Cambridge Assessment International Education

# Cambridge International AS & A Level

**PSYCHOLOGY** **9990/21**

Paper 2 Research Methods **May/June 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.

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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.

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 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 | **In the study by Pepperberg (parrot learning), several features of the procedure helped to improve reliability.** | |
| 1(a) | **State what is meant by 'reliability'.**<br><br>1 mark for definition<br><br>The consistency of a procedure/task/measure;<br>whether the procedure/task/measure produces the same results with the same people each time (it is used);<br><br>• reliability is about consistency = 1 mark<br>• to be reliable, measures must measure the phenomenon in the same way each time = 1 mark<br>• whether a test produces the same results every time = 0 marks | **1** |
| 1(b) | **Suggest how <u>one</u> feature of the procedure helped to make this study reliable.**<br><br>1 mark for feature that helped reliability<br>1 mark for link<br><br>standardised (questions)/question all equally hard; (feature)<br>the questions asked were always phrased 'what's same?' or 'what's different?'; (link)<br><br>There was no risk of improvement within a test; (feature)<br>because the same materials were never presented again during a test; (link)<br><br>only (very) specific responses were accepted as correct; (feature)<br>e.g. 'colour'/'shape'/'mah mah' for 'matter'; (link)<br><br>Alex could not guess; (feature)<br>because his 'first trial' performance was measured; (link) | **2** |

| Question | Answer | Marks |
|---|---|---|
| 2 | **In the study by Andrade (doodling), one possible uncontrolled variable was whether the participants had friends with the same names as the people in the mock telephone call.** | |
| 2(a) | **Suggest <u>one</u> problem this uncontrolled variable might have caused.**<br><br>1 mark for problem<br>1 mark for a detail<br>One point must be linked for full 2 marks<br><br>Lowers validity; (generic problem)<br>as people with friends of the same name will recall better; (linked detail)<br><br>means Andrade could not be certain that differences were caused by the IV; (generic problem)<br>so it is not the effect of the doodling; (linked detail) | **2** |
| 2(b) | **Suggest how the problem you referred to (a) could be solved.**<br><br>1 mark for solution<br>1 mark for a detail<br>One point must be linked for full 2 marks<br><br>Ask people to name their friends; (linked solution)<br>(at least a week) prior to the study/ask friends of the participants to name all their friends; (generic detail)<br><br>Eliminate people with friends of the same name; (linked solution)<br>by interviewing them after the study; (generic detail)<br><br>Use really unusual/made up names in the mock telephone call; (linked solution)<br>so that it is unlikely that anyone will have friends with those names; (linked detail)<br><br>use another feature than names; (linked solution)<br>e.g. use food names (of party foods); (linked solution) | **2** |

| Question | Answer | Marks |
|---|---|---|
| 3(a) | **State what is meant by a 'case study'.**<br><br>1 mark for each (of two) descriptive points (definitive)<br>one instance/one person/one individual/one unit;<br>in detail/depth/descriptive/(lots of) qualitative data;<br><br>Do not accept 'lots of data' – all methods collect lots of data | **2** |
| 3(b) | **One type of colour blindness is when people cannot tell the difference between the colours red and green.**<br><br>**Describe how a case study to investigate colour blindness could be conducted.**<br><br>3 marks for three points on how to conduct the study<br>1 point must be directly linked to earn full 3 marks<br><br>Use volunteer sampling to obtain a colour blind person; (link)<br>advertise for colour blind people online; (link)<br><br>Conduct interviews; (generic)<br>to ask detailed questions about their past, e.g. how they found out that sensory experience was different; (link)<br>Present them with coloured stimuli and ask them what they see; (link)<br>Make observations; (generic)<br>e.g. see what colour they say when see they red/green objects around them; (link) | **3** |

| Question | Answer | Marks |
|---|---|---|
| 4 | **In the study by Yamamoto et al. (chimpanzee helping), quantitative data was collected.**<br><br>**Suggest <u>one</u> strength of collecting quantitative data in this study.**<br><br>1 mark for identifying strength (can be generic)<br>1 mark for link<br><br>it is objective/it is not subjective/it does not require interpretation = 1 (advantage)<br>so the measure of helping by each chimp will be consistent/reliable = 2nd mark link<br><br>it is numerical = 1 (advantage)<br>so helping scores can be easily compared/analysed/are more valid = 2nd mark link | **2** |

| Question | Answer | Marks |
|---|---|---|
| 5 | **Explain <u>one</u> weakness of random sampling.**<br><br>1 mark for weakness<br>1 mark for detail<br><br>It is limited by the population chosen;<br>a random sample of students of one school may not be representative of all schools;<br><br>It is limited by access to the population;<br>randomly selected people can be asked to participate, but some may not (and if similar, this causes bias); | **2** |

| Question | Answer | Marks |
|---|---|---|
| 6 | **Describe structured observations and unstructured observations, using any examples.**<br><br>Definitions/detail: up to a maximum of 4 marks for each observational technique.<br>Examples: maximum of 2 marks for each technique.<br>Examples can include examples from any studies (core studies, other studies, candidate's own studies).<br>Max 4 if no examples<br><br>A structured observation records a limited range of behaviours; which must be listed/defined; (definition)<br><br>Detail:<br>• structured observations use behaviour checklists;<br>• so it is more reliable than unstructured observation;<br>• they collect quantitative data;<br>• they can be used as a technique to measure the DV in experiments;<br><br>examples:<br>• Piliavin et al. help/not help;<br>• Bandura et al. specific aggressive/non-aggressive actions/verbal responses;<br><br>An unstructured observation records all behaviours; (definition)<br><br>Detail:<br>• Unstructured observations are often pilot studies;<br>• And may collect qualitative data (and quantitative data);<br>• Used to refine the range of behaviours for further study;<br>• to identify/define behavioural categories to record;<br><br>examples:<br>• Milgram responses when giving shocks;<br>• Pepperberg Alex's actions when 'bored';<br>• Yamamoto et al. additional behaviour, e.g. peeping through hole;<br>• Schachter and Singer responses to stooges; | **6** |

| Question | Answer | Marks |
|---|---|---|
| 7 | **Kira is conducting a correlational study looking for a relationship between level of creativity and the amount of time spent playing sport. Kira could find a positive or a negative correlation.** | |
| 7(a) | **State whether Kira should use a directional or a non-directional hypothesis. Include a reason for your answer.**<br><br>1 mark for explanation of why it should be non-directional<br>(no marks for just stating non-directional)<br><br>non-directional because she does not know whether there will be a positive or a negative correlation; | **1** |
| 7(b) | **State what Kira would find if there was a negative correlation.**<br><br>1 mark for explanation<br><br>As the amount of creativity went up, the amount of time spent playing sport would go down; ORA | **1** |
| 7(c) | **Write a null hypothesis for Kira's study.**<br><br>1 mark for a correlational null hypothesis<br>It must include both variables. Hypothesis does not have to be operationalised.<br><br>There will be no correlation/link/relationship between time spent playing sport and (level of) creativity;<br>Any correlation/link/relationship between time spent playing sport and (level of) creativity is due to chance;<br><br>Experimental hypotheses (or statements that are not hypotheses) = 0 marks<br>e.g. There will be no difference between creativity in people who spent a little and a lot of time spent playing sport = 0<br>e.g. There will be no difference between creativity and time spent playing sport = 0 marks<br>e.g. Any difference between time spent playing sport and creativity is due to chance = 0 marks<br><br>Alternative hypotheses = 0 marks<br>There will be a correlation/link/relationship between time spent playing sport and (level) of creativity; = 0 | **1** |

| Question | Answer | Marks |
|---|---|---|
| 7(d) | **Kira finds a strong correlation.**<br><br>**Explain whether Kira will know if one variable is causing the change in the other variable.**<br><br>1 mark for explaining why not (no marks for just 'no')<br>1 mark for link<br><br>No, because a correlation cannot demonstrate a causal relationship; (generic why)<br>So creativity could cause people to play more sport or playing more sport could reduce creativity; (link)<br><br>No, because a third factor could cause the change in both variables; (generic why)<br>e.g. schooling could cause both an increase in creativity and less time spent playing sport; (link) | **2** |

| Question | Answer | Marks |
|---|---|---|
| 8 | **Ruth is planning an interview to investigate the emotional effect of being a wedding guest.** | |
| 8(a) | **Suggest <u>one</u> open question that Ruth could ask about the emotional effect of being a wedding guest.**<br><br>1 mark for an open question about emotions<br><br>Describe how being a wedding guest makes you feel;<br>Describe what emotions you experience when you see a wedding party;<br>Why does being a wedding guest make you happy? | **1** |
| 8(b) | **Suggest <u>one</u> closed question that Ruth could ask about the emotional effect of being a wedding guest.**<br><br>1 mark for a closed question about emotions with answer choices<br><br>Rate how you feel when you are a wedding guest on a scale of 1 (not happy) to 1 (very happy);<br>When you see a wedding party do you feel happy/sad/jealous/indifferent? yes/no; | **1** |
| 8(c) | **Explain <u>how</u> Ruth could ensure her procedure is ethical.**<br><br>1 mark for identification of what Ruth could do to ensure ethical procedure<br>2 marks for further detail, 1 mark per point<br>For full 3 marks, at least one point should be linked<br><br>Enable participants to give informed consent; (identification of generic point)<br>So they would know that they might be asked about weddings; (linked detail)<br>So single people could choose not to participate if they didn't want to; (linked detail)<br><br>Debrief participants afterwards; (identification of generic)<br>So any harm done could be reversed; (generic detail)<br>So divorced participants could be reassured to return them to their previous state; (linked detail)<br><br>Give wedding guests the right to withdraw; (linked identification)<br>So if they were upset by a question they could ignore it; (generic detail)<br>So that people were not harmed; (generic detail)<br>Invading privacy; (identification of generic point) | **3** |

| Question | Answer | Marks |
|---|---|---|
| 9 | **Jabir is investigating the social lives of old people and is using a questionnaire to measure their friendships.** | |
| 9(a) | **Jabir will use volunteer sampling but also wants to make his sample representative of old people.** | |
| 9(a)(i) | **Jabir has identified three features of old people that are relevant to his study:**<br>• **whether they live alone or not**<br>• **whether they belong to any group or club**<br>• **their exact age.**<br><br>**Suggest why each of these features is relevant to Jabir's study.**<br><br>1 mark per linked explanation ×3<br><br>whether they live alone or not:<br>people in care homes are surrounded by people they might call 'friends';<br>people living alone are more likely to have known the people nearby for years, so call them friends;<br>older people who had more friends when they were young might be more likely to opt for a care home (so look like they have more friends in old age);<br><br>whether they belong to any group or club:<br>People with sources of people from groups (e.g. religious, clubs, sports) may appear to have more friends;<br>older people who had more friends when they were young may be more likely to join things (so look like they have more friends in old age);<br><br>their exact age:<br>Older people's friends might be dying more (so they would have fewer);<br>Older people might have vision/hearing/mobility problems (so may be less able to maintain friendships); | **3** |
| 9(a)(ii) | **Describe how Jabir could use volunteer sampling to obtain a sample.**<br><br>1 mark for each identification/detail point about how to obtain a volunteer sample.<br>For full 3 marks, at least one point should be linked to Jabir's study.<br><br>Place adverts (in a newspaper/on the internet); (generic identification)<br>In old people's homes; (linked identification)<br>on internet sites for old people/dementia/arthritis; (linked detail)<br>Ask for volunteers for a study on friendships/deceive them about the aim; (generic detail) | **3** |

| Question | Answer | Marks |
|---|---|---|
| 9(a)(iii) | **Outline <u>one</u> reason why Jabir may exclude some old people from his sample.**<br><br>1 mark for reason (explained, not identified)<br><br>If they are deaf/blind/disabled as it may be hard for them to maintain friendships;<br>If they are unwell/recently bereaved as it might be distressing for them;<br>If they have memory problems so are unable to accurately recall their friendships;<br>If they have no family so have greater need of friends;<br>If they have a large, close family so have no need for friends; | **1** |
| 9(b) | **Suggest how Jabir could define the variable of 'friendship' in his study.**<br><br>1 mark for a basic operationalisation<br>1 mark for detail<br><br>Having a person you can talk to;<br>Somebody who helps you/who you help;<br>Who you have known for more than X months/years;<br>Who you trust;<br>Who you would confide in;<br>Who you see/talk to/communicate with regularly;<br>Who is not a member of your family; | **2** |

| Question | Answer | Marks |
|---|---|---|
| 9(c) | **Jabir intends to collect all of his data in two days.**<br><br>**Suggest <u>one</u> reason why this may reduce the validity of his findings.**<br><br>1 mark for the reason why<br>1 mark for the effect on the validity of Jabir's study<br>Must be linked to Jabir's study for 2 marks<br><br>Deciding if someone is a friend may depend on whether you have seen/spoken to them recently; (why)<br>So the measure would be of recent contact not friendships; (effect)<br><br>If you feel lonely on the day you are tested you may not be able to remember any friends at all; (why)<br>So the measure would be of immediate feelings not friendships; (effect)<br><br>Old people may not remember so may need more time to think of their friends; (why)<br>So the measure would be of recall ability not friendships; (effect)<br><br>Short of time/rushed; (why)<br>because all the old people might sleep all afternoon so he could only collect data in two mornings; (effect)<br><br>some of the old people might be busy those two days; (why)<br>so he would have a limited/biased sample; (effect)<br><br>No time to interpret = 0 (irrelevant because about analysis of data not collection) | **2** |
| 9(d) | **Suggest <u>one</u> weakness of using a questionnaire for Jabir's study.**<br><br>3 marks for suggested weakness.<br>For full 3 marks, answer must be linked to Jabir's study.<br><br>Old people may have difficulty reading/concentrating; (link)<br>So they may appear to have fewer friends; (link)<br>Which reduces validity; (generic)<br><br>People may not return questionnaires; (generic)<br>So the overall number of participants could be low; (generic)<br>So would not reflect the variability of friendships in old people, lowering generalisability; (link)<br><br>Some types of people may be less likely to return questionnaires; (generic)<br>e.g. people with lots of friends might be too busy to send them back; (link)<br>Which would create bias in the data; (generic)<br><br>Because the respondents might lie/They might give socially desirable answers; (generic)<br>To hide the fact they have no friends; (link)<br>So it would reduce validity/so it would look like old people have more friends than they really do; | **3** |

| Question | Answer | Marks |
|---|---|---|
| 10 | **Nuan wants to test the idea that the way words are presented affects recall. She predicts that people will recall more words from a list they hear than from a list they see.** | |
| 10(a) | **Describe how Nuan could conduct a laboratory experiment to test the idea that the way words are presented affects recall.**<br><br>Three majors for a laboratory experiment are:<br>What: – will be recorded, i.e. DV recall of the list (operationalisation: scoring)<br>How: – IV hearing or seeing a list (operationalisation: how it is presented visually and orally)<br>– controls (e.g. limiting distractions, time allowed to study list)<br><br>The minors are:<br>• where – location of participants when data is collected (i.e. lab)<br>• who – participants<br><br>Other details for replication:<br>• experimental design (any are appropriate here)<br>• sampling technique<br>• sample size<br>• description of how data will analysed, e.g. use of measures of central tendency and spread, bar charts<br>• ethical issues<br><br>Other appropriate responses should also be credited.<br><br>Mark according to the levels of response criteria below:<br><br>**Level 3 (8–10 marks)**<br>• Response is described in sufficient detail to be replicable.<br>• Response may have a minor omission.<br>• Use of psychological terminology is accurate and comprehensive.<br><br>**Level 2 (5–7 marks)**<br>• Response is in some detail.<br>• Response has minor omission(s).<br>• Use of psychological terminology is accurate.<br><br>**Level 1 (1–4 marks)**<br>• Response is basic in detail.<br>• Response has major omission(s).<br>• If response is impossible to conduct max. 2.<br>• Use of psychological terminology is mainly accurate.<br><br>**Level 0 (0 marks)**<br>No response worthy of credit. | **10** |

| Question | Answer | Marks |
|---|---|---|
| 10(b) | **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.**<br><br>**Do <u>not</u> refer to ethics or sampling in your answer.**<br><br>Answer will depend on problem identified.<br><br>Problems may, for example, be matters of:<br>Validity<br>• operationalisation<br>• situational/participant variables factors<br><br>Reliability<br>• inter-rater consistency<br>• intra-rater consistency.<br><br>This list is not exhaustive and other appropriate responses should also be credited. | **4** |

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