**Cambridge Assessment
International Education**

Cambridge International AS & A Level

PSYCHOLOGY **9990/02**

Paper 2 Research Methods **For examination from 2020**

MARK SCHEME

Maximum Mark: 60

Specimen

This document has **14** pages. Blank pages are indicated.

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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.

Section A

Question	Answer	Marks
1(a)	**A hypothesis in a study says 'Emotions will differ following exposure to a happy or an angry stooge'.** **Is this a directional (one-tailed) hypothesis or a non-directional (two-tailed) hypothesis?** **Include a reason for your answer.** Award 1 mark for the correct answer. Must include an appropriate reason for this mark, answer without reason cannot be credited. For example: • non-directional/two-tailed (hypothesis), because the direction of change is not specified.	1
1(b)	**Write a <u>null</u> hypothesis that could be used with the hypothesis given above.** Award 1 mark for incomplete null hypothesis. Award 2 marks for complete null hypothesis (independent variable (IV) and dependant variable (DV) clear). For example: • there will be no difference with the happy or angry stooge (1) • there will be no difference between emotions experienced by participants exposed to the happy or angry stooge (2) • any difference between the emotions of participants exposed to the happy or angry stooge is due to chance. (2) One- or two-tailed alternative hypotheses, and correlational nulls, are incorrect. Other appropriate responses should also be credited.	2

Question	Answer	Marks
2	**State <u>two</u> ways in which the research methods of an experiment and a case study are <u>different</u>.** Award 1 mark for stating a difference. **Two** from: • **participants:** many in an experiment, one (or a single unit, e.g. a family) in a case study (1) • **controls:** many in an experiment, none/few in a case study (1) • **data:** typically quantitative in an experiment, qualitative in a case study (1) • **data:** objective in an experiment, subjective in a case study (1) • **aim:** to find causal relationship in an experiment, not possible in a case study. (1) Other appropriate responses should also be credited.	2

Question	Answer	Marks
3	**Explain <u>one</u> advantage of the sampling method used in the study by Milgram (obedience).** Award 1 mark for the advantage. Award 2 marks for the advantage and an explanation. For example: • the people are willing because they have volunteered (1) so are likely to be prepared to complete the experiment/are unlikely to withdraw (1) • the participants come to the experimenter (1) which is easy/quick. (1) Other appropriate responses should also be credited.	**2**

Question	Answer	Marks
4(a)	**From the study by Baron-Cohen et al. (eyes test):** **Describe <u>two</u> ways in which the study was valid.** For each way: Award 1 mark for a brief description. Award 2 marks for a detailed description. For example: • there were important controls between the two conditions (1), e.g. a glossary to ensure comprehension (1) • there were two control groups, one matched for IQ (1) so intelligence wouldn't affect the results in relation to comparing (1) • descriptive words matched images. (1) They were agreed by five judges (1) • differences not due to understanding of the words (1) because they had been given a glossary. (1) Other appropriate responses should also be credited.	**4**
4(b)	**Describe <u>one</u> way in which the study was <u>not</u> valid.** Award 1 mark for a brief description. Award 2 marks for a detailed description. For example: • the eyes test may not be measuring theory of mind (1) it may just be a test of matching pictures to words (1) • in reality, emotions are judged on more than just eyes (1) we also use posture, words, tone (1) • eyes are not usually static (1) in reality people's eyes move, possibly making emotions easier to judge. (1) Other appropriate responses should also be credited.	**2**

Question	Answer	Marks
5(a)	**Bandura et al. (aggression) calculated the mean number of aggressive acts in each condition.** **Explain how the mean of a data set is calculated.** Award 1 mark for a brief explanation. Award 2 marks for a full explanation. For example: • adding up all the (participants') numbers/scores etc. in the data set/group (1) and dividing by the number of numbers/scores. (1) Other appropriate responses should also be credited.	**2**
5(b)	**Identify an alternative measure of central tendency that Bandura et al. could have used.** Award 1 mark for the correct answer: • mode/median.	**1**

Question	Answer	Marks
6	**Define qualitative and quantitative data using examples.** Award 1 mark for each definition, up to a maximum of 2, for each data type. Award 1 mark for each example that is linked to one type of data, up to a maximum of 4. Examples can include examples of data, of studies collecting that data, or of methods used to collect it. **Quantitative data** Definition: • numerical data • data that can be analysed using summary statistics or represented in bar charts • data that can be verified • data that can be measured • data that can be counted. Examples of **methods** used: • interviews/questionnaires using closed questions • experiments • observations collecting data in behavioural categories. Examples of the **data**: • Likert scale questions • closed questions • rating scales. Examples of **studies**: • Andrade's participants' recall of names • Milgram's participants' voltage levels • Piliavin et al.'s helping/not helping totals.	**6**

Question	Answer	Marks
6	**Qualitative data** Definition: • descriptive/in-depth data • open questions • non-numerical data • data that cannot be measured. Examples of **methods** used: • interviews/questionnaires using open questions • case studies • non-focused observations • discourse analysis. Examples of the **data**: • answers to open questions • transcripts of interviews • media e.g. radio, newspapers. Examples of **studies**: • Saavedra and Silverman's descriptions of the boy with the button phobia • Milgram's participants' reactions • Piliavin et al.'s participants' verbal comments. Other appropriate responses should also be credited.	

Section B

Question	Answer	Marks
7(a)	**Alice works in a sleep laboratory. She is looking at how much people move in different stages of sleep.** **Outline <u>one</u> way that Alice could tell whether her participants are dreaming.** Award 1 mark for an outline. Award 2 marks for an outline with elaboration. • EOG (1) which measure how much the eyes move (1) • EEG (1) which measures brain waves (using amplitude and frequency) to distinguish between REM and non-REM sleep. (1) Other appropriate responses should also be credited.	**2**
7(b)	**Alice is measuring movement by counting the number of times the participant rolls over in bed.** **Explain <u>one</u> problem with the way Alice is measuring movement.** Award 1 mark for partial explanation. Award 2 marks for full explanation. For example: • we might make much smaller movements than that, like wriggling toes, (1) so these wouldn't be noticed if all she counted was rolling over (1) • people differ in terms of how much they move in bed (1) so it wouldn't discriminate between people who move a lot but only wriggle and those who barely move at all. (1) The problem may relate to subjectivity or to operationalisation. Other appropriate responses should also be credited.	**2**
7(c)	**Suggest an alternative way for Alice to measure the movement of her sleeping participants.** Award 1 mark for an alternative way. Award 2 marks for an alternative way with elaboration. For example: • EMG (1), i.e. electrodes to detect muscle contraction (1) • score different kinds of movements (1) such as arms, legs. (1) Other appropriate responses should also be credited.	**2**

Question	Answer	Marks
8(a)	**Dr Brown was testing false memories in a class of students. He used half the class as participants in his study. The other half provided true stories about events at school. He used two of these true stories and one false story. Each participant read all three stories. Dr Brown told them the events were from their school days and that he was studying friendships. One month later he asked them to recall the events.** **Identify the dependent variable in this experiment and suggest how it could be operationalised.** Award 1 mark for dependent variable. Award 2 marks for dependent variable and how it is operationalised. For example: • memory/memory for the false story/memory for the true story/memory for the stories (1) • by counting the number of words participants recalled (1) [2nd mark for operationalisation].	2
8(b)	**Name the ethical guideline that Dr Brown broke by telling the participants he was investigating school friendships.** Award 1 mark for the correct answer: • deception (1) NB accept informed consent.	1
8(c)	**Explain why it was important that Dr Brown broke the ethical guideline that you have identified in part (b).** Award 1 mark for partial explanation. Award 2 marks for full explanation. For example: • ensured that the participants were unaware of the aims (1), i.e. that it was a study about false beliefs, so the study has validity (1) • so they didn't respond to demand characteristics (so the results are more valid) (1), i.e. that they didn't just change their behaviour because they know that Dr Brown was expecting them to think the false memory is true (1) • this matters because people should have a free choice about what they do (1) and if they have been lied to about the false stories this is taken away/they cannot give informed consent (1) • because deception has the potential to cause distress/psychological harm (1), e.g. the participants might have been upset about believing the false school story. (1) Other appropriate responses should also be credited.	2

Question	Answer	Marks
8(d)	**Describe <u>one</u> advantage of using a repeated measures design in Dr Brown's experiment.** Award 1 mark for identifying the advantage. Award 2 marks for identifying the advantage in relation to Dr Brown's study. For example: • if there are differences between the participants they even out (1) • if there are differences in memory between the participants they even out (1) • if some participants had better memories and were in one group (1) they might seem to remember the false story better when this wasn't the case. (1) Other appropriate responses should also be credited.	2
8(e)	**Explain why waiting a month before testing the participants could be a problem.** Award 1 mark for a basic reason. Award 2 or 3 marks for a developed or supported explanation. For example: • the participants could have forgotten all the stories so Dr Brown wouldn't collect any data. (1) As the participants had been classmates, in a whole month some might have met up so could have talked about the study. (1) This would mean that the participants might be reminded again of the true stories (1) /so they would be more likely to remember those than the false one. (1) /this would make the findings less valid. (1) • the participants might have talked about the false stories (1) and worked out the purpose of the experiment (1) which might introduce demand characteristics (1) /so they would be more likely to say they did/didn't remember the false story (1) /which would obscure the effect of the IV. (1) Other appropriate responses should also be credited.	3

Question	Answer	Marks
9(a)	**Two students, Hilja and Sakri, are investigating the exercise that people take. They are using a questionnaire with 10 questions. Both students are worried about reliability in their investigation.** **Write <u>one</u> open and <u>one</u> closed question that Hilja and Sakri could ask.** Award 1 mark for a closed question about exercise. Award 1 mark for an open question about exercise. For example: **Closed** questions • Do you exercise regularly? • Do you play football? **Open** questions • What kind of exercise do you enjoy? • Why do you play cricket? Other appropriate responses should also be credited.	2
9(b)	**Suggest how Hilja can test whether all the closed questions on the questionnaire are consistent.** Award 1 mark for suggestion. Award 2 marks for suggestion with example. Award 3 marks for suggestion with example and elaboration. For example: • she could compare two halves of the test items (1), e.g. she could look at the scores (for the same people) on the first and second half of the test/ she could look at all the odd-numbered questions compared to all the even-numbered ones. (1) She could then correlate them/conduct a test to see if people who get high scores in one half also get high scores in the other half. If they correlate/each person's scores on the two halves are similar, then the test is (internally) reliable. (1) Credit application of testing internal reliability. Accept test-retest. Other appropriate responses should also be credited.	3

Question	Answer	Marks
9(c)	**Sakri thinks that the way he scores the participants' answers may differ from the way Hilja scores them.** **Suggest how Sakri can test whether he and Hilja are reliable in their scoring of the questionnaire.** Award 1 mark for suggestion. Award 2 marks for suggestion with brief elaboration. Award 3 marks for suggestion with full elaboration. For example: • Sakri could compare his scores to Hilja's (for a sample of results) (1) then correlate them/conduct a test to see if people who he gives high scores to, also get high scores from Hilja. (1) If they correlate/each person's scores from the two of them are similar, then their inter-rater reliability is high. (1) Credit application of testing inter-rater reliability. Other appropriate responses should also be credited.	3

Section C

Question	Answer	Marks
10(a)	**Cathy has a younger sister who is scared of shoe laces. Cathy has decided to watch her sister in the school playground. She wants to observe how her sister responds to other people. She decides to conduct a controlled observation using two of her friends, one wearing shoes with laces and one wearing shoes without laces. She has asked her friends to walk around the playground separately.** **Describe how Cathy could conduct her observation of her sister's responses.** A controlled observation with a deliberately set up environment may include for example: • the shoes • how visible the laces are • how easy it is for the sister to move towards/away from the friends • other controls in the environment • controls for the objects, e.g. size of the laces • time spent observing and when, e.g. time of day • description of whether the observation is structured or unstructured • if structured: observation method, e.g. time/event sampling • if unstructured: operational definitions of possible behaviours (accept any reasonable suggestion) • description of Cathy as a participant/non-participant observer and how this will be done • description of Cathy as a covert/overt observer and how this will be done. 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 mainly 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 accurate. **Level 0 (0 marks)** No response worthy of credit. Major omissions are: • what (will be recorded, i.e. behaviours/definitions) • how (way that data will be collected).	**10**

Question	Answer	Marks
10(a)	Minor omissions are: • where (any) • who (descriptions of observer's role). Other appropriate responses should also be credited.	
10(b)	**Identify one possible 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.** Answer will depend on problem identified. Problems may, for example, be matters of: **Validity** • operationalisation • difficulty with maintaining covert procedures • problems with participant/non-participant procedures. **Reliability** • inter-observer consistency • intra-observer consistency. This list is not exhaustive and other appropriate responses should also be credited. If the problem was an obvious omission in **(a)**, marks can be awarded here if the candidate refers to the omission. Mark according to the levels of response criteria below: **Level 3 (3–4 marks)** • Appropriate problem identified. • Appropriate solution is clearly described. **Level 2 (2 marks)** • Appropriate problem identified. • Explanation of why it is a problem. **OR** • Solution is possible but ineffectual. **Level 1 (1 marks)** • Appropriate problem identified. • Little or no justification. **Level 0 (0 marks)** No response worthy of credit.	4

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