Cambridge Assessment International Education

Cambridge International AS & A Level

PSYCHOLOGY **9990/22**

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 **13** 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	**From the study by Schachter and Singer (two factors in emotion):**	
1(a)	**Identify the sampling technique used in this study.** 1 mark for identification of **volunteer (sampling)** (definitive)	**1**
1(b)	**Explain how this sampling technique was used in this study.** 1 mark per point × 2 Participants were taken from a subject pool / who volunteered to be participants in studies; of Minnesota / university (introductory psychology course) students; and gained two extra points in their final exam (for every hour they spent in a study);	**2**
1(c)	**One ethical strength of this study was that health checks were done**. **Explain why this is an ethical strength.** 1 mark for identifying strength 1 mark for detail Avoided harm / avoided risks to participants; (strength) So they would not be harmed by the injection / the effects of adrenaline; (detail)	**2**

Question	Answer	Marks
2	**From the study by Bandura et al. (aggression):**	
2(a)	**Identify the sample and the population in this study, using the following information:** ***The findings of this study on 72 children were generalised to suggest that all children learn aggression through observation.*** 1 mark for identifying **both** sample **and** population from the stem Sample = 72 (children) Population = (all) children	**1**

Question	Answer	Marks
2(b)	**Explain <u>one</u> reason why generalisations should not be made from the 72 participants in this study, other than because of their age.** 1 mark for identifying reason 1 mark for linked detail The sample was not representative (e.g. all children from same background); (reason) from one nursery; (linked detail) Only children from Stanford/a university; (reason/detail) (Stanford / a university has) predominantly people from wealthy / middle class / high IQ families; (linked detail) There were lots of conditions/levels of the IV; (reason) So only 6 children per condition/level of the IV (which isn't many); (linked detail)	**2**

Question	Answer	Marks
3	**In a study investigating the emotions associated with birthdays, qualitative and quantitative data are being collected. A possible problem with some of this data is subjectivity.**	
3(a)	**State what is meant by 'subjectivity'.** 1 mark for definition (The effect of) a personal viewpoint (on data collection); The effect of the researcher's feelings/beliefs/experiences on data collection / interpretation;	**1**
3(b)	**Suggest <u>one</u> way that qualitative data could be collected for this study.** 1 mark for qualitative way 1 mark for detail linked to emotions and birthdays (e.g. questions – must be open). questionnaire; (way) asking questions such as 'Describe how you feel on your birthday'; (link) interview; (way) asking questions such as 'Explain why you feel happy at other people's birthday parties'; (link) using open questions; (way) e.g. 'Tell me about the emotions you experience on your friend's last birthday'; (link)	**2**

Question	Answer	Marks
4	**In the study by Baron-Cohen et al. (eyes test), standard deviations were calculated on the Autism Spectrum Quotient (AQ) scores and are shown in Table 4.1.** | | AS/HFA group | IQ-matched group | | standard deviation of AQ scores | 6.0 | 2.9 | **Explain what the information in Table 4.1 indicates about the results of these two groups.** 1 mark for explanation of standard deviation 1 mark for link The bigger the standard deviation, the more spread out the scores in the data set (are around the mean); (explanation) ORA So the AS/HFA group were more variable in their AQ scores than the IQ matched group; (link) ORA	**2**

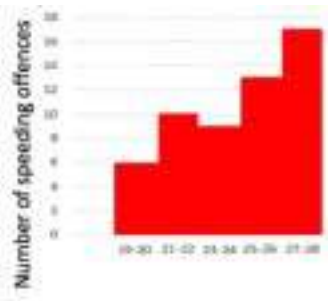
Question	Answer	Marks
5	**Explain what is meant by 'operationalisation' in relation to the dependent variable and independent variable, using the study by Piliavin et al. (subway Samaritans).** 1 mark for definition 2 marks for links Operationalisation means **clearly** defining a variable; (definition) Operationalisation when variables are defined so that they can be accurately **manipulated/measured/replicated**; (definition) Piliavin et al. defined the IV e.g. the 'type' of victim by what they carried, a bottle in a bag or a cane; (link) e.g. the model present or absent; (link) And spontaneous helping / the DV as intervening to help before the model did; (link)	**3**

Question	Answer	Marks
6	**Describe reliability and validity, using any examples.** 1 mark for each definition/detail, up to a maximum of 4, for each issue. 1 mark for each example that is linked to one issue, up to a maximum of 2, for each issue. Examples can include examples from any studies (core studies, other studies, candidate's own studies). **Reliability**: is the consistency of a procedure, task or measure; (definition) i.e. whether it produces the same results with the same people each time it is used; (definition) (Different types of reliability e.g.) inter-rater reliability which is how similarly two researchers record the same results; And intra-rater reliability, whether one researcher is consistent over time; Test-retest measures the reliability of a test or instrument over time by checking that two tests the same / similar data produce similar results; Split-half measures the reliability of items within a test by looking at whether half the test produces similar results to the other half; Bandura et al.'s study had high reliability because they all used the same scales; Bandura et al.'s observers had a high inter-rater reliability with a coefficient of .89 for the initial testing of aggression / .9 (or more) for the observations; Pepperberg's study had low reliability because the sessions took different lengths of time; **Validity**: is the extent to which a test or task measures what is claims to measure; (definition) i.e. whether it truly represents reality; (definition) (Different types of validity e.g.) ecological validity which is whether results generalise beyond the setting of the study; Controls/standardisation make experiments more valid; Milgram's study had high validity because the participants believed they were killing someone / showed genuine signs of tension; Milgram's study had low validity because the situation was in a laboratory and it was unlikely that Yale would let people die for an experiment Milgram's study had low validity as electrocuting someone you cannot see is very different from the situation German concentration camp guards were in (and this is what Milgram was trying to test);	**6**

Question	Answer	Marks
7	**Zayn is conducting a laboratory experiment to investigate the effects of lighting on attention. The participants' attention will be tested using a listening task in either bright light or dim light.**	
7(a)	**Identify the independent variable in Zayn's study.** 1 mark for identifying the IV of **light (level)/bright lighting or dim lighting**	**1**

Question	Answer	Marks
7(b)	**Identify the dependent variable in Zayn's study.** 1 mark for identifying the DV of **attention/score on the attention task**	**1**
7(c)(i)	**State <u>one</u> relevant variable that Zayn should control in his study.** 1 mark for a control Amount of noise; How much sleep the participant has had the night before; Drinking alcohol/caffeine;	**1**
7(c)(ii)	**Suggest how Zayn could control the variable you suggested in (c)(i).** 1 mark for how Noise: use a sound-proof room; Previous amount of sleep: ask them to sleep for a fixed time the day before; Alcohol/caffeine: ask them to abstain the day before;	**1**
7(c)(iii)	**Explain why Zayn should control the variable you suggested in (c)(i)**. 1 mark for why Noise: because noise could keep them awake; Previous amount of sleep: because they would be more or less attentive; Alcohol/caffeine: because they would be more/less attentive;	**1**
7(d)	**Explain <u>one</u> practical reason why it is better for Zayn to test attention using a listening task rather than a visual task.** 1 mark for generic reason (e.g. **validity**) 1 mark for link The light level would affect how easy it was to see the visual task; (link) So the difference in the results wouldn't be due to the IV of task type; (generic reason) It would be harder to do the visual task in dim lighting; (link) This would reduce **validity**; (generic reason) You can close your eyes but you can't close your ears; (link) (reason) so it would be a more **valid** test; (generic reason)	**2**

Question	Answer	Marks
7(e)	**Suggest <u>one</u> weakness of Zayn using a laboratory experiment to study attention.** 1 mark for a generic weakness 1 mark for a link (study on paying attention) It lacks ecological validity; (generic) People usually have a reason to pay attention e.g. in lessons / to a good film (but wouldn't in a laboratory); They know they are being studied / there will be demand characteristics; (generic) So they will try harder to pay attention;	**2**

Question	Answer	Marks
8	**Gwyn is conducting a study about obedience to traffic rules. She believes that hot weather makes people angry so they disobey rules. Each day she has recorded the daily temperature and counted the number of speeding offences in her town. Gwyn has categorised the data in Table 8.1 according to temperature.** Table 8.1 Temperature (°C): 19–20 | 21–22 | 23–24 | 25–26 | 27–28 Number of speeding offences: 6 | 10 | 9 | 13 | 17	
8(a)	**Draw a histogram of Gwyn's data. You must label the axes.** 1 mark: 'number of speeding offences' on y-axis 1 mark: 'temperature' on x-axis 1 mark: correct **plotting of data** for full 3 marks 	**3**
8(b)	**Outline what Gwyn can conclude from her data.** 1 mark for a conclusion Hotter weather makes people more angry; People speed more when the weather is warmer;	**1**

Question	Answer	Marks
8(c)	**A colleague says that several situational variables may be important in Gwyn's study and that she should have controlled them.**	
8(c)(i)	**Explain how <u>one</u> situational variable could have affected Gwyn's results.** 1 mark for situational variable 1 mark for effect on results There may be more/less *traffic* on the road when it is hot; (situational variable) which would make people speed more; (effect) it may be *harder to brake* effectively in hotter weather; (situational variable) making it harder for people to slow down; (effect)	**2**
8(c)(ii)	**Suggest how Gwyn could have reduced the effect of the situational variable that you referred to in (c)(i).** 1 mark for way to reduce effect *Traffic*: count cars and only collect data on days of similar traffic density; *Braking*: only collect data from cars with good brakes;	**1**

Question	Answer	Marks
9	**Hazel is conducting an overt, participant observation to identify factors that affect the emotions of residents in a home for elderly people. She is a volunteer at the home, so the residents know her.**	
9(a)	**Explain <u>one</u> practical reason why it is useful that the residents know Hazel.** 1 mark for practical reason 1 mark for explanation the participants are more likely to behave normally; (practical reason) because Hazel is a volunteer so they are used to her being there; (detail) because the residents know Hazel well / will feel comfortable with her; (detail) it will reduce the effects of social desirability; (practical reason – 2nd mark only for term) the residents might change their behaviour if the observer was unfamiliar but they know Hazel; (detail) so it will make the results more valid; (practical reason – 2nd mark only for term)	**2**

Question	Answer	Marks
9(b)(i)	**Explain <u>one</u> ethical problem caused by the residents knowing Hazel.** 1 mark for ethical problem (e.g. privacy, harm, right to withdraw) 1 mark for link There is a risk of invading privacy; (ethical problem) residents might expose emotions because they know Hazel that they wouldn't want to reveal in a study; (link) There is a risk of psychological harm; (ethical problem) if Hazel observes emotions that the residents wouldn't want to be seen, they may become distressed; (link) There is a reduced right to withdraw; (ethical problem) residents might feel unable to walk away if they are expressing emotions because Hazel knows them; (link)	**2**
9(b)(ii)	**Suggest <u>two</u> ways that Hazel could overcome the ethical problem that you explained in (b)(i).** 1 mark for a generic solution + 1 mark for link } ×2 privacy: make the right to withdraw clear; (generic) e.g. put a sign up in the home saying residents can go to their rooms whenever they like; (link) psychological harm: debriefing; (generic) e.g. if Hazel sees a resident becoming distressed she should reassure them; (link) right to withdraw: reminders that they can leave at any time; (generic) e.g. each day Hazel arrives she should remind the residents they don't have to be watched; (link)	**4**

Question	Answer	Marks
10	**Jilpa plans to explore how personalities vary. She thinks that people's personalities can have several characteristics, for example, how serious/playful, talkative/quiet or optimistic/pessimistic they are.**	
10(a)	**Describe how Jilpa could conduct a study using a structured interview to investigate a range of characteristics in people's personalities.** Three **majors** for a **structured interview study** are: **a: What – content of questions** asked (*detail*: i.e. topics, examples: serious/playful, talkative/quiet or optimistic/pessimistic or any other e.g. shy/outgoing) **b: How –** the interview is **structured** (*detail*: e.g. same questions to all / same question order / predetermined / timing/interviewer's dress, tone, face-to-face) **c: How – style of questions** asked (*detail*: e.g. open/closed; quantitative/ qualitative; filler questions The **minors** are: **Where –** location of participants when being interviewed **Who –** participants Other details for replication: • lie questions • sampling technique • sample size • how data will be gathered • description of how closed questions will be scored • description of how quantitative data from closed questions will analysed • description of how open questions will be interpreted 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>