobias** (**source,** sampling) The **minor** is: **where**: location of participants when completing the questionnaire / how it is distributed Other details for replication: • lie questions • filler questions • sample size • description of how closed questions will be scored • description of how open questions will be interpreted • 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 not 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>