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Cambridge Assessment International Education

Cambridge International AS & A Level

PSYCHOLOGY **9990/22**

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.

Cambridge International will not enter into discussions about these mark schemes.

Cambridge International is publishing the mark schemes for the May/June 2021 series for most Cambridge IGCSE™, Cambridge International A and AS Level components and some Cambridge O Level components.

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Generic Marking Principles

These general marking principles must be applied by all examiners when marking candidate answers. They should be applied alongside the specific content of the mark scheme or generic level descriptors for a question. Each question paper and mark scheme will also comply with these marking principles.

GENERIC MARKING PRINCIPLE 1:

Marks must be awarded in line with:

- the specific content of the mark scheme or the generic level descriptors for the question
- the specific skills defined in the mark scheme or in the generic level descriptors for the question
- the standard of response required by a candidate as exemplified by the standardisation scripts.

GENERIC MARKING PRINCIPLE 2:

Marks awarded are always **whole marks** (not half marks, or other fractions).

GENERIC MARKING PRINCIPLE 3:

Marks must be awarded **positively**:

- marks are awarded for correct/valid answers, as defined in the mark scheme. However, credit is given for valid answers which go beyond the scope of the syllabus and mark scheme, referring to your Team Leader as appropriate
- marks are awarded when candidates clearly demonstrate what they know and can do
- marks are not deducted for errors
- marks are not deducted for omissions
- answers should only be judged on the quality of spelling, punctuation and grammar when these features are specifically assessed by the question as indicated by the mark scheme. The meaning, however, should be unambiguous.

GENERIC MARKING PRINCIPLE 4:

Rules must be applied consistently, e.g. in situations where candidates have not followed instructions or in the application of generic level descriptors.

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.

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Question	Answer	Marks
1(a)	**State what is meant by an 'open question'.** 1 mark for definition (questionnaire, interview or test) items that produce qualitative data; Questions allowing participants give answers in full / detailed / in depth; Questions with (no categories or choices so participants have) freedom to express themselves / answer in their own words; Questions that ask 'describe…' = 1 Questions that (ask participants to) 'explain why' = 1 An open question is not closed = 0 A question without fixed choices = 0 A question without fixed choices that asks participants to describe = 1	**1**
1(b)	**Outline <u>one</u> open question from the study by Dement and Kleitman (sleep and dreams).** 1 mark for open question or description of nature of question Dement and Kleitman – Asked to describe their dream (into a tape recorder); However (from Dement and Kleitman): Eg 'Did you have a dream' is a closed Q; Reporting '5 or 15 minutes' is a closed Q = 0 marks Did you dream? Yes/No? = 0 Did you dream about: animals, people, food? = 0	**1**

Question	Answer	Marks
2	**In the study by Baron-Cohen et al. (eyes test), two of the groups of participants used were:** **Group 1 – AS/HFA participants** **Group 4 – participants from the general population.**	
2(a)	**State <u>two</u> similarities between the participants in Group 1 and Group 4.** 1 mark for a similarity × 2 Both groups were all male; (Both were) adults / similar age (28 and 29.5 respectively); (They were matched for) IQ (116 and 115 respectively); (Both were) small groups (14 and 15 respectively); Age = 1 IQ = 1 Adults = 1 Male / same gender = 1 only 14/15 (of them) = 1	**2**

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Question	Answer	Marks
2(b)	**State <u>one</u> difference between how Group 1 and Group 4 were selected, other than being diagnosed with AS/HFA.** 1 mark for a difference Group 1 were volunteers or self-selected and Group 4 were randomly selected;	**1**

Question	Answer	Marks
3	**The study by Piliavin et al. (subway Samaritans) raised ethical issues of 'right to withdraw' and 'deception'.** **Explain why the study by Piliavin et al. <u>raised</u> these ethical issues.** 1 mark for description } 1 mark for link } × 2 Right to withdraw: participants can leave a study at any time (and remove their data) / should not be pressurised to continue (if they don't want to); (generic) Piliavin et al.'s participants could not withdraw as they did not know there were observers in the subway carriage; (link) Piliavin et al.'s participants could not withdraw as they believed the victim/drunk/cane/ill man was real; (link) Participants couldn't leave the train/carriage/subway because they didn't know they were in a study = 2 Deception: participants should not be (deliberately) misinformed / lied to / given false information; (generic) Piliavin et al.'s participants were deceived about the role of the stooges/victim/drunk/cane/ill man; (link) The participants didn't know the victims / drunk and ill men weren't real = 2	**4**

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Question	Answer	Marks
4	**In the study by Pepperberg (parrot learning) the sample was only one parrot, Alex. This parrot could have differed from other parrots of the same species.** **Explain how <u>two</u> possible differences could have affected Pepperberg's study.** 1 mark for difference + 1 mark for effect on study × 2 Alex could have been more intelligent; Which would have made grey parrots seem that they could understand concepts when they couldn't; Alex could have been less intelligent; Which would have made grey parrots seem slower to understand concepts than they really are; Alex was kept in a laboratory / wasn't in the wild; Alex had already been studied (for years) / had heard a lot of human speech; So had experiences that would have made his responses different from wild parrots; So he might have been less frightened of shapes / more familiar with different materials so perform better;	**4**

Question	Answer	Marks
5	**The mean and the mode are measures of central tendency.**	
5(a)	**Explain why the mean could be a better measure of central tendency than the mode.** 1 mark for a brief/muddled explanation 2 marks for a clear/detailed explanation The mean uses values whereas the mode only looks at frequency (2) The mean uses the values of all of the data points but the mode doesn't (1) The mean uses all of the data (points) but the mode doesn't (0) The mean represents all the data, the mode doesn't / the mean is more representative (1) The mean represents all the data, the mode only represents the frequency / most common (2) The mean uses (the values of) all the scores so considers extreme scores (outliers) (1) The mean uses (the values of) all the scores so considers extreme scores (outliers) but mode does not consider these (2) Description of how to calculate the mean = 0 The mean finds out the average = 0 [the mode finds a kind of average too]	**2**

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Question	Answer	Marks
5(b)	**Explain why a researcher may have to use the mode instead of the mean.** 1 mark for explanation When data is nominal / is in categories / is only totals / comes from yes or no (closed) questions / not on a continuous scale; To reduce the influence of outliers;	**1**

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Question	Answer	Marks
6	**Describe participant observation and non-participant observation, using any examples.** Definitions/detail: up to a maximum of 4 marks for each observational technique. Examples: maximum of 2 marks for each technique. Examples can include examples from any studies (core studies, other studies, candidate's own studies). Max 4 if no examples. participant observation: researcher watches as part of the ongoing activity; appears to be like the participants in social role; (definition) participants may or may not be aware of being observed / can be covert or overt; (detail) (often) allows more information from interactions; (detail) Interaction can give greater insight into reasons for behaviours observed; (detail) Piliavin et al. – the observers appeared to be passengers; (core study example) Note: Piliavin et al.'s victims/models were not observing (so not examples of participant observers) If an observer joins in with children's games to record their behaviour; (own example) Saavedra and Silverman: the researchers saw the boy performing the in vivo button tasks; (core study example) Note: Schachter and Singer's stooges were not observers (so not an example of participant observation) non-participant observation: observer not involved in situation being studied; uses camera / one-way mirror / distanced from social group; (definition) participants may or may not be aware of being observed / can be covert or overt; (detail) (often unobtrusive) so fewer demand characteristics; (detail) Observer can be objective because not involved in the emotions of the social situation of the participants; (detail) Bandura et al. used a one-way mirror to observe the children's aggression; (core study example) Milgram: observations were made through a one-way mirror; (core study example) Schachter and Singer's participants were being observed through a one-way mirror; (core study example)	**6**

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Question	Answer	Marks
7	**Two friends, Zvi and Bill, are conducting a natural experiment. They are collecting data by observing whether young or old people are more likely to become frustrated when trying to get on a busy train.**	
7(a)(i)	**Suggest how the friends could operationalise their independent variable.** 1 mark for suggestion of operationalisation 40 and under, 41 and over; (Young =) under 20, (old =) over 60; 'young people and old people' = 0 marks	**1**
7(a)(ii)	**For the way you suggested in (a)(i):** **Explain <u>one</u> strength of operationalising the independent variable in this way.** 1 mark for explanation, 1 mark for detail It would be easy to distinguish who was young and who was old; because the categories are very different / people's appearance changes a lot between the two age groups; Because people wouldn't have to state their actual age; so (more ethical because) less invasion of privacy; 'under 20 and over 50 are easy to tell apart; so objective/reliable/valid' = 2 'operationalisation allows for replication' = 0 [because generic, needs to address 'in this way' in the question]	**2**
7(b)	**Explain what is meant by a 'dependent variable', using Zvi and Bill's study as an example.** 1 mark for explanation 1 mark for link The DV is the variable being measured; (explanation) Frustration (e.g. as 'pushing'); (link) The DV is what changes under the influence of the IV; (explanation) Frustration; (link)	**2**

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Question	Answer	Marks
7(c)	**The friends agree that they should collect data over several days but have different plans for when they should do this.**	
7(c)(i)	**Zvi plans to collect data at the same time each day.** **Explain <u>one</u> strength of Zvi's plan.** 1 mark for strength 1 mark for link Collecting data at the same time will improve standardisation/reliability; Because other variables that could affect frustration, such as how busy the busy train is, will be constant; It would control for variables such as how tired people are; Making the findings more valid as this won't mask the effect of age;	**2**
7(c)(ii)	**Bill plans to collect data over a range of different times each day.** **Explain <u>one</u> strength of Bill's plan.** 1 mark for strength 1 mark for link Collecting data at different times will increase validity; by being sure that the only factor affecting frustration is age and not when people travel (e.g. busy times or not); Collecting data at different times will increase generalisability; As participant variables might vary over the day, e.g. (only younger passengers being) frustrated after work but not before; To get a more varied sample / make results more generalisable / make findings more representative; E.g. to avoid bias due to factors other than age (e.g. work, travelling alone or in pairs, time of travel);	**2**

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Question	Answer	Marks
8	**Jacy is conducting a laboratory experiment to investigate the effect of eating chocolate on mood. She predicts that eating chocolate will make people happier than not eating chocolate. She has 20 participants.**	
8(a)	**Explain why Jacy is able to make a causal prediction.** 1 mark for explanation 1 mark for link Because (she is conducting an experiment so) she can be certain that the IV is the cause of changes in the DV; And Jacy is measuring happiness, the DV, in IV conditions of chocolate or none; (link) In experiments confounding variables are controlled so the IV must be the cause of changes in the DV; In this case the only factor affecting mood should be the eating of chocolate; (link) Because she is doing an experiment not a correlation = 0 [because not an explanation] Because she is doing an experiment not a correlation so is controlling / isolating variables not just measuring them = 1	**2**
8(b)	**Jacy gave each participant a number from 1 to 20. She has a hat which contains cards that are numbered from 1 to 20. She takes 10 cards from the hat and uses the 10 people with those numbers as her control group. She uses the remaining 10 participants as her experimental group.**	
8(b)(i)	**Name the process Jacy is using in this part of her study.** 1 mark for naming random allocation / assignment / randomisation (definitive) Random = 0 Random sampling = 0	**1**

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Question	Answer	Marks
8(b)(ii)	**Explain <u>one</u> strength of this part of Jacy's procedure.** 1 mark for a brief/muddled strength of random allocation 2 marks for a clear/detailed generic strength of random allocation 3 marks for a clear/detailed and linked strength of random allocation So no other factors / participant variables / individual differences could affect the study = 1 So no other factors / participant variables / individual differences e.g. being bad tempered affect mood = 2 By allocating people randomly between the two levels of the IV, different (starting) moods should be spread evenly between the two conditions = 3 So people have an equal chance of being in the control group or experimental group = 1 So people have an equal chance of being in the control group or experimental group to even out individual differences = 2 So people in the sample have an equal chance of being in the control group or the chocolate group to even out individual differences = 3	**3**
8(c)	**Explain the experimental design that Jacy is using.** 1 mark for explanation of independent measures / independent groups (does not have to be named) 1 mark for link (An independent measures design is) where different participants perform in each level of the IV; Jacy has different participants in the control and chocolate groups / participants either eat chocolate or do not; Marks are for explanation. No marks if nothing other than the identification of independent measures. Independent = 0 Independent measures = 0 Independent groups = 0	**2**

Question	Answer	Marks
9	**Dr Lee is measuring two variables, tiredness and generosity, on scales of 0 to 10. He finds a strong positive correlation between the two variables.**	
9(a)	**Sketch a graph on the axes below using crosses to show the pattern of Dr Lee's results. You <u>must</u> label the axes.** 1 mark for both 'tiredness' and 'generosity' as axis labels 1 mark for 0–10 on both axes (can just be 0 and 10) 1 mark for points/crosses in a positive correlation pattern 1 mark for line (of 'best fit') for a positive correlation	**4**

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Question	Answer	Marks
9(b)	**Write a null hypothesis for Dr Lee's study.** 1 mark for a null hypothesis Any correlation/link/relationship between tiredness and generosity is due to chance; There will be no correlation/relationship/link between tiredness and generosity; Alternative hypotheses / Experimental hypotheses / reference to 'differences' / experimental nulls = 0 There will be no correlation/relationship/link between the variables = 0 There will be no correlation/relationship/link with generosity = 0 Any correlation with tiredness is due to chance = 0	**1**
9(c)	**Suggest <u>one</u> advantage of using correlations compared to experiments.** 1 mark for a brief/muddled advantage 2 marks for a clear/detailed advantage Comparison to experiments does not have to be explicit, but this can add detail Correlations can be used to investigate variables that cannot be manipulated; e.g. because it would be unethical; e.g. because it would be impractical; but in an experiment this would be essential to create the IV / controls; Correlations can investigate variables that cannot be manipulated, because it would be unethical = 2 Correlations can find relationships so can suggest further research = 0 Correlations can find relationships so can suggest variables to study in further research (whereas experiments must know these variables in advance); Correlations can find relationships so can suggest controls for further studies (whereas experiments must know these controls in advance); Correlations can find relationships so can suggest variables to study and controls to make further experiments effective = 2	**2**

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Question	Answer	Marks
10	**Seth is planning a study to investigate the communication and emotion in a family. The family consists of a mother, father, grandmother and one son. They live in a remote house and do not interact with other people often.**	
10(a)	**Describe how Seth could conduct a case study to investigate the communication and emotion in this family.** Three majors for a case study are: (a) technique used to collect data asked (e.g. two or more of interview, observations, questionnaire e.g. multiple sessions, detailed) (b) content e.g. questions about relationships and emotions (e.g. open/closed questions, examples, observe relationships and emotions in different combinations of the family) (c) use of data e.g. identifying how data might be used, what sources will give qualitative and quantitative data (e.g. how open questions will be interpreted, how relationships and emotions will be analysed, triangulation or how quantitative data will be scored/analysed/used) The minors are: where: location of participants when being studied (e.g. remote house) Who: family who live in a remote house Other details for replication: • 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**

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<table>
<tr><th>Question</th><th>Answer</th><th>Marks</th></tr>
<tr><td>10(b)</td><td>
Identify <u>one</u> practical weakness/limitation with the procedure you have described in your answer to part (a) and suggest how your study might be done differently to overcome the problem.

Do <u>not</u> refer to ethics or sampling in your answer.

Answer will depend on problem identified.

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>

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