
PSYCHOLOGY

9990/21

Paper 2 Research Methods

October/November 2019

MARK SCHEME

Maximum Mark: 60

Published

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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:

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- 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
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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:

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GENERIC MARKING PRINCIPLE 6:

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Question	Answer	Marks
1	A hypothesis in a study about ways to reduce phobias states ‘Positive reinforcement will reduce phobic reactions more than imagery exposure’.	
1(a)	Is this a directional (one-tailed) hypothesis or a non-directional (two-tailed) hypothesis? Include a reason for your answer. 1 mark for correct reason. Must include an appropriate reason for this mark, answer without reason cannot be credited. Directional/one-tailed (hypothesis), because the direction of change is specified/because positive reinforcement will be better (than imagery exposure) = 1 mark	1
1(b)	Write a null hypothesis for this study. 1 mark for null hypothesis with independent variable (IV) and dependent variable (DV). One- or two-tailed alternative hypotheses, and correlational nulls, are incorrect. There will be no difference between reduction in phobia in participants having positive reinforcement or imagery exposure therapy = 1 mark Any difference between phobic reactions (DV) after positive reinforcement or imagery exposure therapy (IV) is due to chance = 1 mark There will be no difference between the phobia, positive reinforcement or imagery exposure therapy = 0 marks (IV and DV not linked)	1
1(c)	Suggest <u>one</u> quantitative measure of phobic reactions. 1 mark for quantitative measure of phobic reactions (ignore qualitative records) Feelings thermometer = 1 mark Rating scale of fear = 1 mark Behavioural score from observation of severity of behaviour change = 1 mark	1
1(d)	Suggest <u>one</u> problem with the measure of phobic reactions you suggested in part (c). 1 mark for identifying problem 1 mark for detail It's unethical = 1 mark Participants will get distressed; which goes against the ‘protection from harm’ guideline = 2 marks To measure the phobia (reduction) you have to expose the participant to the phobic stimulus; so breaks the guideline of ‘protection’ = 2 marks Deciding on how much the phobia has reduced is subjective; so it might depend on who records the data; making it unreliable = 2 marks	2

Question	Answer	Marks
2	Standardisation was important in the study by Dement and Kleitman (sleep and dreams):	
2(a)	State what is meant by ‘standardisation’. 1 mark for correct answer. Keeping the situation/procedure the same for all participants = 1 mark Making sure that each person is treated the same way except for the IV = 1 mark Keeping everything the same = 0 marks Reducing differences between the levels of the IV = 0 marks	1
2(b)	Identify <u>three</u> ways in which the laboratory environment was standardised in this study. 1 mark per correct standardised feature relating to the lab to max 3 marks. Standardisation <i>before</i> arriving at the lab is irrelevant. Same fitting of electrical equipment: • Electrodes near eyes • Electrodes on scalp • Wires gathered into ‘pony tail’ Participants in bed Quiet room Dark room Woken by doorbell There was a voice recorder	3
3	State <u>one</u> advantage of using the standard deviation compared to the range as a measure of spread. 1 mark for identifying an advantage It takes all the scores/data into account It isn’t (so) affected by outliers/anomalous scores/big scores/small scores	1

Question	Answer	Marks
4	In the study by Yamamoto et al. (chimpanzee helping), the chimpanzees were housed socially. Explain why this housing was important in terms of the ethical treatment of animals. 1 mark for an explanation (may be a guideline in relation to animals) 1 mark for detail OR for a second explanation Chimpanzees are social animals so this is appropriate Chimpanzees are social so isolation would have been distressing Keeping social species like chimpanzees in social groups ensures that they experience as little trauma as possible To avoid 'pain and distress' (because this is an ethical guideline for animals)	2
5	The study by Baron-Cohen et al. (eyes test) used several samples of participants, selected in different ways. One of these was a volunteer sample.	
5(a)	Explain what is meant by a 'volunteer sample', using this study as an example. 1 mark for a (brief) generic description of how a volunteer sample is obtained 1 mark for reference to how this was done in this study, i.e. link a self-selecting sample = 1 mark (generic) a group of people who opt in to the study/who choose to participate = 1 mark (generic) participants who respond to a request to be in the study from the researcher = 1 mark (generic) Baron-Cohen et al. recruited some participants using adverts in the Autistic Society magazine/through Autism support groups = 1 mark (linked)	2
5(b)	State <u>one</u> advantage and <u>one</u> disadvantage of volunteer sampling. 1 mark for advantage (generic or linked) 1 mark for disadvantage (generic or linked) Advantage: Easy to obtain sample as they come to the researcher (opt in) = 1 mark Low drop-out rate = 1 mark No selection bias by experimenter = 1 mark Disadvantage: May all be similar people/not representative/cannot generalise from them = 1 mark May be more 'keen,' e.g. try harder on eyes test than autistics would generally = 1 mark	2

Question	Answer	Marks
6	Describe inter-rater reliability and test-retest reliability, using any examples. Award 1 mark for each example that is linked to reliability, up to a maximum of 3 marks for each. Maximum 4 marks for definition/detail of inter-rater reliability. Maximum 4 marks for definition/detail of test-retest reliability. Examples can include examples from studies using such measures of reliability, or of ways it <i>could</i> be used. Max 4 marks in total for all one side, e.g. all about inter-rater reliability. For example: Inter-rater reliability: • is a measure of whether different researchers are scoring consistently (1 for definition) • indicates whether two scorers are rating responses in the same way (1st mark for detail) • if they are (reliable), ratings for the same data by two (different) researchers should (positively) correlate (2nd mark for detail) • for example if data from an interview was interpreted in the same way (1 for example) • for example Bandura et al. checked that the scoring of aggressive ratings was similar when done by different researchers (1 for example) Test-retest reliability: • is a way to find out whether a measure is consistent over time/measures whether a test is consistent (1 for definition) • it is done by using the same test on the same participants twice (in close succession) (1st mark for detail) • two results for each participant should be (roughly) the same (2nd mark for detail) • so there should be a (strong positive) correlation between the two sets of scores (3rd mark for detail) • for example if an IQ test was done on the same people twice, each person should get the same score (1 for example) • for example if Baron-Cohen et al. used the AQ on the same group twice, they should get the same AQ each time (2nd mark for detail) Other appropriate responses should also be credited.	6

Question	Answer	Marks
7	Freya is planning a semi-structured interview to find out whether people sleep better in the winter or the summer.	
7(a)	State what is meant by a ‘semi-structured interview’. 1 mark for correct answer referring to both fixed and variable questions. Ask some fixed questions, then ones that are specific to the interviewee/differ between participants = 1 mark	1
7(b)	Suggest <u>one</u> open question that Freya could ask. 1 mark for a correct open question (it can be a statement) that relates to sleep and/or to seasons Describe how well you sleep in the winter = 1 mark Explain whether you believe you sleep better in the summer or winter = 1 mark Why do you think you sleep better in the summer? = 1 mark	1
7(c)	Explain <u>one</u> advantage of using a semi-structured interview in Freya’s study. 1 mark for identifying an advantage (can be generic) 1 mark for linking advantage (Link – to sleep or seasons) Different questions can be asked to different participants (1 mark generic) people may differ in their views about what ‘better sleep’ is (so need different questions) = 1 mark There will be some standardisation between participants (making it more reliable) (1 mark generic) so the opinions about winter versus summer can be compared easily (1 link mark)	2

Question	Answer	Marks
8	Claude is looking for a link between time spent eating and hunger. He thinks that students who eat faster will be more hungry two hours later. He observes how much time some students spend eating their lunch. They are unaware that they are being observed. Two hours later, he asks them to rate their hunger on a scale of 1 to 10 (1 = not hungry, 10 = very hungry). He correlates how hungry they are with how much time they spent eating lunch. He finds there is a strong negative correlation between time spent eating and hunger.	
8(a)	Claude wants to present the data from his study on the graph, shown in Fig. 8.1.	
8(a)(i)	Label the x-axis and y-axis on the graph in Fig. 8.1. 1 mark for labelling an axis with 'Hunger' OWTTE 1 mark for labelling an axis with 'Time spent eating' OWTTE	2
8(a)(ii)	Draw a line to show Claude's correlation on the graph in Fig. 8.1. 1 mark for points/a line showing a negative correlation (based on variables identified)	1
8(b)	Explain whether Claude can conclude that eating faster makes people feel hungry. 1 mark for identifying a reason (can be generic) 1 mark for link No because the pattern could be due to a third factor; OWTTE (generic reason) No because you cannot draw causal conclusions from correlations; OWTTE (generic reason) For example, people could eat faster and feel more hungry because they were more hungry to begin with/had eaten longer ago (2nd mark, linked)	2
8(c)(i)	Suggest <u>one</u> ethical strength of Claude's study. 1 mark for identifying a strength (can be generic) 1 mark for link He is observing students eating lunch (link) People know they are likely to be watched (strength) He is not invading their privacy; (strength) Because people know they are likely to be watched in a school dining room (link) He asks them rate their hunger; (link) which means they could choose to withdraw by not giving him this information (linked strength = 2nd mark) which means they have given consent to (part of) the procedure (alternative linked strength = 2nd mark)	2

Question	Answer	Marks
8(c)(ii)	Suggest <u>one</u> ethical weakness of Claude's study. 1 mark for identifying a weakness (can be generic) 1 mark for link He observes them eating without them knowing (link) So he has not obtained informed consent (weakness) He asks them to write down the time when they get hungry; (link) but they did not give consent to first part of the procedure (alternative weakness = 2nd mark) He observes them eating without them knowing; (link) So they were not able to withdraw (weakness) The students might notice they are being watched; (link) which could cause them distress/so they are not protected from (psychological) harm (weakness)	2
8(d)	Claude's friend says that asking students to rate their hunger two hours after lunch may not be valid because some people may be in more interesting lessons than others. Explain why Claude's friend could be correct. 1 mark for explanation relating to 'interesting lessons' 1 mark for explaining why this leads to a lack of validity If people are in interesting lessons they may not notice that they are hungry; (1 mark for explaining reason) this means he will be measuring whether they notice their hunger rather than whether they are actually hungry (or not) (1 mark for explaining why this lacks validity)	2

Question	Answer	Marks
9	Jia has conducted an experiment on memory. Each participant played a memory game twice, first with a distracting noise and then without the noise.	
9(a)	State the control condition in Jia's study. 1 mark for correctly identifying control condition. No distraction/no distracting noise/no noise (1 mark)	1
9(b)	The participants had never played the game before. Explain why this was important. 1 mark for identifying why it was important 1 mark for explaining why it was important So they all started from the same baseline ability; (1 mark for identification of why important) avoiding individual differences in ability/amount of (previous) practice (2nd mark for) They might otherwise have remembered it from before the study; (1 mark for identification of why important) so the IV/distracting (or not) would not be the only variable affecting performance (2nd mark for explanation)	2
9(c)	The experimental design of Jia's study was repeated measures.	
9(c)(i)	Suggest <u>one</u> advantage of using this experimental design in Jia's study. 1 mark for advantage (can be generic) 1 mark for link It avoids the risk of differences between groups if it had been independent measures; e.g. if the people in one group happened to know a similar game so were better (link) It reduces the likelihood of demand characteristics (as each participant would only experience one condition); as if each participant experienced 'with noise' and 'without noise' (they might guess and make the effect they believe is supposed to be found happen) (link) It reduces individual differences = 1 mark (no link)	2

Question	Answer	Marks
9(c)(ii)	Suggest why order effects could have been a problem in Jia's study. 1 mark for identifying problem 1 mark for link A practice effect could occur; e.g. they might learn how the game works/get better at the game (by the second/'no noise' condition) (link) There could be a fatigue effect; e.g. they might get bored/muddled in the 'without noise' condition (so perform worse) (link) A fatigue effect could occur if they are confused by the second condition = 1 mark (no link)	2
9(c)(iii)	Suggest <u>one</u> way that Jia could have overcome the order effects in his study. 1 mark for identifying a solution, e.g. alternative design/counterbalancing (this mark does not need to be linked to Jia's study) 1 mark for explanation of how it overcomes order effects (this mark must be linked to the study) Independent groups/independent measures/between subjects; (1 mark identification) with different people in each condition they would not practice the (memory) game; (2nd mark explanation – link) as participants do not repeat their performance their memory wouldn't get worse (2nd mark explanation – link) Matched pairs (accept 'matched groups') different people in each condition means they could not get practised/fatigued = 1 mark (identification) so use matched pairs and match people in the noise and no noise groups (2nd mark explanation – link) Counterbalancing = 1 mark (identification) Let half the participants do 'noise' then 'no noise' and half do 'noise' then 'no noise' (2nd mark explanation – link)	2

Question	Answer	Marks								
10	Pihu, a teacher, has been watching the young children at her school playing at lunchtime. She has noticed that there are several different games and activities that they do. She is planning a structured observation to find out which activities are most common.									
10(a)	Describe how Pihu could conduct a structured observation to investigate the children's play. Three major omissions for a structured observational study are: • What: behaviours that will be recorded, e.g. named behavioural category (detail, i.e. definition/operationalisation) any two of: • How: naturalistic/controlled • How: covert/overt • How: participant/non-participant (detail is how they are achieved OR more than one) The minor omissions are: • where – location of participants when data is collected (i.e. school) • who – participants (must be children) sampling technique sample size description of how tallying will be done description of how data will analysed, e.g. use of averages/bar charts ethical issues Other appropriate responses should also be credited. Mark according to the levels of response criteria below: <table><tr><td>Level 3 (8–10 marks)</td></tr><tr><td> • Response is described in sufficient detail to be replicable. • Response may have a minor omission. • Use of psychological terminology is accurate and comprehensive. </td></tr><tr><td>Level 2 (5–7 marks)</td></tr><tr><td> • Response is in some detail. • Response has minor omission(s). • Use of psychological terminology is accurate. </td></tr><tr><td>Level 1 (1–4 marks)</td></tr><tr><td> • 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. </td></tr><tr><td>Level 0 (0 marks)</td></tr><tr><td>No response worthy of credit.</td></tr></table>	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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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. Do <u>not</u> refer to ethics or sampling in your answer. Answer will depend on problem identified. If the problem was an obvious omission in 10(a), fewer marks will have been awarded in 10(a), so they can be awarded here. Problems may, for example, be matters of: Validity - operationalisation (of games/other play behaviours) - difficulty with demand characteristics/researcher effects Reliability - standardisation - intra-rater consistency (e.g. of recording play). 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. <i>plus</i> 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>	Marks	Comment	3–4	Appropriate problem identified. Appropriate solution is clearly described.	2	Appropriate problem identified. <i>plus</i> EITHER Explanation of why it is a problem OR Ineffectual but possible solution described.	1	Appropriate problem identified. Little or no justification.	0	No response worthy of credit	4
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Question	Answer	Marks
1	From the study by Piliavin et al. (subway Samaritans):	
1(a)	Identify the main research method used in this study. Definitive answer – field experiment = 1 mark	1
1(b)	Explain <u>one</u> advantage of using this research method in this study. 1 mark for advantage (can be generic) 1 mark for link More realistic behaviour/(potential for) high ecological validity (generic); [because field experiment not because covert observation] so people would not feel obliged to help because they knew they were in a study (link); because they were on a New York subway (link); People are less likely to know they are in a study (than in a lab experiment) (generic); there are less likely to be demand characteristics (generic); so people would be less likely to be embarrassed to help because they knew they were being watched;	2

Question	Answer	Marks
2	A hypothesis in a study states ‘Recall will be better after a short delay than after a long delay’.	
2(a)	Is this a directional (one-tailed) or a non-directional (two tailed) hypothesis? Include a reason for your answer. Definitive answer – directional + reason: Because it says that recall will be better in one condition than the other = 1 mark (linked); It states how the IV will affect the DV (rather than just that it will) = 1 mark (generic);	1
2(b)(i)	Suggest <u>one</u> way to operationalise ‘recall’ in this study. 1 mark for operationalising ‘recall’ e.g. the number of things recalled/the time taken to recall/the detail recalled/ a specific example;	1
2(b)(ii)	Suggest <u>one</u> way to operationalise ‘short delay and long delay’ in this study. 1 mark for operationalising ‘short’ and ‘long’ delays e.g. short = 30 seconds and long = 10 years (any different times are acceptable);	1
3	Explain what is meant by a ‘sample’, using an example from a core study from the biological approach. 1 mark for a definition 1 mark for example from a biological core study The people (or animals/sources) from a population who become the participants/ are used in the study/are used to generalise from; e.g.: Canli et al. – the 10 right-handed women whose brains were scanned; Dement and Kleitman – the nine adult participants who slept in the lab; Schachter and Singer – the 184 male students whose responses to injections were observed;	2

Question	Answer	Marks
4	In the study by Milgram (obedience), the ‘primary dependent variable’ was voltage.	
4(a)	Explain <u>two</u> ways in which this measure was valid. 1 mark for identifying the DV: • of maximum voltage given to the learner/voltage reached (definitive) = 1 mark 3 marks for two ways, marks allocated: • 1 of the 2 reasons why this is valid identified (can be generic) = 1 mark • 1 of the 2 reasons why this is valid identified (can be generic) plus detail (can be generic or linked) = 2 marks It is objective/standardised/it is not subjective = 1 (reason) because it does not require interpretation = 2nd mark It is quantitative/numerical = 1 (reason) so it can be easily compared/analysed = 2nd mark	4
4(b)	Explain <u>one</u> way in which this measure was <u>not</u> valid. 1 reason why this is not valid identified (can be generic) plus detail (can be generic or linked) The participants might not have been responding to the prods = 1 (reason) They might have just gone up to that voltage anyway = 2nd mark It doesn't give an explanation of why they gave the shocks = 1 (reason) It could have been the university setting rather than the prods (so not direct obedience to orders) = 2nd mark	2
5(a)	State what is meant by ‘participant variables’. 1 mark for explanation of participant variables Differences between individuals that could affect the dependent variable/ results/study = 1 Individual differences that could hide the effect of the independent variable/act as confounding variables = 1	1
5(b)	Suggest <u>one</u> participant variable that could have been important in the study by Schachter and Singer (two factors in emotion). 1 mark for identification of a problem linked to a participant variable in this study Some participants might be scared of the injection = 1 Some participants might already have anger management problems/be more aggressive anyway = 1 Some participants might be more inclined to copy than others = 1	1

Question	Answer	Marks
6	Describe <u>one</u> similarity and <u>one</u> difference between an independent measures design and a repeated measures design, using any examples. 1 mark for a similarity that explicitly compares the two designs 1 mark for a difference that explicitly compares the two designs 1 mark for an example that is linked to one type design, up to a maximum of 2 per example Max 4 if no examples For example: Similarities: • both are ways to allocate participants to the conditions/levels of the IV = 1 • both designs are used in (lab/field/natural) experiments = 1 – e.g. Piliavin et al. was a field experiment and Bandura et al. was a lab experiment but both used an independent measures design = 1 (example) Differences: • in independent measures different participants do each level of the IV = 1 • in repeated measures the same participants do every level of the IV = 1 – e.g. Schachter and Singer used independent measures as participants did anger or euphoria/MIS or IGN = 1 (example) – e.g. Andrade used independent measures as participants either doodled or didn't = 1 (example) – e.g. Yamamoto et al. = repeated measures design as chimpanzees did 'can see' and 'cannot see' = 1 (example) • repeated measures designs are more prone to order effects (than independent measures designs) = 1 – e.g. if Bandura et al. had used repeated measures, the children could have already learned aggressive behaviour in the first condition = 1 (example) • demand characteristics are a bigger problem in independent measures (than repeated measures designs) = 1 – e.g. if Schachter and Singer had used repeated measures, the participants would have spotted the difference between the instructions/stooges' behaviour = 1 (example) • individual differences are a bigger problem in repeated measures (than independent measures designs) = 1 – e.g. if I did a study about memory and all the clever people were in one group they might remember more and make it look like there was a difference even if there was not = 1 (example) • it is possible to allocate participants to levels of the IV in an independent measures design in a lab experiment but this is unlikely to be possible in a natural experiment = 1 – e.g. Bandura et al. could allocate children to conditions, but if a study was done on real-life exposure to aggressive models, participants would already be allocated to conditions on the basis of their experiences	6

Question	Answer	Marks
7	Dr Shah is conducting a naturalistic observation in a children's play area.	
7(a)	Suggest <u>two</u> ways that Dr Shah could make her study ethical. 1 mark for identification of an ethical issue (does not have to be named) × 2 1 mark for detail × 2 To protect the participants = 1 She should gain permission from her university ethical committee = 1 e.g. this would ensure the children were not upset by being observed = 1 Informed consent (from adults) = 1 Tell adults she is watching the children's play so they would know what was happening to their child = 1 ...so they could choose to leave the play area or not based on what Dr Shah Tells them = 1 ...because the participants are children/underage = 1 Ask the children in a child-friendly way so they understand what will happen and can choose = 1 Confidentiality = 1 Keep data about the children safe/not identify individual children/not name the specific play area = 1 Privacy = 1 Not listen to/record individual discussions between children/adults = 1 Deception = 1 Not mislead the children/adults about the purpose of procedure of her observation = 1 Debriefing = 1 Tell adults about what she has seen in the children's play = 1 (informing adults would give them the) right to withdraw their child = 1 To return children to previous state if they have been affected by the study = 1	4
7(b)	State why this study is a 'naturalistic observation'. 1 mark for a statement why Because Dr Shah has not manipulated/interfered with the play situation) = 1 Because the children are in the play area regardless of her study = 1 The toys and apparatus would be there anyway, so Dr Shah hasn't changed anything just for the study = 1 Because it is conducted in (the children's) real life environment/normal setting = 1	1

Question	Answer	Marks
7(c)	Suggest how Dr Shah could conduct her study if she were a covert, non-participant observer. 1 mark for demonstration of understanding of covert (likely to be implicit) 1 mark for link 1 mark for demonstration of understanding of non-participant (likely to be implicit) 1 mark for link Covert = hidden/participants are unaware of observer's role = 1 (understanding) Dr Shah could hide herself/she could pretend to be just another adult with a child (e.g. by chatting to other adults)/she could record data discreetly so that the children didn't notice = 1 link Non-participant = not part of the participants' social setting = 1 (understanding) Dr Shah would not go into the play area itself/would not talk to the children/would stay with the adults on the side = 1 link	4
8	Sonia is conducting a study using drivers queueing in traffic. Her hypothesis is 'There will be a positive correlation between frustration and anger in drivers'. Sonia measures anger by asking each driver to rate how angry they feel on a rating scale from 0 (calm) to 5 (very angry).	
8(a)	Suggest <u>one</u> way that Sonia could measure frustration in this study, other than using a rating scale. 1 mark for identification of measure [Must be quantitative and on a scale/not nominal so it can be correlated] 1 mark for operationalisation how long they had been in the queue = 1 (identification) time how long they are stationary (e.g. by measuring from when they join the queue to testing in minutes) = 1 use a self-report/interview the drivers/give them a questionnaire/using a Likert scale/other closed questions use observation = 1 (identification) horn beeping = 1 (identification) the number of times they beeped their horn = 2 (identification and operationalisation) shouting, swearing, grumbling = 1 (operationalisation by listing) (the amount of) tapping the steering wheel/shouting = 1 (identification) how long (in minutes) they tapped the steering wheel/shouted = 2 (identification and operationalisation)	2

Question	Answer	Marks
8(b)	Explain <u>one</u> strength of using the measure of frustration you have suggested in part (a). 1 mark for identifying advantage (can be generic) 1 mark for link it is objective/it is not subjective/it does not require interpretation/it will be reliable = 1 (advantage) so the measure of frustration in each driver will be consistent = 2nd mark link it is quantitative/numerical = 1 (advantage) so anger (and frustration) scores can be easily correlated/analysed = 2nd mark link it is easy to observe = 1 (reason) so driver frustration can be recorded without them knowing = 2nd mark link	2
8(c)	Write a null hypothesis for Sonia's study. 1 for null hypothesis (does not require operationalisation) 0 marks for an alternative hypothesis 0 marks for negative correlation 0 marks for an experimental null There will be no correlation/relationship between (driver) frustration and anger = 1 Any correlation/relationship between (driver) frustration and anger is due to chance = 1 Any difference between (driver) frustration and anger is due to chance = 0 There will be no difference between (driver) frustration and anger = 0 There will be no difference in anger between more and less frustrated drivers = 0	1
8(d)	Identify a measure of central tendency that Sonia could use on her 'anger' data. Include a reason for your answer. 1 mark for identifying either mean, median or mode 1 mark for reason Mean: because this will take the value of each (participant's anger) score into account = 1 Median: because rating is an ordinal data/data on a continuous scale = 1 because it is not affected by outliers/extreme values = 1 Mode: because it would be easy to see how many angry/not angry people there were, e.g. scores of 0,1,2 = not angry, scores of 3,4,5 = angry	2

Question	Answer	Marks
9	Zach is planning a study using laboratory rats to investigate whether they will copy a rat which acts as a model by eating unusual foods. He is aware of the ethical guidelines for using animals in experiments.	
9(a)	Suggest <u>one</u> reason why it is more ethical for Zach to test the copying of eating behaviour rather than the copying of aggression. 1 mark for ethical reason (animal guideline) 1 mark for link (to eating versus aggression) (limit) pain and distress = 1 (identification for reason/guideline) Fighting would be stressful/they may get hurt (but copying a model eating would not) = 1 link species/strain, they are social animals = 1 (identification for reason/guideline) so they would not be distressed by watching another rat = 1 link	2
9(b)	Suggest <u>one</u> practical reason why the rat is a good species to choose for this study. 1 mark for practical reason 1 mark for link rats are small = 1 (identification for reason); so can be easily stopped if they happened to fight (over the food) = 1 link rats are social = 1 (identification for reason); so they would watch each other when placed together = 1 link; common lab animals = 1 (identification for reason); so their behaviour wouldn't be affected by being in a study = 1 link; easy to observe = 1 (identification for reason); as big enough to see their behaviour = 1 (identification for reason); to make recording reliable = 1 link; rats are likely to copy feeding behaviour = 1 (identification for reason); because they eat a wide range of food/are intelligent (for rodents)/are social = 1 link;	2

Question	Answer	Marks
9(c)	Zach decides to measure the effect of the model by observing the similarities in eating behaviour between the learner rat and the model rat. Explain whether this measure is valid. 1 mark for identifying reasons for being valid/invalid (can be generic) 1 mark for link Yes It's easy (for Zach) to watch animals feed = 1 link so he can be certain that the learner is doing the same behaviour as the model = 1 reason (dependent on content of link in this case) No He might not interpret behaviour correctly/difficult to operationalise feeding behaviour = 1 reason because licking/sniffing in rats might look like feeding (to Zach) = 1 link because rats might have many different feeding behaviours = 1 reason so Zach may not know which rat behaviours are copied and which are not = 1 link Observing behaviours may be subjective = 1 reason so Zach may judge behaviours to be similar when they are not = 1 link	2
9(d)	Explain <u>one</u> strength of observations. 1 mark for identifying strength (can be generic) 1 mark for detail (may be linked but does not have to be) It can be done with animals/children = 1 (identification) so it does not matter that they cannot talk/respond to questions = 1 (detail) It can be done without the participants' awareness = 1 (identification) so there are fewer demand characteristics = 1 (detail)	2

Question	Answer	Marks				
10	Fahim is planning an interview study to investigate the types of dreams people have. He wants to collect a range of data using different types of questions.					
10(a)	Describe how Fahim could conduct a semi-structured interview about the types of dreams that people have. Three major omissions for a semi-structured interview study are: • What: content of questions asked (i.e. topics, examples: check these really are related to 'types of dreams' and not just sleep/frequency) • How: interview structure detail (inclusion of both structured and unstructured elements, i.e. some fixed questions) • How: style of questions asked (e.g. open/closed, quantitative/qualitative, use of Likert) The minor omissions are: • Where: location of participants when being interviewed • Who: participants (people who recall their dreams) lie questions filler questions sampling technique sample size description of how closed questions will be scored description of how quantitative data from closed questions will be analysed 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: <table><tr><td>Level 3 (8–10 marks) • Response is described in sufficient detail to be replicable (i.e. what and how) • Response may have a minor omission (i.e. who or where) • Use of psychological terminology is accurate and comprehensive </td></tr><tr><td>Level 2 (5–7 marks) • Response is in some detail • Response has minor omission(s) (i.e. who and/or where) • Use of psychological terminology is accurate </td></tr><tr><td>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 </td></tr><tr><td>Level 0 (0 marks) No response worthy of credit</td></tr></table>	Level 3 (8–10 marks) • Response is described in sufficient detail to be replicable (i.e. what and how) • Response may have a minor omission (i.e. who or where) • Use of psychological terminology is accurate and comprehensive	Level 2 (5–7 marks) • Response is in some detail • Response has minor omission(s) (i.e. who and/or where) • 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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Level 0 (0 marks) No response worthy of credit						

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. Do <u>not</u> refer to ethics or sampling in your answer. Answer will depend on problem identified. If the problem was an obvious omission in (a), fewer marks will have been awarded in (a), so they can be awarded here. Problems may, for example, be matters of: Validity - operationalisation - difficulty with lying/social desirability/forgetting - difficulty with response biases Reliability - standardisation - intra-rater consistency (e.g. due to subjectivity of interpretation – may also be validity) 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 <i>plus</i> 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>	Marks	Comment	3–4	Appropriate problem identified Appropriate solution is clearly described	2	Appropriate problem identified <i>plus</i> EITHER Explanation of why it is a problem OR Ineffectual but possible solution described	1	Appropriate problem identified Little or no justification	0	No response worthy of credit	4
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PSYCHOLOGY

9990/23

Paper 2 Research Methods

October/November 2019

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 2019 series for most Cambridge IGCSE™, Cambridge International A and AS Level components and some Cambridge O Level components.

This document consists of **10** printed pages.



Cambridge Assessment
International Education

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.

Question	Answer	Marks
1	One ethical guideline is to avoid deception in research. Explain what is meant by ‘deception’, using an example of a core study from the social approach. 1 mark for explanation, 1 mark for example (from core study) Deception is when the participants are lied to about the aim/procedure (explain = 1) e.g. Milgram said it was a study on memory/learning/punishment (when it was really about obedience) (example = 1) Misleading participants about the study (explain = 1) e.g. Piliavin et al.’s participants were led to believe that the ill or drunk victims were real (when they weren’t) (example = 1) Do not accept ‘When participants cannot give informed consent’ or ‘when participants are not told the truth’, this omits the crucial distinction between consent and deception	2
2	A study aims to find out whether boys and girls differ in the amount of time that they talk.	
2(a)	Write an operationalised directional (one-tailed) hypothesis for this study. 1 mark for a correct hypothesis that is not operationalised OR has only one operationalised variable 2 marks for a correct hypothesis with both IV and DV operationalised. For example: - Males will talk for longer/more often/for more minutes per day than females (2) - Females will talk more than males (1) [‘more’ is not operationalised] - There will be a difference in talking between the genders (0) [non-directional] - Gender affects the amount of time spent talking (0) [non-directional, even though DV is operationalised]	2
2(b)	Write a null hypothesis for this study. 1 mark for a correct null hypothesis. For example: - There will be no difference in (amount of) talking between male and female participants (1) - There will be no difference in (amount of) talking between the genders (1) - Any difference in talking between male and female is due to chance (1) - Any difference between talking and males and females is due to chance (0) - There will be no difference between talking and gender (0)	1

Question	Answer	Marks
3	Explain <u>one</u> advantage of using animals in research in psychology. 1 mark for identifying advantage 1 mark for detail Animals are unlikely be able to work out the aim of a study = 1 (advantage) so would be less likely to respond less to demand characteristics than humans = 1 (detail) Procedures that cannot be done on humans can be done on animals = 1 (advantage) For example lesioning/(food/social) deprivation is less possible with humans = 1 (detail)	2
4	From the study by Schachter and Singer (two factors in emotion):	
4(a)	Describe <u>one</u> way in which ‘anger’ was measured. 1 mark for identifying measure of anger 1 mark for detail The reaction of the participant to the stooge/watch them through a one-way mirror = 1 (identification) e.g. observation of how they responded on list of behaviours = 1 (operationalisation) Self-report/questionnaire (of ‘anger’) = 1 (identification) On rating scales such as ‘How angry or annoyed would you say you feel at present?’ = 1 (operationalisation)	2
4(b)	Suggest <u>one</u> reason why it is important to operationalise variables, using the example of anger in this study. 1 mark for identifying reason 1 mark for using anger To make the measure more valid/objective = 1 (reason) so that they could be sure that they were measuring anger = 1 (link) To make the measure more reliable = 1 (reason) so that the measures of anger were consistent on each trial = 1 (link)	2

Question	Answer	Marks
5(a)	Explain what is meant by ‘covert observation’, using the study by Bandura et al. (aggression) as an example. 1 mark for ‘hidden’ (generic definition) 2 marks for linked detail (1 mark for link, 1 for detail) The observer is hidden = 1 (generic definition) The participants do not know the role of the observer (even if they can see them) = 1 (generic detail) Bandura et al. used a one-way mirror = 1 (linked detail) so the children were unaware that they were being watched = 1 (linked detail)	3
5(b)	Suggest <u>one</u> advantage of covert observations. 1 mark for advantage (may be generic) 1 mark for detail (does not have to be linked) Behaviour will be natural/unaffected by observers = 1 (advantage) as there will be fewer demand characteristics = 1 (detail) so there will be less social desirability = 1 (detail) so Bandura et al.’s children wouldn’t be extra good/naughty because they knew they were being watched = 1 (detail – linked)	2
6	Describe how the case study method differs from other research methods, using any examples. 1 mark for each (of two) descriptive points about case studies (definitive: one instance + in detail) 1 mark for each example (from a study or made up) that is linked to case studies, up to a maximum of 3 Each difference that explicitly compares case studies to another method = 1 For maximum marks, there must be at least one difference and at least two examples. For example, differences: - In all other methods a group of participants is used but in case studies there is only one (instance) = 1 (difference) - e.g. Yamamoto et al. used several chimps but Pepperberg used only 1 parrot = 1 (example) - Experiments/correlations/self-reports using closed questions collect quantitative data whereas case studies collect (mainly) qualitative data = 1 (difference) - e.g. Canli et al. collected numerical data from brain scans in contrast to Savaadra and Silverman who collected descriptions of the boy’s experiences at school = 1 (example) - Experiments focus on making generalisations whereas case studies look specifically at the way an individual is special = 1 (difference) - e.g. Yamamoto et al. looked at patterns of helping that all chimps showed but I could do a case study of one chimp and find it was quite different = 1 (example)	6

Question	Answer	Marks
7	Liam is investigating whether children can be given false memories of a game they had played, such as winning a game that they actually lost. He plans to play and win the game with each child and tell them he is writing about it in his diary. Later he will pretend to read from his diary, telling each child a false story in which they won the game. He will then ask each child to write about the game they played.	
7(a)	Outline <u>one</u> way that Liam could measure the children's false memories. 1 mark for outline of measure of false memory For example: Count the number of events correctly/incorrectly recalled = 1 Count the number of words in the story then take away the number that are false = 1 Record whether the children said they won or not = 1	1
7(b)(i)	Suggest what the control condition should be in Liam's experiment. 1 mark for suggestion of control condition A condition/level of the IV where there is no reading from Liam's diary/where Liam's diary is true = 1	1
7(b)(ii)	Explain why it is important to have a control condition in Liam's experiment. 1 mark for identification of reason why a control condition is necessary in Liam's experiment 1 mark for detail (may be generic) So that he can judge whether the children would forget/get muddled anyway = 1 (identification with link) So that he can be sure that the errors are due to the (false) information given (from his diary) = 1 (detail)	2
7(c)	Suggest <u>one</u> way that Liam could standardise his procedure. 1 mark for suggestion about standardisation in Liam's experiment 1 mark for detail (e.g. how/why) He should play the game in the same way/same amount of time = 1 (identification with link) e.g. making a winning move the same number of times = 1 (detail – how) He should read the story in the same way = 1 (identification with link) so that he does not stress the false parts (making it easier for some children to spot) = 1 (detail – why) He should leave the same gap between the game and the diary reading/the diary reading and recall = 1 (identification with link) so that they have equal time to forget/e.g. 5 minutes = 1 (detail – how)	2

Question	Answer	Marks
8	Olivia is conducting an experiment to investigate whether students concentrate better in class before or after eating. Her experimental design is a repeated measures design.	
8(a)	Identify the independent variable (IV) in this experiment. 1 mark for identification of IV = when they eat/before or after eating (definitive)	1
8(b)	Identify the dependent variable (DV) in this experiment. 1 mark for identification of DV = concentration in class (definitive)	1
8(c)	Explain what is meant by a 'repeated measures design', using this experiment as an example. 1 mark for explanation (may be generic) 1 mark for link The same (group of) participants in all levels of the IV/conditions; All participants are tested both before and after eating = 1 (link)	2
8(d)(i)	Suggest how Olivia could counterbalance the conditions in her experiment. 1 mark for generic suggestion 1 mark for link By having different groups of participants do the conditions in different orders = 1 (generic) e.g. one group does 'before eating' one day and 'after eating' the next day and the other group does 'after eating' one day and 'before eating' the next day = 1 (link)	2
8(d)(ii)	Explain <u>one</u> advantage of counterbalancing in this experiment. 1 mark for advantage (may be generic) 1 mark for link It controls for order/fatigue/practice effects = 1 (generic) e.g. if people were bored with the task the second time so did not concentrate as much = 1 (link) e.g. if people were better at the task by the second time so looked like they were concentrating more = 1 (link)	2
9	Huan is planning an interview about attitudes to mental illness.	
9(a)(i)	Suggest <u>one</u> question that Huan could use to collect <u>quantitative</u> data. 1 mark for any closed question with answer options about mental health How important is it to care about people with mental health problems, on a scale of 1–10 (10 = care a lot)? = 1 How important do you think it is to care about people with mental health problems? = 0 (open)	1

Question	Answer	Marks
9(a)(ii)	Suggest <u>one</u> disadvantage of collecting quantitative data in Huan's study. 1 mark for disadvantage (may be generic) 1 mark for link It does not explain the 'why'/does not give in depth data/there is no chance to explain = 1 (generic) so Huan would not know why people held those attitudes about mental health = 1 (link)	2
9(b)	Suggest <u>one</u> question that Huan could use to collect <u>qualitative</u> data. 1 mark for any open question (can be a statement that generates qualitative data) Describe how you feel when you see a mentally ill person = 1 To what extent do you feel that we treat mentally ill people fairly? = 1	1
9(c)	Explain <u>two</u> advantages of using an interview rather than a questionnaire in Huan's study. 1 mark for advantage (may be generic) × 2 1 mark for link × 2 In an unstructured interview the researcher can respond to the interviewee's answers = 1 (generic) so Huan could discover more about individual's attitudes about mental health = 1 (link) Interviewer can check the participant understands the question/that they understand the response = 1 (generic) so Huan would know his record of what the participant says about mental health is a valid reflection of their opinion = 1 link Interviews tend to generate more qualitative data than questionnaires = 1 (generic) so the information about attitudes to mental health would be more detailed than from a questionnaire = 1 (link)	4
9(d)	Huan is going to use opportunity sampling. Explain <u>one</u> disadvantage of using an opportunity sample in this study. 1 mark for disadvantage (may be generic) 1 mark for link They are unrepresentative/may be biased = 1 (generic disadvantage) so Huan's participants may be especially positive/negative/ignorant about mental health = 1 link	2

Question	Answer	Marks
10	Fazli wants to study the relationship between kindness and obedience. He is not sure whether people who are more obedient will be more or less kind to others.	
10(a)	Describe how Fazli could conduct a correlational study to investigate this relationship. Your study must be ethical. Three major omissions for a correlational study are: • What: variable 1 (detail of operationalisation) • What: variable 2 (detail of operationalisation) • How: technique for producing/collecting data, i.e. procedure (e.g. tests, observations, questionnaires) The minor omissions are: • Where – location of participants when data is collected (e.g. clinics) • Who – participants a statement about whether a positive or negative correlation is expected sampling technique sample size description of how closed questions will be scored description of how data will analysed, e.g. use of scattergram 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 (i.e. what and how) • Response may have a minor omission (i.e. who or where) • Use of psychological terminology is accurate and comprehensive Level 2 (5–7 marks) • Response is in some detail • Response has minor omission(s) (i.e. who and/or where) • 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

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. Do <u>not</u> refer to ethics or sampling in your answer. Answer will depend on problem identified. If the problem was an obvious omission in (a), fewer marks will have been awarded in (a), so they can be awarded here. Problems may, for example, be matters of: Validity - operationalisation (of obedience and kindness) Reliability - standardisation - consistency (of measures of obedience and kindness) 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 <i>plus</i> 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>	Marks	Comment	3–4	Appropriate problem identified Appropriate solution is clearly described	2	Appropriate problem identified <i>plus</i> EITHER Explanation of why it is a problem OR Ineffectual but possible solution described	1	Appropriate problem identified Little or no justification	0	No response worthy of credit	4
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