



Cambridge International AS & A Level

PSYCHOLOGY

9990/21

Paper 2 Research Methods

October/November 2021

MARK SCHEME

Maximum Mark: 60

Published

This mark scheme is published as an aid to teachers and candidates, to indicate the requirements of the examination. It shows the basis on which Examiners were instructed to award marks. It does not indicate the details of the discussions that took place at an Examiners' meeting before marking began, which would have considered the acceptability of alternative answers.

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This document consists of **15** printed pages.

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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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**Social Science-Specific Marking Principles
(for point-based marking)****1 Components using point-based marking:**

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3 Annotation:

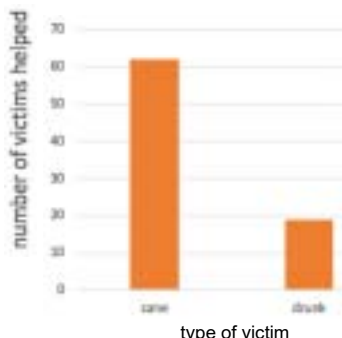
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Question	Answer	Marks
1(a)	Explain why a questionnaire is a self-report method, including an example from a core study in your answer. 1 mark for explanation (that the data comes directly from the participant / e.g. as participant writes) 1 mark for example Reference for core study is not sufficient, must give example of questionnaire by title or description Reference for core study must match example identified written questions to collect data from participants; (explanation) Self reports collect data directly from the participant; (explanation) E.g. Baron-Cohen et al. used the AQ/IQ tests; E.g. Schachter and Singer gave participants questionnaires to assess mood; E.g. Laney et al gave the restaurant questionnaire / FHI / FPQ / memory or belief questionnaire (MBQ);	2
1(b)	Explain <u>one</u> strength of using questionnaires in research. 1 mark for a brief/muddled strength 2 marks for a clear/detailed strength Participants are alone so they are less likely to give socially desirable answers; (brief) which increases the validity of the results; (2nd mark, detail) So the results are more likely to be honest/true answers; (detail) Many participants can answer at the same time, so a big sample can be obtained; (brief) Which increases the generalisability of the results; (2nd mark, detail) So the results will be based on and apply to a greater variety of people; (detail) Each participant is asked exactly the same questions, which increases standardisation; (brief) This makes the study more valid/makes analysis easier/comparison possible; (2nd mark, detail) Can collect data about thoughts/feelings which cannot be observed; (brief) E.g. could observe someone frowning but a questionnaire could ask if they were cross or puzzled; (2nd mark, detail) Easier for participants to stop answering/withdraw; (brief) Because they are not with an interviewer; (2nd mark, detail) They are (more) valid (than interviews) = 0 cheap/easy = 0	2

Question	Answer	Marks
2	Dement and Kleitman (sleep and dreams) compared dream duration estimates for 5-min and 15-min REM periods. Write a null hypothesis for this part of the study. 1 mark for a muddled (experimental) null hypothesis 2 marks for a clear (experimental) null hypothesis The hypothesis does not have to be operationalised for 2 marks Any difference between estimates of dream duration for different length REM periods is due to chance = 2 There will be no difference between dream duration estimates for different length REM periods = 2 Dream duration for different length REM periods will be the same = 1 There will be no difference between dream duration and length of REM period = 0 Any correlation between estimates of dream duration for different length REM periods is due to chance = 0 There will be no correlation between dream duration estimates and length of REM period = 0	2

Question	Answer	Marks
3	In the study by Bandura et al. (aggression), inter-rater reliability was measured.	
3(a)	Outline what is meant by ‘inter-rater reliability’. 1 mark for outlining The extent to which two raters/researchers (coding the same data) produce the same records; When multiple raters are consistent (with each other);	1

Question	Answer	Marks
3(b)	Describe <u>one</u> part of the procedure that improved inter-rater reliability in this study. 1 mark for description (of procedure that increased inter-rater reliability) 1 mark for detail 1 mark for link Using scales that were objective; (description) four 5-point rating scales; (description) used in initial assessment of aggression; (detail/link) by experimenter and nursery school teachers (detail/link) the observation scales were piloted; and the scoring system amended; (description + detail) During the pretest...subjects imitated...components of the model's behavior but not the complete act, or they directed the imitative aggressive response to some object other than...Bobo... scored...as partially imitative behavior; (link) The behaviour categories were clearly/operationally defined; (description) Mallet aggression: strikes objects other than Bobo aggressively with mallet; Sits on Bobo: lays Bobo on its side and sits on it but does not aggress toward it; Punches Bobo: strikes, slaps, or pushes doll aggressively; Nonimitative physical and verbal aggression: physically aggressive acts directed toward objects other than Bobo; hostile remarks except for those in the verbal imitation category e.g. "Shoot the Bobo," "Cut him," "Stupid ball," "Knock over people," "Horses fighting, biting"; Aggressive gun play: shoots darts or aims the guns and fires imaginary shots at objects in the room; (detail + link)	3

Question	Answer	Marks
4	In the study by Piliavin et al. (subway Samaritans), observers counted the total number of victims helped. The results were that 62 'cane' victims and 19 'drunk' victims were helped. Draw a bar chart of these results. You must label the axes. 1 mark; units (number of helpers/number of victims helped) on y-axis 1 mark: number of victims helped (for frequency) on y-axis 1 mark: 'type of victim' on x-axis 1 mark: 'cane'/'ill' and 'drunk' as categories on x-axis 1 mark: correct plotting of 19 drunk and 62 cane Must have separate bars for full 4 marks 	4

Question	Answer	Marks
5	In a study on memory, participants had to recall a story. The researchers measured memory by rating the accuracy of each participant's recall of the story on a 10-point scale. Suggest <u>one</u> weakness of using this scale to measure memory. 1 mark for generic weakness 2 marks for linked weakness of this rating scale Rating scales can be subjective; (generic weakness) e.g. one researcher's view of '9' for recall may demand better recall than another researcher's '9'; (link) 10 points does not give enough discrimination (between memory ability); (generic weakness) A participant's recall might need to be judged as in between two points; (link) The participants may lie = 0 (NAQ) The participants may not understand the story = 0 (NAQ) Responses about other aspects of the study, e.g. the use of a story as a test of memory = 0 [irr] Scale is quantitative and qualitative data is needed = 0 [NAQ] Scale is quantitative and qualitative data is needed to know why only some of the story was recalled = 0 [NAQ]	2

Question	Answer	Marks
6	Describe laboratory experiments and field experiments, using any examples. 1 mark for each definition, up to a maximum of 4, for each type of experiment. 1 mark for each example that is linked to one issue, up to a maximum of 2, for each type of experiment. Examples can include examples from any studies (core studies, other studies, candidate's own studies). Max 4 if only about one type of experiment Laboratory experiment: has (manipulated) IV and (measured) DV; (definition) happens in an artificial environment; (definition) So there can be many controls; (definition) Canli et al.: randomised the order of the pictures, thus controlling for familiarity of type; Canli et al.: controlled for participant concentration by having a fixation cross; Dement and Kleitman: controlled for factors affecting sleep as participants told not to drink alcohol/caffeine; Schachter and Singer: controlled the stooges' behaviours as they were scripted; Andrade: controls also given paper and pencil; all doodling condition given sheets to constrain doodling; Baron-Cohen et al.: access to a glossary controlled for understanding of the words; Laney et al.: controlled for processing of feedback by giving additional questions (imagine the setting); Yamamoto et al.: same tool familiarisation process; Pepperberg: controlled for familiarity of trainer during testing; Bandura et al.: IV was gender of child / aggressive or non-aggressive model and DV was aggression; Field experiment: has (manipulated) IV and (measured) DV; (definition) happens in the normal environment for the activity being investigated; (definition) So there can be some/few controls; (definition) Piliavin et al. changed the stooge/victim (cane or drunk); Piliavin et al. measured the number of helpers/speed of helping; Piliavin et al. controlled the actions/clothing of the stooge;	6

Question	Answer	Marks
7	Bruce is planning a case study of a famous woman known worldwide for her helpfulness.	
7(a)	Explain <u>one</u> strength of the case study research method. 1 mark for identifying a strength 1 mark for detail (can be linked) One person is generally chosen for some special characteristic; (ID) e.g. a rare condition so something can be investigated that it would be impossible to study otherwise; (detail) Can study in depth/detail; (ID) detailed data means that complex issues can be explored (providing a much richer understanding) / which is better than just recording a single DV in an experiment; (detail)	2

Question	Answer	Marks
7(b)	Explain <u>two</u> weaknesses of the case study research method, using Bruce's study as an example. 1 mark for weakness } 1 mark for link } ×2 Bruce may interpret her comments differently than another researcher/may interpret subjectively; (weakness) Bruce's personal viewpoint, is that she is exceptionally helpful, so will interpret data this way; (weakness + link) The woman Bruce is studying is exceptionally helpful, so his findings won't apply to normal helping; (link) So low generalisability; (weakness: 2nd mark only) Bruce believes she is helpful, so will interpret his results that way; (weakness + link) So low reliability; (weakness: 2nd mark only) Difficult to keep confidentiality (if case is rare); (weakness) She will be hard to disguise as famous; (link) Risk of invading privacy as study is in-depth / due to familiarity with researcher; (weakness) As she is famous the researcher may already know things about her so the questions may be too personal; (link) As she is famous there may be rumours about her so she may be embarrassed by questions; (link) Case studies are overt so she may be affected by social desirability; (weakness) And pretend to be even more helpful to look good to Bruce; (link) She is only one person (not representative of the population) so low generalisability; (weakness without link) Case studies are hard to replicate; (weakness without link) Low generalisability/validity/reliability/objectivity = 0 [if only term]	4

Question	Answer	Marks
8	Nola is investigating whether there is a correlation between hours of sleep and how much a person argues. She thinks that people who sleep less may argue more. Her friend Tim is making suggestions about her procedure.	
8(a)	Nola and Tim have different ideas for recording participants' hours of sleep per night: • Nola plans to ask participants to record this at home. • Tim says it would be a better to record this in a laboratory.	

Question	Answer	Marks
8(a)(i)	Suggest one <u>ethical</u> reason why <u>Nola's</u> idea is better than Tim's idea. 1 mark for an unlinked or brief suggestion about ethics, 2 marks for a clear and linked suggestion about ethics Sleeping at home gives better privacy; (brief) Will be alone to sleep at home; (link) Sleeping at home is more ethical because participants might find being in a strange place / knowing there are researchers around distressing so sleep poorly / which is harmful; (clear and linked) = 2 marks	2
8(a)(ii)	Suggest one <u>practical</u> reason why <u>Nola's</u> idea is better than Tim's idea, other than avoiding the need to use a laboratory. 1 mark for an unlinked or brief practical suggestion 2 marks for a clear and linked practical suggestion Sleeping at home is higher in (ecological) validity / They will behave more naturally / higher mundane realism; (brief) Sleep at home has more ecological validity; sleep time will be typical / likely to show correlation to arguing if there is one; (clear, linked)	2
8(a)(iii)	Suggest one <u>practical</u> reason why Tim's idea is better than Nola's idea. 1 mark for an unlinked or brief practical suggestion 2 marks for a clear and linked practical suggestion Timing sleep at home is hard to do / Timing sleeping in a lab is easier to do; (brief) Lab is more standardised/controlled; (brief) e.g. people at home might get angry because of other people; (link) Hard to time sleep at home; participant might make errors / lie / not know when they fell asleep / awoken in night; (clear and linked)	2
8(b)	Nola finds the correlation she expected, that people who sleep less argue more. Explain why Nola cannot know whether sleeping less causes people to argue more. 1 mark for a generic explanation 1 mark for a link It's a correlation so she cannot judge causation; (generic) It's a correlation so she cannot judge whether sleep deprivation is what causes argumentativeness, it could be that argumentative people do not sleep as well; (explanation and link = 2) She is only considering two factors/there might be a third factor; e.g. stress/work/illness; (generic then link = 2)	2

Question	Answer	Marks
9	Naomi is designing an observation of helping behaviour at an entrance to a library that has a door which is difficult to open. She intends to observe people carrying many books and will record the gender of each person who helps to open the door.	
9(a)	Naomi could either be a participant observer or a non-participant observer.	
9(a)(i)	Suggest <u>one</u> advantage of her being a participant observer. 1 mark for advantage 1 mark for link She would be able to be very close; (advantage) So could see or hear whether the book-carrier / library user / stooge solicited the helping; (link) Being involved means she won't affect the participants' behaviour; (advantage) If she was an onlooker who wasn't involved, people might feel they have to help; (link)	2
9(a)(ii)	Suggest <u>one</u> advantage of her being a non-participant observer. 1 mark for advantage 1 mark for link If she wasn't involved she would be more objective; (advantage) Because if she was involved she might see 'helping' that didn't really exist; (link) Reference to covert/hidden is irrelevant	2
9(b)	Explain the type of data Naomi is collecting. 1 mark for identifying quantitative 1 mark for justification [mark is independent of correct identification] Quantitative; Because they can be male or female helpers; (justification) Because she is counting the number of each gender helper; (justification) Counting helping; (justification) if someone held the door open or not; (justification) The total times they helped; (justification) Because it is the number of each gender; (justification) if someone held the door open = 0 (not quantitative)	2

Question	Answer	Marks
9(c)	Situational variables could affect Naomi's results.	
9(c)(i)	State what is meant by a 'situational variable'. 1 mark for definition a confounding variable that is due to the influence of the environment; something about the environment/setting that affects the DV other than the IV; uncontrolled variable that is due to the situation = 0 [REP]	1
9(c)(ii)	Suggest how <u>one</u> situational variable could affect Naomi's results. 1 mark for situational variable 2 further marks for effect on results (likely to be linked but do not have to be) If the library is busy (or not); (situational variable) Whether it is the start/end of the day; (situational variable) What the weather is like / if it is raining; (situational variable) If the library is busy; people may be more likely to help; because they see other people helping / not because of gender; If it is the start of the day; people may help more; because they haven't been at work yet / not because of gender; If it is raining; people may be less likely to help; because they don't want to get wet / not because of gender; If it is raining; people may be less likely to help; which lowers validity;	3

Question	Answer	Marks				
10	Brendan is planning to use a semi-structured interview in a study about road users. He intends to use a sample of people who are walking (pedestrians). Brendan will investigate the pedestrians' feelings, thoughts and actions towards other road users, e.g. other pedestrians, cyclists and drivers.					
10(a)	Describe how Brendan could conduct a study using a semi-structured interview to investigate participants' feelings, thoughts and actions towards other road users. Three majors for a semi-structured interview are: a content of questions asked (topics, examples: feelings, thoughts, actions) b interview structure detail (<i>both fixed and variable</i> questions, writing/recording answers, fillers) c style of questions asked (open, closed, correct example for each) The minors are: where – location of participants when being interviewed who – participants (people who are road users) Other details for replication: • lie questions • filler questions • sampling technique • sample size • 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) • 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) • 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) • 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. • 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 not refer to ethics or sampling in your answer. Answer will depend on problem identified. Problems may, for example, be matters of: Validity - operationalisation - situational/participant variables factors Reliability - inter-rater consistency - intra-rater consistency. This list is not exhaustive and other appropriate responses should also be credited. <table><tr><th>Marks</th><th>Comment</th></tr><tr><td>3–4</td><td>Appropriate problem identified. Appropriate solution is clearly described.</td></tr><tr><td>2</td><td>Appropriate problem identified. <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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1	From the study by Schachter and Singer (two factors in emotion):	
1(a)	Identify the sampling technique used in this study. 1 mark for identification of volunteer (sampling) (definitive)	1
1(b)	Explain how this sampling technique was used in this study. 1 mark per point × 2 Participants were taken from a subject pool / who volunteered to be participants in studies; of Minnesota / university (introductory psychology course) students; and gained two extra points in their final exam (for every hour they spent in a study);	2
1(c)	One ethical strength of this study was that health checks were done. Explain why this is an ethical strength. 1 mark for identifying strength 1 mark for detail Avoided harm / avoided risks to participants; (strength) So they would not be harmed by the injection / the effects of adrenaline; (detail)	2

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

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

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

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

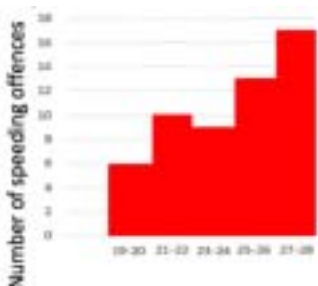
Question	Answer	Marks
5	Explain what is meant by ‘operationalisation’ in relation to the dependent variable and independent variable, using the study by Piliavin et al. (subway Samaritans). 1 mark for definition 2 marks for links Operationalisation means clearly defining a variable; (definition) Operationalisation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

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

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

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

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

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

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

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

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

Question	Answer	Marks				
10	Jilpa plans to explore how personalities vary. She thinks that people's personalities can have several characteristics, for example, how serious/playful, talkative/quiet or optimistic/pessimistic they are.					
10(a)	Describe how Jilpa could conduct a study using a structured interview to investigate a range of characteristics in people's personalities. Three majors for a structured interview study are: a: What – content of questions asked (<i>detail:</i> i.e. topics, examples: serious/playful, talkative/quiet or optimistic/pessimistic or any other e.g. shy/outgoing) b: How – the interview is structured (<i>detail:</i> e.g. same questions to all / same question order / predetermined / timing/interviewer's dress, tone, face-to-face) c: How – style of questions asked (<i>detail:</i> e.g. open/closed; quantitative/qualitative; filler questions) The minors are: Where – location of participants when being interviewed Who – participants Other details for replication: • lie questions • sampling technique • sample size • how data will be gathered • description of how closed questions will be scored • description of how quantitative data from closed questions will be analysed • description of how open questions will be interpreted Other appropriate responses should also be credited. Mark according to the levels of response criteria below: <table><tr><td>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. </td></tr><tr><td>Level 2 (5–7 marks) • 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) • 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. • 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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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.						

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 not refer to ethics or sampling in your answer. Answer will depend on problem identified. Problems may, for example, be matters of: Validity - operationalisation - situational/participant variables factors Reliability - inter-rater consistency - intra-rater consistency. This list is not exhaustive and other appropriate responses should also be credited. <table><tr><th>Marks</th><th>Comment</th></tr><tr><td>3–4</td><td>Appropriate problem identified. Appropriate solution is clearly described.</td></tr><tr><td>2</td><td>Appropriate problem identified. <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
Marks	Comment											
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1	Appropriate problem identified. Little or no justification.											
0	No response worthy of credit											



Cambridge International AS & A Level

PSYCHOLOGY

9990/23

Paper 2 Research Methods

October/November 2021

MARK SCHEME

Maximum Mark: 60

Published

This mark scheme is published as an aid to teachers and candidates, to indicate the requirements of the examination. It shows the basis on which Examiners were instructed to award marks. It does not indicate the details of the discussions that took place at an Examiners' meeting before marking began, which would have considered the acceptability of alternative answers.

Mark schemes should be read in conjunction with the question paper and the Principal Examiner Report for Teachers.

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

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

This document consists of **14** printed pages.

Generic Marking Principles

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

GENERIC MARKING PRINCIPLE 1:

Marks must be awarded in line with:

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

GENERIC MARKING PRINCIPLE 2:

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

GENERIC MARKING PRINCIPLE 3:

Marks must be awarded **positively**:

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

GENERIC MARKING PRINCIPLE 4:

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

GENERIC MARKING PRINCIPLE 5:

Marks should be awarded using the full range of marks defined in the mark scheme for the question (however; the use of the full mark range may be limited according to the quality of the candidate responses seen).

GENERIC MARKING PRINCIPLE 6:

Marks awarded are based solely on the requirements as defined in the mark scheme. Marks should not be awarded with grade thresholds or grade descriptors in mind.

**Social Science-Specific Marking Principles
(for point-based marking)****1 Components using point-based marking:**

- Point marking is often used to reward knowledge, understanding and application of skills. We give credit where the candidate's answer shows relevant knowledge, understanding and application of skills in answering the question. We do not give credit where the answer shows confusion.

From this it follows that we:

- a** DO credit answers which are worded differently from the mark scheme if they clearly convey the same meaning (unless the mark scheme requires a specific term)
- b** DO credit alternative answers/examples which are not written in the mark scheme if they are correct
- c** DO credit answers where candidates give more than one correct answer in one prompt/numbered/scaffolded space where extended writing is required rather than list-type answers. For example, questions that require *n* reasons (e.g. State two reasons ...).
- d** DO NOT credit answers simply for using a 'key term' unless that is all that is required. (Check for evidence it is understood and not used wrongly.)
- e** DO NOT credit answers which are obviously self-contradicting or trying to cover all possibilities
- f** DO NOT give further credit for what is effectively repetition of a correct point already credited unless the language itself is being tested. This applies equally to 'mirror statements' (i.e. polluted/not polluted).
- g** DO NOT require spellings to be correct, unless this is part of the test. However spellings of syllabus terms must allow for clear and unambiguous separation from other syllabus terms with which they may be confused (e.g. Corrasion/Corrosion)

2 Presentation of mark scheme:

- Slashes (/) or the word 'or' separate alternative ways of making the same point.
- Semi colons (;) bullet points (•) or figures in brackets (1) separate different points.
- Content in the answer column in brackets is for examiner information/context to clarify the marking but is not required to earn the mark (except Accounting syllabuses where they indicate negative numbers).

3 Annotation:

- For point marking, ticks can be used to indicate correct answers and crosses can be used to indicate wrong answers. There is no direct relationship between ticks and marks. Ticks have no defined meaning for levels of response marking.
- For levels of response marking, the level awarded should be annotated on the script.
- Other annotations will be used by examiners as agreed during standardisation, and the meaning will be understood by all examiners who marked that paper.

Question	Answer	Marks
1(a)	Outline what is meant by ‘fatigue effects’. 1 mark for definition 1 mark for detail A decline in participants’ performance caused by experiencing an experimental task/situation more than once; (definition) It can result from tiredness/boredom; (detail) The reduction in performance on the DV is not affected by the IV (reduces validity); (detail)	2
1(b)	In the study by Pepperberg (parrot learning), fatigue effects could have occurred. State <u>two</u> examples of the parrot’s behaviour that suggest fatigue effects did occur. 1 mark per way Stopped vocalising / refused to answer question; Preened; Became restless; Requested a different item; Asked to change location / go to gym / said ‘wanna go see...’;	2

Question	Answer	Marks
2	Explain why opportunity sampling may not produce a representative sample. 1 mark for explanation People taken by availability are likely to be similar; When the experimenter chooses participants they may be biased;	1

Question	Answer	Marks
3	Studies using animals should follow the ethical guideline of ‘deprivation and aversive stimuli’. The study by Yamamoto et al. (chimpanzee helping) followed this ethical guideline. Explain <u>one</u> feature of this study that ensured the chimpanzees were not exposed to deprivation/aversive stimuli. 1 mark for generic explanation of how to follow deprivation/aversive stimuli. (one or other) 1 mark for link deprivation refers to not making animals do without necessities; (generic) aversive stimuli refers to not exposing animals to unpleasantness; (generic) ethical approval from (Kyoto) university means the chimpanzees were cared for (not deprived); (link) the chimpanzees were given rewards not punished/deprived; (generic) juice drink (reward); (link)	2

Question	Answer	Marks
4(a)	In the study by Canli et al. (brain scans and emotions), several types of quantitative data were collected, including data from fMRI (functional Magnetic Resonance Imaging). Describe <u>two</u> quantitative measures in this study, other than the data from fMRI. 1 mark for identifying quantitative measure + 1 mark for detail × 2 Rating of emotional arousal/intensity; On a scale of 0 = not / low to 3 = extremely emotionally intense / high; Memory / recall / recognition of slides / scenes; Number / percentage of slides remembered, familiar or forgotten;	4
4(b)(i)	For one of the quantitative measures you described in (a): Explain <u>one</u> reason why it may be a valid measure. 1 mark for reason, 1 mark for detail <i>Rating of emotional intensity:</i> It is a linear scale indicating greater intensity; Whereas data about remembered, familiar or forgotten was nominal/categorical so less informative; Scale is standardised; Each individual would be able to consistently say one stimulus was more (/less) intense; <i>Number/percentage of slides remembered, familiar or forgotten:</i> Recalling a slide/scene is objective / not subjective; Either it was forgotten/remembered/familiar or it wasn't; No interpretation is required like there is for the rating scale;	2
4(b)(ii)	Explain <u>one</u> reason why it may not be a valid measure. 1 mark for reason, 1 mark for detail P may lie; <i>Number/percentage of slides remembered, familiar or forgotten:</i> It does not allow for graded responses; Something might be remembered/familiar somewhat or very well and this cannot be recorded; <i>Rating of emotional intensity:</i> It is subjective / not objective; So interpretation of the scale is required by the participant, so there may be individual differences in use;	2

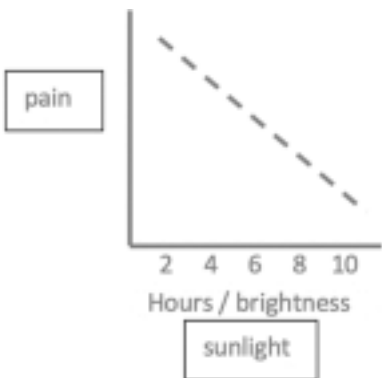
Question	Answer	Marks
5	In the cognitive approach, studies often need to deceive participants. Explain why deception was necessary in the study by Andrade (doodling). 1 mark for need for deception If the participants had known about the surprise memory test they would have deliberately remembered the place names; To avoid demand characteristics = 0 To avoid demand characteristics so the participants didn't deliberately doodle / make an effort to remember names / focus on the names in the message;	1

Question	Answer	Marks
6	Describe covert observations and overt observations, using any examples. Up to 4 marks for detail for each type of observation max 2 examples per type of observation. Examples can include examples from any studies (core studies, other studies, candidate's own studies). Overt observation: the role of the observer is obvious to the participants; such as if they are holding a clipboard; This can improve validity as it is easier to collect data / to be close to the participants; It raises few ethical issues as participants are aware so can give consent; Saavedra and Silverman: the boy knew the researchers were watching him during the in vivo button tasks; (example) Covert observation: the participants are unaware of role / existence of the observer; e.g. if disguised as a member of the social group; or physically hidden; such as using CCTV / a one-way mirror; This improves validity as participants cannot be affected by being observed; so demand characteristics / social desirability are reduced; Bandura et al.'s observers were covert because they used a one-way mirror to watch the children; (example) Piliavin et al.'s observers were covert because they pretended to be passengers to watch on the subway; (ex) Schachter and Singer's observers were covert because they used a one-way mirror; (example) Milgram: observations were covert because they were made through a one-way mirror; (example) Yamamoto et al.: chimpanzees videoed (using three cameras); (example)	6

Question	Answer	Marks
7(a)	Dhia is investigating when children learn to understand differences between shapes. She is comparing children aged 4 years and 8 years. Dhia will test their ability by asking them to sort wooden shapes into triangles, squares or circles. Suggest <u>two</u> ways that Dhia could measure a child's performance on this test. 1 mark for a way $\times$ 2 How quickly they sort (all) the shapes; How many shapes they sort correctly / How many errors they make in sorting; Number of each type of shape: triangles, squares or circles;	2
7(b)	Ethical guidelines suggest that even when consent has been given by a parent, a child should still be asked if they want to participate in a way that they will understand. Suggest how Dhia could attempt to obtain consent from the children in a way that they will understand. 1 mark for making informing and gaining agreement child-friendly 2nd mark for suggested technique e.g. wording or further detail She should ask using easy words/language; (1st mark) asking if they want to play a game; (1st or 2nd mark) e.g. say 'Please can you sort these shapes out for me' (1st mark) 'you don't have to if you don't want to.' (2nd mark) e.g. say 'Will you play a shape sorting game with me'; (1st mark) 'or would you rather play on your own?' (2nd mark)	2
7(c)	Children may express their right to withdraw in different ways from adults. Suggest how Dhia might know that a child wants to withdraw from her experiment. 1 mark for brief suggestion, 1 mark for detail or second suggestion The child might get up / walk away from the study / walk out of the room; (brief suggestion) Stop participating / refuse to continue; (brief suggestion) because they are afraid/bored (detail) and child might look distressed/cry/scream/shout; (detail) as they want to find someone familiar; (detail)	2

Question	Answer	Marks
7(d)	The 4-year-old children had been learning about shapes at school the week before Dhia's study. Explain the possible effect of this on Dhia's findings. 1 mark for identifying reduction in validity, 1 mark for detail, 1 mark for link It will make her conclusion less valid; (identification) Because the 4-year olds will have learned to tell the shapes apart; (link) 'They would be able to sort' = 1 Because the DV would be affected by a variable other than the IV; (generic detail) Because the trip was only for the 4-year old children and not the 8-year old children; (linked detail) Learning about shapes could improve scores so they'd look better at shapes for their age; (linked detail)	3

Question	Answer	Marks
8(a)	Bai is conducting a correlational study about pain and hours of daylight. He thinks that people experience more pain on days when there is less sunlight. He has asked for volunteers from a specialist centre for back pain. Bai plans to collect his data about pain using a questionnaire. Explain one reason why it may be better for him to use an interview to collect this data. 1 mark for reason (generic) 1 mark for link Some people might not return questionnaires, biasing the data; (reason) People with worse back pain might find writing their answers more difficult than talking; (link) Interviews can tailor questions to individuals; (reason) Interviews can explain questions to individuals; (reason) Interviewer can build a relationship with the interviewee / develop trust; (reason) So obtain more information about their pain / exposure to sunlight; So Bai would be able to ask questions about the particular pain different patients feel / what they do when the weather is fine/dull; (link) Interviewer gains information from non-verbal cues / facial expressions / gestures / grimacing (to indicate pain); Can use more open questions / collect more qualitative data = 0	2
8(b)(i)	Suggest <u>one</u> disadvantage of using participants from a specialist centre for back pain. 1 mark for disadvantage 1 mark for detail The patients will <i>all</i> be in pain; So the findings may not generalise / may not be representative; to people with only mild pain / people from other areas; The patients are attending a pain clinic, so are being <i>treated</i>; The treatment may mean their pain doesn't fluctuate enough to see a pattern; They all have <i>back</i> pain; The findings may not generalise (to other sorts of pain); It might be unethical because it makes them <i>think about</i> their pain; This could cause harm as they may be more distressed;	2

Question	Answer	Marks
8(b)(ii)	Suggest one alternative source of participants. Justify your answer. 1 mark for source of participants 1 mark for justification The participants could include normal people who are experiencing occasional pain; Which would have greater generalisability to the whole population; A group of patients who are awaiting appointments / treatment; Then there are not receiving therapy / painkillers; The participants could come from a hospital; This would give a range of different sorts of pain; Patients from a GP surgery; A list could be used to get a more representative random sample;	2
8(c)	Sketch a graph of the results Bai expects to find on the axes below. You must label the axes. 1 mark for both 'pain' and 'daylight' as axis labels 1 mark for units (hours / brightness / light level) on daylight scale 1 mark for negative correlation (points or line of 'best fit') 	3

Question	Answer	Marks
9(a)	Mitesh is investigating the effect of doodling on recall of animal noises. He provides pencils and doodling paper for all participants and tells them that they will hear a recording of animal noises that they will have to recall. Mitesh notes which participants doodle while they listen to the recording. Suggest how Mitesh could encourage participants to doodle, other than by telling them to doodle. 1 mark for brief suggestion 1 mark for detail or second suggestion He could provide paper with marked shapes; (suggestion) Which he could tell them is to keep themselves amused (by doodling); (detail) He could tell them the noises are boring; (suggestion) So they might want to do something to keep themselves amused; (detail) Make the recording long; (suggestion) Make the recording repetitive; (suggestion) So they get bored; (detail)	2
9(b)	The participants who doodled recalled more animal noises than the participants who did not doodle. However, Mitesh cannot conclude that doodling causes better recall. Suggest one reason why Mitesh cannot conclude that doodling causes better recall. 1 mark for a brief/generic reason 2 marks for a clear and linked reason Mitesh did not control who doodled; (brief) So natural doodlers might have better memories anyway; (clear and linked) Participants were not randomly allocated to conditions; (brief and generic) People who doodle may have better auditory memory / memory for noises (than non-doodlers); (clear and linked) It might be improved concentration/attention (listening) that causes better recall; (brief) And doodling improves concentration/attention (listening); (clear and linked)	2
9(c)	Mitesh did not deceive his participants. Explain why it was necessary for him to debrief his participants. 1 mark for explanation (may be generic), 1 mark for link Participants should always be returned to the condition in which they entered the experiment; (explanation) His participants may have felt discouraged if they didn't recall many noises, he needed to correct this; (link) Participants not told the aim was to test the effect of doodling on recall; they needed to be informed; = 2 (linked explanation)	2

Question	Answer	Marks								
10(a)	Mandy wants to investigate the effects of phobias on the way people socialise, such as how friendly they are and the social groups or clubs they belong to. Describe how Mandy could conduct a study using a questionnaire to investigate the effects of phobias on the way people socialise. Three majors for a questionnaire are: a content of questions (examples: phobic symptoms, social life) b style of questions asked (e.g. open/closed) c people with phobias (source, sampling) The minor is: where: location of participants when completing the questionnaire / how it is distributed Other details for replication: • lie questions • filler questions • sample size • description of how closed questions will be scored • 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)</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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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 not refer to ethics or sampling in your answer. Answer will depend on problem identified. Problems may, for example, be matters of: Validity • operationalisation • situational/participant variables factors Reliability • inter-rater consistency • intra-rater consistency This list is not exhaustive and other appropriate responses should also be credited. <table><tr><th>Marks</th><th>Comment</th></tr><tr><td>3-4</td><td>Appropriate problem identified. Appropriate solution is clearly described.</td></tr><tr><td>2</td><td>Appropriate problem identified. <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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