

Cambridge International AS & A Level

PSYCHOLOGY**9990/21**

Paper 2 Research Methods

October/November 2024**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 **24** printed pages.

PUBLISHED**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 descriptions 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).

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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
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- 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.

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

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PUBLISHED**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
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- 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.
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- The mark scheme will show the steps in the most likely correct method(s), the mark for each step, the correct answer(s) and the mark for each answer
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4 Annotation:

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- For levels of response marking, the level awarded should be annotated on the script.
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Guide to marking annotations

	benefit of doubt		correct point [use one tick per mark except in last question part (a)]		incorrect point	 	use for each point of description of a required feature in part (a) of last Q
	no benefit of doubt		indicates a point is a Generic Mark		continued (use 'link' icon)	 	
	'something is missing'		unclear point		not answering question		
	repetition (of stem/ within response)	 	use wiggly underline/ highlighter to bring attention to a key part		underline letter-tick when required feature is in enough detail	    	use to show Level 1, 2, 3, 4 or 5 in part (a) of last Q
	acknowledge blank pages						

Important marking guidelines for reference

NR or zero	Award No Response (NR): - if there is nothing written at all in the answer space - if there is any comment unrelated to the question being asked (e.g. 'can't do', 'don't know') - if there is any sort of mark which isn't an attempt at the question (e.g. a dash, a question mark). Award Zero (0): - if there is any attempt that earns no credit, eg the candidate copying all or some of the question, or any working that does not earn any marks, whether crossed out or not.
Crossed out work	Please note that if a candidate crosses out a question and does not re-attempt the same question, you must attempt to mark the crossed out work.
Annotate every question	Please place a marking icon on every question and to indicate each mark awarded (number of ticks = number of marks on all questions except part (a) of the last question). However, you do not need to put 'seen' on NR spaces.

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Question	Answer	Marks
1	Explain what is meant by a ‘matched pairs design’, including any example. Explanation = 1 Example (to illustrate not explain) = 1 Participants are matched/paired on key variables/characteristics with one placed in experimental and control conditions; (explanation) Allocating (pairs of) individuals who are similar characteristic (in important ways for a (named) study / levels of IV (in a made-up situation); (example) e.g. same aggression level children allocated to different model conditions in an aggression study; (example). e.g. if twins with a boy and a girl were divided into separate groups to test gender differences in attention; (example). e.g. in Baron-Cohen they were matched on age/IQ (in the autism and no autism conditions);	2

Question	Answer	Marks
2	A longitudinal experiment is testing the hypothesis ‘Elephants will learn better as they grow older’. Identify the type of hypothesis in this experiment. Justify your answer. Type of hypothesis = 1 Justification = 1 Alternative hypothesis; (type) As it says there will be a difference (over time / with age); (justification) As it says it will change (rather than being due to chance / no change); (generic justification) Directional /one-tailed hypothesis; (type) As it says the elephants’ learning will get better not worse / rather than just changing; (justification) Note: Stating what it is not = 0 marks for ‘because if it was non-directional it would just say there was a difference between the levels of the IV’. Note: anything correlational = 0.	2

Question	Answer	Marks
3	For the study by Baron-Cohen et al., a revised version of the ‘eyes test’ was developed. However, some problems with ecological validity remained.	
3(a)	Define what is meant by the term ‘ecological validity’. Whether results from one situation/study generalise to another situation = 1; ACCEPT: Whether a study represents the real world; Measure of everyday life of the study; Whether the <u>situation</u> is natural (to the participants / for the activity) = 0 ‘The realism of the study’ = 0 [NBOD]	1
3(b)(i)	Outline <u>one</u> problem with the ecological validity of the revised eyes test. Outline = 1 Eyes are not stationary (in everyday life); We can look at eyes for as long as we need to; Only shows the eyes; We can normally see a whole face/body; We can use body language not just their eyes; Generic e.g. ‘not natural’ = 0 Sampling = 0 Environment (lab) = 0 [NAQ]	1
3(b)(ii)	Explain <u>one</u> way in which the problem you identified in part (b)(i) could be solved. Way to solve problem linked to bi = 1 Use a video of moving eyes; Allow unrestricted viewing time; Use photos of whole face/body;	1

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Question	Answer	Marks
4	The study by Hassett et al. (monkey toy preferences) was an experiment.	
4(a)	Describe what is meant by an ‘experiment’. Any two of three definitive points: (Manipulated) IV and (measured) DV = 1 (need both IV and DV for the mark). Control of variables = 1. To investigate causal effects = 1. Formulation of Hypotheses or examples. = 0	2
4(b)	State <u>one</u> independent variable from this study. Any IV = 1 Sex (gender); Males and females; Type of toy; Plush and wheeled toys;	1

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Question	Answer	Marks
4(c)	Describe <u>two</u> strengths of experiments as a research method. Strength = 1 [×2] Detail = 1 [×2] In a two-mark answer one mark <u>can be</u> for a term but cannot award for a term alone (so just saying ‘its reliable’ on its own is not enough for a mark) Because the IV is <u>manipulated</u> it must be causing changes in the DV; (strength) So differences/changes must be <u>causal</u>; (detail) Because there are good controls <u>only</u> the IV can affect the DV; (strength) This increases the <u>validity of the results</u>; (detail) Also accept increases reliability Participants’ experiences are standardised; (strength) So good <u>reliability</u> / easy to <u>replicate</u>; (detail) Measurement of the DV is <u>standardised</u> / <u>operationalised</u>; (strength) So good <u>reliability</u> / reduces need for <u>interpretation</u> / easy to <u>replicate</u>; (detail) Can lead to quantitative data/ scientific measurement which is objective; (strength) So comparisons between conditions is possible; (detail) Use of counterbalancing (as a type of control / across conditions / ABBA); (strength) to reduce order effects; (detail) Note: ‘controlled’ is a description, so 0 [NAQ]	4

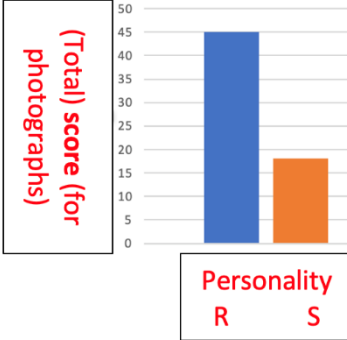
Question	Answer	Marks
5	Describe inter-rater reliability and inter-observer reliability, using any example(s). 1 mark for each definition/point of detail, up to a maximum of 2 for each term/concept. 1 mark for each example, max 2 for each term/concept. Examples can include examples from any studies (core studies, other studies, candidate's own studies). Max 4 if no examples or if only about one term/concept. Only 1 example needed to access 6 Examples can include ones from studies using such measures of reliability, Inter-rater reliability: • is a measure of whether different researchers are scoring consistently; (definition) • e.g. test/questionnaire/interview responses; • if data from an interview was interpreted in the same way; (example) Inter-observer reliability: • is a measure of whether different researchers are producing the same records when they see the same behaviours; (definition) • e.g. of (behavioural) categories / in a structured observation; (detail) For Either (credited only once) No mark for <u>generic</u> definition • indicates whether two researchers are rating responses in the same way: (detail – ONLY ONCE) • if they are (reliable), ratings for the same data by two (different) researchers should (positively) correlate; (detail – ONLY ONCE) e.g., if the elephants in Fagan et al. performed the same behaviours, two observers should produce identical records: (example) e.g., Bandura et al. checked that the scoring of aggressive ratings was similar when done by different researchers; (example) e.g., Hassett et al. ensured that all observers used the same (operational) definitions of the play behaviours; (example) e.g. Piliavin et al. both observers recorded the comments so could check they has recorded the same thins; (example)	6

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Question	Answer	Marks
6	Dr Eynon is a university lecturer studying personality. She tested the personality of some of her students and divided them into two groups, personality ‘R’ and personality ‘S’. Dr Eynon then showed them photographs of pleasant scenes, such as a beach. Half of the scenes contained people and half did not contain people. They scored each photograph to show how much they liked it.	
6(a)(i)	Suggest <u>one</u> pleasant scene that Dr Eynon could use for one of her photographs, other than a beach. Pleasant scene named or described = 1 river / forest / sea/ park; people resting / sleeping; The Arctic; animals playing / swimming;	1
6(a)(ii)	Dr Eynon needs to control many features about the scenes to ensure that they are similar, in addition to manipulating whether they contain people or not. Suggest <u>two</u> features that Dr Eynon should control about the scenes. Feature to control = 1 [×2] Number of other features in scene; How colourful it is; The weather in the scene; Time of day; The mood of the people in the pictures; <u>Note: Number of people alone = 0</u>	2

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Question	Answer	Marks
6(a)(iii)	Explain why <u>one</u> of the features you have suggested in part (a)(ii) would be important in Dr Eynon's study. Feature: 1 or 2 explanation for importance (can be generic) = 1 detail = 1 Ps may prefer more features/colours; (explanation) E.g. if they are more interesting; (detail) Individual differences in weather preferences affect choices; (explanation) E.g. dislike of rain might obscure personality effects; (detail)	2
6(b)	Participants were shown the photographs a random order. Dr Eynon calculated a total liking score for each of the two types of scene.	

Question	Answer	Marks												
6(b)(i)	Table 6.1 shows the total scores for the two types of scene, for each group of participants. Draw a graph showing <u>only</u> the results for ‘photographs with people’ from Table 6.1. You <u>must</u> label the axes. <table><tr><td></td><td colspan="2">Total score for photographs:</td></tr><tr><td></td><td>with people</td><td>with no people</td></tr><tr><td>Personality R</td><td>45</td><td>15</td></tr><tr><td>Personality S</td><td>18</td><td>25</td></tr></table> Table 6.1  For full marks must have separate bars x-axis label: ‘Personality (type)’; x-axis units: R / S; y-axis label: Total score of (pleasant) scenes with people; y-axis units: numbers up to 45; bar heights correct; (accept 43–47; 16–20)		Total score for photographs:			with people	with no people	Personality R	45	15	Personality S	18	25	3
	Total score for photographs:													
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Question	Answer	Marks
6(b)(ii)	Describe the conclusion that can be made from the data in Table 6.1. Any conclusion = 1 Complete conclusion = 2 Type R personalities like peaceful scenes with people in more than ones without people whereas Type S personalities like scenes without people more than those with; = 2 Type R personalities prefer (peaceful) photographs/scenes with more people in whilst Type P personalities prefer (peaceful) photographs/scenes without people in them; = 2 Type S personalities are more variable in terms of their scene preferences than type R personalities who mostly prefer scenes without any people in; = 2 Personality affects the type of scene people like; = 1 Note: just restating results = 0 [NAQ]	2

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Question	Answer	Marks
7	Mr Grainger trains each of his farm animals to enter a stable. He lets the animal approach the stable, then rewards it with food. Each time the animal gets closer to the stable than before, he rewards it with food. When the animal enters the stable, he rewards it again. He repeats this each day until the animal enters the stable without rewards.	
7(a)(i)	Suggest <u>one</u> way that Mr Grainger can measure the success of this training. Way = 1 Detail = 1 Time how long the animal takes to train; (suggestion) From start to end of each session (adding all sessions together); (detail) Counting number of rewards used; (suggestion) The number of food items (and number of times released back with other animals); (detail) Number of days; (suggestion) To enter without rewards; (detail) Note: Must <i>measure</i> success of training, so score 0 if qualitative.	2
7(a)(ii)	For the measure of success you suggested in part <u>(a)(i)</u>: Identify the type of data produced by the measure of success. Justify your answer. <u>Identification of type of data = 1</u> <u>Justification = 1</u> Quantitative; (type) Because each score is numerical; (justify) <u>Note: If qualitative given in 7(a)(i), max 1</u> [i.e. TE if 7ai is incorrect, but just for first mark]	<u>2</u>

Question	Answer	Marks
7(a)(iii)	For the measure of success you suggested in part (a)(i): Explain <u>one</u> weakness of the type of data produced by this measure of success. Weakness = 1 Detail = 1 (generic or linked) Numbers don't give in depth information; (weakness) So [from the time] he wouldn't know the number of reinforcements given; (linked detail) So [from the number of rewards] he wouldn't know how long it took to learn; (linked detail) e.g. details about why; (generic detail) <u>Note: If qualitative, max 1</u> [i.e. TE as above]	2
7(b)	On some days the training sessions are more successful than on other days. This difference may be caused by situational variables.	
7(b)(i)	Suggest <u>two</u> situational variables that could have affected the success of training. 1. 2. Situational variable = 1 [×2] There was a distraction (noise/too many people); it was raining when one of the animals was being trained; It was colder on one day; Mr Grainger's mood;	2

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Question	Answer	Marks
7(b)(ii)	For <u>one</u> of the situational variables you suggested in part (b)(i): Explain why this situational variable may have caused differences in the success of training of the animals. Situational variable: 1 or 2 Explanation = 1 detail = 1 <i>distraction:</i> the animals would have been less likely to eat (because they were distracted); (explanation) so would have been rewarded less; (detail) <i>weather;</i> If it was colder/raining, then the animals would want to go inside; (explanation) so would need less rewards/take shorter amount of time; (detail)	2

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Question	Answer	Marks
8	Chen is conducting a study that is similar to the study by Piliavin et al. (subway Samaritans). She has asked a young person and an old person to act as ‘victims’. Each victim will appear to have difficulty climbing the step on to a bus. Chen will count how many old passengers and how many young passengers help each victim to climb the step.	
8(a)	Suggest <u>two</u> ways in which Chen’s study is similar to the study by Piliavin et al. Similarity = 1 [×2] About helping; Use of stooges to deceive (young/old, drunk/ill); (Two types of) victims; Participants are passengers; Both public transport systems (mass transit); Participants do not know they are in a study / cannot consent / cannot withdraw; Note: purely generic responses that can apply to any study = 0 i.e. both field experiments/observation.	2
8(b)	Suggest <u>two</u> ways in which Chen’s study is different from the study by Piliavin et al. <u>Explicit</u> difference = 1 [×2] (must include comparison) Bus not subway; Age is being compared rather than race/gender/drunk or ill; Victim struggles to get on bus instead of falling / ‘help’ defined as helping up instead of aiding on floor; Piliavin et al. used a model whereas Chen did not; Piliavin et al. used two observers Chen only herself; Piliavin et al. collected comments/qualitative data but Chen counted/had quantitative; Piliavin old study, Chen now. Two IVs in Piliavin, only 1 in Chen’s study	2

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Question	Answer	Marks
8(c)	Explain the sampling technique Chen is using. Sampling technique identified = 1 [opportunity] Link = 1 [Do not give in isolation] Opportunity sampling; (identification) Because they will be on the bus anyway; (link)	2

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Question	Answer	Marks
9	Tanya is investigating prosocial behaviour (this is positive, friendly behaviour between individuals). She is studying prosocial behaviours in children at her local school and will give a questionnaire to every teacher in the school.	
9(a)	Describe how Tanya could conduct a study using a questionnaire for teachers to investigate a variety of prosocial behaviours in children. Do not describe sample/sampling technique or ethical issues/guidelines in your answer. Use the table below to mark candidate responses to this question. The four required features for this questionnaire are: (a) question format (open / closed questions/explicit and correct examples, fillers) (b) examples of questions (at least two different prosocial not in Q, e.g. sharing, playing games together) (c) question scoring / interpretation (e.g. use of numerical scoring / measures of central tendency / analysis e.g. Measures of Central Tendency, MoS / interpretation of qualitative data) (d) technique (paper & pencil / online)	10

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Question	Answer		Marks
9(a)	Other appropriate responses should also be credited.		
	Level	The response:	
	Level 5 9–10 marks	- has all the required features, all with <u>detail</u>, with mostly appropriate terminology. AND <i>clearly applies</i> knowledge of methodology involved in planning an investigation.	
	Level 4 7–8 marks	- has all the required features, but only some of these with <u>detail</u>, with some appropriate terminology. AND <i>applies</i> knowledge of methodology involved in planning an investigation.	
	Level 3 5–6 marks	- has some of the required features with <u>detail</u> / all of the required features with no detail, and some appropriate terminology. AND <i>applies a basic</i> knowledge of methodology involved in planning an investigation.	
	Level 2 3–4 marks	- has at least two of the required features, with little appropriate terminology. AND <i>attempts</i> to use knowledge of methodology involved in planning an investigation.	
	Level 1 1–2 marks	- has one of the required features and uses little appropriate terminology. AND - makes a <i>limited attempt</i> to use knowledge of methodology involved in planning an investigation, e.g. may not use the method required by the question.	
	0 marks	No creditable response.	

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Question	Answer	Marks
9(b)(i)	Describe <u>one</u> practical/methodological strength of the procedure you have described in your answer to part (a). Do <u>not</u> refer to sampling or ethics in your answer. identification of generic strength = 1 detail = 1 (generic or linked). [term alone does not get credit, but can be ‘detail’] Strengths may relate to: Validity • operationalisation • situational / participant variables factors • controls / standardisation • design / counterbalancing. Reliability • type of question/data. • inter-rater consistency • intra-rater consistency. Accept other practical/methodological strengths.	2

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9(b)(ii)	Describe <u>one</u> practical/methodological weakness of the procedure you have described in your answer to part (a). Do <u>not</u> refer to sampling or ethics in your answer. identification of generic weakness = 1 detail = 1 (generic or linked). [term alone does not get credit, but can be ‘detail’] Weaknesses may relate to: Validity • operationalisation • situational / participant variables factors • controls / standardisation • design / counterbalancing. • Lack of depth Reliability • inter-rater consistency • intra-rater consistency. Accept other practical/methodological weaknesses.	2

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SEEN	acknowledge blank pages						

Important marking guidelines for reference

NR or zero	Award No Response (NR): - if there is nothing written at all in the answer space - if there is any comment unrelated to the question being asked (e.g. 'can't do', 'don't know') - if there is any sort of mark which isn't an attempt at the question (e.g. a dash, a question mark). Award Zero (0): - if there is any attempt that earns no credit, eg the candidate copying all or some of the question, or any working that does not earn any marks, whether crossed out or not.
Crossed out work	Please note that if a candidate crosses out a question and does not re-attempt the same question, you must attempt to mark the crossed out work.
Annotate every question	Please place a marking icon on every question and to indicate each mark awarded (number of ticks = number of marks on all questions except part (a) of the last question). However, you do not need to put 'seen' on NR spaces.

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Question	Answer	Marks
1	In the study by Milgram the variable of ‘obedience’ was measured. Describe the measure of obedience used. Identification = 1 Detail = 1 Shock level / voltage (on the shock generator); (identification) how high/far they went (on the scale) / maximum (voltage) reached / 450 V was fully obedient/higher the shock the greater the obedience; (detail) Obedience was measured using the number of volts on a shock generator = 1 Obedience was measured by seeing how high/maximum participants would go when shocking the learner = 2 Obedience was measured by seeing whether participants would go up to 450 volts when asked to shock learners = 2	2

Question	Answer	Marks
2(a)	Explain <u>one</u> similarity and <u>one</u> difference between a positive correlation and a negative correlation. similarity = 1 difference = 1 similarity – both are relationships/links between two (measured) variables. difference – the relationship goes in different directions / in a positive correlation both variables increase together, in a negative correlation one variable increases as the other decreases. ‘Both cannot prove causality’ as a similarity =1	2

Question	Answer	Marks
2(b)	Describe <u>one</u> example of a correlation from the study by Hassett et al. (monkey toy preferences). example = 1 (e.g. 'Hassett, positive correlation') detail = 1 • Positive correlation (1) between rank and total frequency with plush/wheeled toys for both sexes combined (1) • Positive correlation (1) between rank and total frequency with plush/wheeled toys for females (1) • Positive correlation (1) between rank and duration of interactions with plush toys (NOT wheeled toys) in females (1) • No correlation (1) between rank and total frequency/duration with plush/wheeled toys for males (1) GIVE BOD for positive correlation (1) between rank and duration of interactions (playing for more time) with toys in females (1) not significant ($F_{(1,31)}=.05, p=.82$). We also conducted Spearman's correlations to determine the relationship between rank and frequency or duration with each toy type. With both sexes combined, rank and total frequency were positively correlated for both the plush toy ($r_s = .43, p=.01, r^2=.18$) and the wheeled toy ($r_s = .38, p=.03, r^2=.14$), accounting for 18% and 14% of the variance, respectively. For males, plush toy ($r_s = -.36, p=.27, r^2=.18$) and wheeled toy ($r_s = .21, p=.53, r^2=.04$) total frequencies did not correlate significantly nor did total durations (plush: ($r_s = -.31, p=.35, r^2=.10$; wheeled: $r_s = .005, p=.99, r^2<.001$). For females, rank correlated positively with total frequency for both plush ($r_s = .71, p<.001, r^2=.50$) and wheeled toys ($r_s = .45, p=.03, r^2=.20$), and with total duration for plush toys ($r_s = .55, p=.01, r^2=.30$), but not for wheeled toys ($r_s = .34, p=.11, r^2=.12$). Thus, large percentages of	2

Question	Answer	Marks
3	In the study by Bandura et al. (aggression), details are not given about consent from the parents or the children.	
3(a)	Explain what is meant by 'informed consent'. Sufficient understanding = 1 To agree = 1 Giving participants enough details about the (procedure of) the study; (understand) so that they can decide whether they want to participate; (agree) If responses only talk about consent = 0	2

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Question	Answer	Marks
3(b)	Suggest how informed consent could have been obtained from the children in this study in a way that they would have understood. Gain consent = 1 Child-friendliness = 1 e.g. Tell the children they will have some of the toys (but not others); (child friendly) is that okay? (consent) e.g. That they can watch an adult play with the toys; (child friendly) Do they want to join in and play as well? (consent) e.g. Give them the aims/explain the study and see if they agree (generic informed consent only)	2

Question	Answer	Marks
4	Daniel used a sample of 20 participants in a laboratory experiment using a repeated measures design. He had two conditions: • listening to loud music • listening to quiet music.	
4(a)	Outline what is meant by a ‘repeated measures design’. Include an example from Daniel’s study. Generic = 1 maximum Explanation = 1 Example = 1 The same participants in every level of the IV / condition; (explanation) All participants heard quiet & loud music; (example)	2
4(b)(i)	Outline what is meant by ‘counterbalancing’. Include an example from Daniel’s study. Generic = 1 maximum Explanation = 1 Example = 1 Different participants do the conditions in different orders; (explanation) Half/10 do soft then loud, half do loud then soft; (example)	2

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Question	Answer	Marks
4(b)(ii)	Explain <u>one</u> strength of a repeated measures design, other than the use of counterbalancing. does not need to be linked for 2 marks but <u>needs sufficient detail</u> strength = 1 detail (generic or linked) = 1 Individual differences between participants even out; (strength) e.g. A participant who is 'better' will be better in both conditions (rather than being in just one condition and affecting the results); (generic detail) E.g. some participants may enjoy loud music more than others; (linked detail) It is more cost effective/less time consuming to find one set of participants (strength) e.g. A researcher may need to give incentives to a participant so the less they need to give participants the less the study will cost. (detail) e.g. A researcher may need funding for their research so the less time/cost the more likely they are to get funding (detail)	2

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Question	Answer	Marks
5	Describe the techniques of ‘paper and pencil’ questionnaires and ‘online’ questionnaires, using any example(s). 1 mark for each definition/point of detail, up to a maximum of 4 in total. 1 mark for each example, max 2 for each term/concept. Examples can include examples from any studies (core studies, other studies, candidate’s own studies). Max 4 if no examples or if only about one term/concept. Only 1 example needed to access 6 marks. <u>Paper and Pencil</u> - questionnaires have (questions asked) in written form; (definition) ‘Pencil and paper’ mean that the participants fill in a physical sheet/a printed out questionnaire then give it to the researcher (definition) - Participants will complete their answers on question paper using a pen or pencil rather than electronically (detail) - Where a participant fills in a questionnaire by hand/manually (definition) - Completed in a ‘real life’ situation <u>Online</u> ‘online’ means the participant and researcher communicate using digital technology (definition) - Questionnaire filled in on a website/email/ mobile phone/social media/tablet (max 2 for this type of detail) - Participants will access the questionnaire virtually. - Participants will access through the use of an internet connection (detail) - Participants will submit the form electronically (detail) <u>Both</u> both can use closed and open questions/ can generate quantitative and qualitative data; (detail only credited once) e.g. Holzel et al. use FFMQ (mindfulness questionnaire) pencil and paper. e.g. Baron-Cohen gave participants the AQ (Autism Quotient, a questionnaire) to complete online e.g. Perry et al. used the IRI, online test of empathy. Note: paper & pencil does not mean <u>face-to-face</u> (often by post) Note: Perry did not use paper & pencil CIDS	6

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Question	Answer	Marks
6	Mohsin is investigating whether colour affects supermarket shoppers' food choices. He is comparing healthy and unhealthy snacks that are displayed in blue or green packaging. He spends two weeks conducting a field experiment. In Week 1 he displays the following combination: • healthy snacks in blue packets • unhealthy snacks in blue packets. In the Week 2 he displays the following combination: • healthy snacks in green packets • unhealthy snacks in green packets. Mohsin counts the number of each packet sold.	
6(a)	Identify the <u>two</u> independent variables (IVs) in Mohsin's study. 1 mark per named IV or both levels [×2] Packaging colour / blue and green = 1 Healthiness of snacks / healthy and unhealthy = 1	2
6(b)	Mohsin will conduct his experiment for two more weeks. This is to be certain that only the independent variables are affecting the dependent variable.	
6(b)(i)	State the <u>two</u> other combinations that Mohsin should display in the additional weeks. In one week he should display the following combination: In the other week he should display the following combination: 1 mark per correct combination [x2] <u>DEFINITIVE</u> • healthy snacks in green packets with healthy snacks in blue packets; • unhealthy snacks in green packets with unhealthy snacks in blue packets;	2

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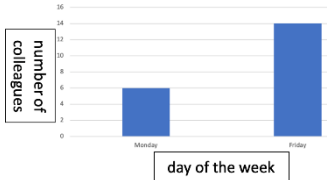
Question	Answer	Marks
6(b)(ii)	Explain why the two combinations that you stated in part <u>(b)(i)</u> would be useful. Explanation = 1 Detail = 1 it would control for food type; (explanation) It would show whether it is really the colour that matters; (explanation) Rather than just people food choices; (detail)	2
6(c)	Define the term ‘population’. Definition = 1 individuals who share characteristics/share a characteristic/have something in common. OR All the individuals in a group OR Group from which a sample can be chosen from. <u>NOT</u> all individuals from one specific area/location/town	1
6(d)	Outline the population being studied by Mohsin. Shared characteristic = 1 (×2) People who visit the supermarket. In his town/live near the supermarket. Who buy snacks/food/groceries. Who are not (green or blue) colourblind;	2

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Question	Answer	Marks
7	Jenny has noticed that some of her school friends doodle and some do not doodle. This may be because some of her friends are more creative than others. She plans to explore this difference using a questionnaire.	
7(a)(i)	Write <u>one</u> closed question that Jenny could use to investigate the creativity of her friends. Closed question with <u>answer choices</u> = 1 Are you creative? Yes / No How creative are you on a scale of 0 (not at all)–10 (very)? Are you creative or unimaginative? 'I like to invent things' Agree/don't know/disagree.	1
7(a)(ii)	Write <u>one</u> open question that Jenny could use to investigate the creativity of her friends. Open question = 1 Describe how creative you are. Explain why you think you are creative. Tell me about the creative things you do. How do you show your creativity? <u>please explain.</u>	1

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Question	Answer	Marks
7(b)	Jenny’s friends study different subjects at school. Suggest why differences between the subjects they study could also explain the differences in doodling. One Suggestion = 1 Detail = 2 (marks) OR Two (different) suggestions = 2 Detail (of one) = 1 (marks) Some subjects may be more boring/more interesting (suggestion) Boredom may lead the friends to daydream more; (detail) If it was boring, you would doodle more to concentrate on the lesson; (detail) If it was more interesting, they would concentrate on lesson and not doodle (1) (detail) So, it would not be the ‘type’ of friend; (detail). It may be that some subjects require students to show their creativity in lessons anyway (suggestion) e.g. students who take art and design subjects will be more likely to doodle (detail) e.g. Because they are good at drawing/ they are used to doing it in their subjects (detail). e.g. Students who take science subject would doodle less as they’re less used to being creative/doodling. Only some subjects where you can sit and listen and have time to doodle (suggestion) e.g. in English/psychology, you may listen to the teacher more (detail) e.g. If you listen rather than ‘doing something’ you may doodle more (detail) e.g. But Science/art are more practical subjects so won’t have time to doodle as much (as in English). (detail)	3
7(c)	Jenny wants to conduct an overt observation of her friends doodling. She wants to do this the day after they complete the questionnaire. Suggest why this may <u>not</u> produce valid results. Suggestion = 1 Detail (generic or linked) = 1 Demand characteristics; (suggestion) They would know her aim; (suggestion/generic detail) So, doodle more / less /differently; (linked detail) So, they would change their behaviour to please the researcher (generic detail)	2

Question	Answer	Marks
8	Parul has conducted a study about happiness. She has counted the number of her colleagues who are smiling when they arrive at work on Monday and on Friday. Fig 8.1 shows a graph of her results.	
8(a)	Write axis headings for the x-axis and the y-axis on Fig 8.1.  x-axis heading = 1 day (of the week); y-axis heading = 1 number of colleagues (who are smiling when they arrive at work);	2
8(b)	Parul's friend says that she should have conducted the study for more than one week. Explain <u>one</u> reason why it would have been better to have conducted <u>the study</u> for more than one week. reason = 1 <u>linked detail = 1</u> (To improve) generalisability/reliability/improves validity; (reason) Reduces effects of confounding variables (reason) Because some people's mood may have been affected by something other than the day of the week; (detail) Because some people might have been unwell that one week (which will affect their mood); (detail) There may have been an event at work which made people happier/more stressed; (detail) They might not smile as they have had a problem at work/argued with a member of staff; (detail)	2
8(c)	Parul counted the number of colleagues smiling but now thinks this may not have been the best way to measure happiness.	

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Question	Answer	Marks
8(c)(i)	Suggest <u>one</u> other way that Parul could have measured happiness. way = 1 detail = 1 laughter; (way) time the length of the laughter/how loud the laughter is; (detail) positive body language (way) how many times they high five/hug (detail) a questionnaire/interview; (way) using closed questions like ‘How happy are you on a scale of 0 (not at all) to 5 (very happy); (detail) using open questions and ask them to describe how they feel; (detail)	2
8(c)(ii)	For the measure of happiness, you have suggested in part <u>(c)(i)</u>: Explain <u>one</u> advantage of this measure of happiness compared with counting the number of colleagues smiling. explanation = 1 detail = 1 <i>Laughter:</i> Laughter is a more reliable measurement than smiling (reason) as you can hear and see it, so Parul is less likely to miss a person laughing than smiling (detail) <i>Questionnaire/interview (scale/close question):</i> Each person would have a rating of happiness rather than just a score of whether they smile/are not smiling, (reason) so, there will be more detail about how happy they actually are; (detail) Use of rating scales to measure would mean less researcher bias as participants are answering the questions themselves (reason); they will know their own level of happiness rather than Parul assuming smiling means they are happy) (detail) <i>Questionnaire (open question):</i> Open questions about happiness will give more detail than just a score of smiling/not smiling; (reason) so, Parul could know how happy they are/and why; (detail)	2

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Question	Answer	Marks
9	Lixin is investigating the social behaviour of adults. He plans to observe adults in a town centre during their lunch break.	
9(a)	Describe how Lixin could conduct an observational study using a structured observation to investigate the social behaviour of adults in a town centre during their lunch break. Do not describe sample/sampling technique or ethical issues/ guidelines in your answer. Use the table below to mark candidate responses to this question. The four required features for this participant observation are: (a) participant/non-participant: (how the observer(s) will be engaged in the context of socialising in the town centre or not) (b) overt/covert: (how the observer(s) will be obvious or keep hidden) (c) naturalistic/controlled; (almost definitely naturalistic – no manipulation/intervention/natural environment) (d) structured (behavioural categories): (list of behaviours – at least 3 – and operational definitions) Other appropriate responses should also be credited.	10

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Question	Answer		Marks
9(a)	Level	The response:	
	Level 5 9–10 marks	- has all the required features, all with <u>detail</u>, with mostly appropriate terminology. AND <i>clearly applies</i> knowledge of methodology involved in planning an investigation.	
	Level 4 7–8 marks	- has all the required features, but only some of these with <u>detail</u>, with some appropriate terminology. AND <i>applies</i> knowledge of methodology involved in planning an investigation.	
	Level 3 5–6 marks	- has some of the required features with <u>detail</u> / all of the required features with no detail, and some appropriate terminology. AND <i>applies a basic</i> knowledge of methodology involved in planning an investigation.	
	Level 2 3–4 marks	- has at least two of the required features, with little appropriate terminology. AND <i>attempts</i> to use knowledge of methodology involved in planning an investigation.	
	Level 1 1–2 marks	- has one of the required features and uses little appropriate terminology. AND - makes a <i>limited attempt</i> to use knowledge of methodology involved in planning an investigation, e.g. may not use the method required by the question.	
	0 marks	No creditable response.	

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Question	Answer	Marks
9(b)(i)	Explain how <u>one</u> feature of the procedure you described in part (a) helps to make the study valid. Do <u>not</u> refer to sampling or ethics in your answer. identification of helpful part for validity = 1 explanation (generic or linked) = 1 Part of procedure may relate to: • operationalisation • situational / participant variables factors • controls / standardisation • being participant/non-participant • being overt/covert Accept other practical/methodological features.	2
9(b)(ii)	Explain how <u>one</u> feature of the procedure you described in part (a) could be a problem for the validity of the study. Do <u>not</u> refer to sampling or ethics in your answer. identification of problem for validity = 1 explanation (generic or linked) = 1 Part of procedure may relate to: • operationalisation • situational / participant variables factors • controls / standardisation • being participant/non-participant • being overt/covert Accept other practical/methodological features.	2

Cambridge International AS & A Level

PSYCHOLOGY**9990/23**

Paper 2 Research Methods

October/November 2024**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 2024 series for most Cambridge IGCSE, Cambridge International A and AS Level components, and some Cambridge O Level components.

This document consists of **19** printed pages.

PUBLISHED**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 descriptions 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.

PUBLISHED**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.

PUBLISHED**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).

PUBLISHED**3 Calculation questions:**

- The mark scheme will show the steps in the most likely correct method(s), the mark for each step, the correct answer(s) and the mark for each answer
- If working/explanation is considered essential for full credit, this will be indicated in the question paper and in the mark scheme. In all other instances, the correct answer to a calculation should be given full credit, even if no supporting working is shown.
- Where the candidate uses a valid method which is not covered by the mark scheme, award equivalent marks for reaching equivalent stages.
- Where an answer makes use of a candidate's own incorrect figure from previous working, the 'own figure rule' applies: full marks will be given if a correct and complete method is used. Further guidance will be included in the mark scheme where necessary and any exceptions to this general principle will be noted.

4 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.

Guide to marking annotations

	benefit of doubt		correct point [use one tick per mark except in last question part (a)]		incorrect point	 	use for each point of description of a required feature in part (a) of last Q
	no benefit of doubt		indicates a point is a Generic Mark		continued (use 'link' icon)	 	
	'something is missing'		unclear point		not answering question		
	repetition (of stem/ within response)	 	use wiggly underline/ highlighter to bring attention to a key part	 	underline letter-tick when required feature is in enough detail	    	use to show Level 1, 2, 3, 4 or 5 in part (a) of last Q
	acknowledge blank pages						

Important marking guidelines for reference

NR or zero	Award No Response (NR): - if there is nothing written at all in the answer space - if there is any comment unrelated to the question being asked (e.g. 'can't do', 'don't know') - if there is any sort of mark which isn't an attempt at the question (e.g. a dash, a question mark). Award Zero (0): - if there is any attempt that earns no credit, eg the candidate copying all or some of the question, or any working that does not earn any marks, whether crossed out or not.
Crossed out work	Please note that if a candidate crosses out a question and does not re-attempt the same question, you must attempt to mark the crossed out work.
Annotate every question	Please place a marking icon on every question and to indicate each mark awarded (number of ticks = number of marks on all questions except part (a) of the last question). However, you do not need to put 'seen' on NR spaces.

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Question	Answer	Marks
1	Outline what is meant by the term ‘random sampling’. Explanation = 1 selecting participants so that each has an equal chance of being chosen/selected;	1

Question	Answer	Marks
2	In a laboratory experiment, the happiness of participants is being compared in two situations: • with other people • without other people. Identify the dependent variable (DV) in this study. Justify your answer. Identification of DV = 1 Justification of DV = 1 Happiness; (id) Because it is being measured; (justification) Because it changes with people/no people; (justification) Because it changes with the IV; (justification)	2

Question	Answer	Marks
3	In the study by Fagen et al. (elephant learning), most of the data collected was quantitative. Some qualitative data was collected, including an initial observation that one elephant preferred to drink saline rather than water.	
3(a)	Define what is meant by ‘qualitative data’. Definition = 1 Descriptive / in-depth / detailed data; Note: ‘in words’ = 0	1

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Question	Answer	Marks
3(b)	Define what is meant by ‘quantitative data’. Include an example from Fagen et al. Description = 1 Example = 1 (can stand alone) Numerical / produces a count / totals in categories; e.g. Fagen et al. time / number of cue offers / % success on tasks of: trunk wash (or trunk up / trunk here / bucket / blow / blow in bucket);	2

Question	Answer	Marks
4	Studies in social psychology can use stooges or imagined people to cause participants to respond.	
4(a)	In the study by Piliavin et al. (subway Samaritans), stooges were used as ‘victims’. Suggest <u>one</u> way to improve the ecological validity of this study in relation to the victims. Suggestion to improving realism (can be generic) = 1 Link = 1 Make the victim's behaviour/appearance/smell more realistic; (generic suggestion) ego make the drunk victim smell of alcohol; (link) e.g. put the ill victim's leg in plaster; Include females within the sample/more ethnicities (generic suggestion) Egg females have different characteristics making the study reflect real life helping behaviour more (rather than just having males);	2

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Question	Answer	Marks
4(b)	In the study by Perry et al. (personal space) Experiment 1, responses to imagined people were measured.	
4(b)(i)	Suggest <u>one</u> reason why measuring responses to imagined people is more ethical than measuring responses to stooges. <i>Ethical reason</i> (can be generic) = 1 Link = 1 Less distressing; (generic reason) if it is stressful, you can stop imagining (unlike if the situation is real); (link) as you can't escape from the stooges as they are real (but can for imagined people) ; (linked reason) less need for deception; (generic reason) as they are told what to imagine; (link) as stooges only work if the Ps are unaware; (link) Note: 'less ethical' = 0	2
4(b)(ii)	Suggest <u>one</u> reason why measuring responses to stooges is more practical than measuring responses to imagined people. <i>Practical reason</i> (can be generic) = 1 Link = 1 Fewer demand characteristics/less social desirability; (generic reason) As Ps do not need to be told what to imagine; (link) Stooge behaviour can be controlled / all Ps will experience the same influence; (linked reason) Whereas imaginings may differ from person to person; (link) More realistic than using imagined people (reason) So, their reactions to people coming into their personal with be natural (link)	2

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Question	Answer	Marks
5	Pozzulo et al. (line-ups) calculated the mean number of correct identifications of human faces per child. Explain how the researchers calculated this mean in this study. Partial explanation of how the mean is calculated= 1 Correct explanation of how the mean is calculated in Pozzulo's study = 2 Add/sum up all the values and divide by the number of scores; = 1 (partial generic explanation) Add up all the correct identification of human faces and divide by the number of possible identifications/number of targets/ = 2 (correct linked explanation) Note: Add up all the correct identifications and divide by the number of children = 1 (as correct method of a generic mean)	2

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Question	Answer	Marks
6	Describe laboratory experiments and field experiments, using any example(s). 1 mark for each definition/point of detail, up to a maximum of 2 for each term/concept. 1 mark for each example, max 2 for each term/concept. Examples can include examples from any studies (core studies, other studies, candidate's own studies). Max 4 if no examples or if only about one term/concept. Only 1 example needed to access 6 marks. Examples can include examples from any studies (core studies, other studies, candidate's own studies). Laboratory experiment: has (manipulated) IV and (measured) DV; (definition) happens in an artificial environment; (definition) So there can be many controls; (definition) IV & DV e.g.: Hölzel IV was pre/post mindfulness course, DV was brain scans; Perry IV was different antagonists, DV was personal space need; Controls e.g.: Dement & Kleitman controlled for factors affecting sleep as participants told not to drink alcohol/caffeine; 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; 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. IV victim: cane or drunk, DV helping; Piliavin et al. social interaction/helping happens on subways; Piliavin et al. controlled the actions/clothing of the stooge;	6

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Question	Answer	Marks
7	Daiyu is conducting a case study about a seven-year-old child with autism. She is interested in the child's interactions with their family and other children.	
7(a)	Suggest <u>two</u> techniques, other than interviews, that Daiyu could use in her case study to collect data about the child. Justify your answers. Identification of technique = 1 [×2] Justification of technique = 1 [×2] Observation; (Id) Data is about actual interactions, not remembered reports / would not need to rely on memory; (justification) Questionnaire; (Id) As children with ASD may not interview well / may be better at writing than answering face-to-face; (justification) Note: describing how the observation/questionnaire could be administered does not achieve a second mark	4
7(b)	Suggest <u>two</u> pieces of information about the child's interactions that would be useful for Daiyu to collect in her case study. Justify your answers. Identification of info about interactions = 1 [×2] Justification of info about interactions = 1 [×2] Responding to social cues; (Id) individuals with ASD don't recognise emotions well so might not interact well with others as a result; (justification) Differences in interactions with children and adults; (Id) Frequency of interactions (Id) as the children with ASD may interact more with their family than other children due to being more familiar (justification) Justification must be specific, e.g. Making eye contact; (Id) Not making eye contact is a characteristic of ASD; (justification) Responding to questions; (Id) avoiding social interaction is a characteristic of ASD; (justification)	4

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Question	Answer	Marks
7(c)	Outline <u>one</u> practical reason why obtaining information from the child could be difficult. Practical difficulty (generic or linked) = 1 Children don't communicate well (so hard to ask/observe); People with ASD don't communicate well (so hard to ask/observe);	1

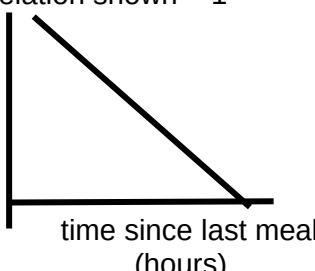
Question	Answer	Marks
8	Hazel is conducting a study in a park to compare the behaviours of adults who have children with them and adults who do not have children with them. She plans to record three behaviours of the adults: whistling, singing and shouting, rather than all actions that people perform.	
8(a)	Explain the type of observation that Hazel plans to use because she is only recording whistling, singing and shouting. Identification = 1 Explanation = 1 Structured observation; (id) [DEFINITIVE] Because (behaviour in) categories/ there is a fixed/limited number of behaviours looked for (e.g. sing); (explanation)	2
8(b)	Outline how Hazel could operationalise <u>one</u> of the three behaviours she plans to record. Outline = 1 Sing = performing words to a tune Whistle = making a noise by blowing through lips/teeth; Shout = project voice / talk very loudly;	1

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Question	Answer	Marks
8(c)	Hazel had planned to be an overt observer, but a colleague has said she should be a covert observer.	
8(c)(i)	Suggest <u>one</u> reason why it would be more ethical to be an overt observer than a covert observer <u>in this study</u>. Ethical reason for being overt = 1 link = 1 Hard to ensure privacy / consent / protection / right to withdraw when covert; (reason) Objection to being watched when out walking; (link) worry that their children are being watched; (link)	2
8(c)(ii)	Suggest <u>one</u> reason why it would be more practical to be a covert observer than an overt observer <u>in this study</u>. Practical reason for being covert = 1 link = 1 Can get close to participants; (reason) So she could see/hear exactly what they were saying / singing; (link) Fewer demand characteristics/less social desirability; (generic reason) Ps may whistle etc more/less if aware they are being watched; (link)	2

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Question	Answer	Marks
9	Hudson is planning to correlate how much a person wants to sleep (sleepiness) and the amount of time since their last meal. He will ask people to estimate the amount of time since their last meal, but he needs to find a way to measure sleepiness.	
9(a)(i)	Suggest <u>one</u> way that Hudson could measure sleepiness. Do <u>not</u> use an interview in your answer. Suggestion = 1 Detail = 1 Questionnaire; (suggestion) Ask them to respond to a question with a scale 0–5 are you sleeping 0 (not at all) to 5 (very sleepy); (detail) Observe; (suggestion) How often their eyes close; (detail) Digital technology (suggestion) Use of health apps to measure alertness/energy (detail)	2
9(a)(ii)	Explain <u>one</u> strength of the measure of sleepiness you suggested in part <u>(a)(i)</u>. Strength = 1 Detail = 1 [this may be a comparison] <i>Questionnaire:</i> They can indicate 'how much' (they feel sleepy); (st) (rather than sleepy/not) so can measure extent; (det) Digital technology: It is an objective/unbiased measure of alertness (st) Rather than an observation where the researcher may misinterpret behaviours as sleepiness (when they're not) (det) <i>Observe:</i> People may not be aware how tired they are; (st) So, observation is more accurate than self-report; (det)	2

Question	Answer	Marks
9(a)(iii)	Explain <u>one</u> weakness of the measure of sleepiness you suggested in part (a)(i). Weakness = 1 Detail = 1 [this may be a comparison] <i>Questionnaire:</i> People may not want to admit (they feel sleepy); (w) so invalid / affected by social desirability; (det) <i>Observe:</i> People may hide signs of sleepiness; (weak) So appear less sleepy than they really are; (det) Whereas they couldn't hide it on an EEG; (comp) <i>Digital technology:</i> It is just a quantitative measure of physical state/biology (weak) So, there will be no detail about why they are sleepy/the measurements may be due to other factors (such as illness/stress) (detail)	2
9(b)	Sketch a scatter graph, using the axes below, to show what the pattern of results would look like if Hudson found a negative correlation. You <u>must</u> label the axes. axis headings (sleepiness) = 1 (can be on either axes) Axis headings ('time since last meal') = 1 Axis units for 'time since last meal' e.g. mins/hours = 1 Negative correlation shown = 1 e.g. 	4

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Question	Answer	Marks
10	Zeta notices that people respond in different ways to advertisements for products. People may find the advertisements funny, annoying and/or informative. She is interested in advertisements for foods, vehicles and mobile phones.	
10(a)	Describe how Zeta could conduct a study using an interview to investigate the different ways that people respond to advertisements for different products. Do not describe sample/sampling technique or ethical issues/guidelines in your answer. Use the table below to mark candidate responses to this question. The four required features for this interview are: (a) question format (open / closed questions/fillers/types of closed questions e.g. ranked scale/yes or no/multiple choice/type of data produced) (b) examples of questions (at least two products and two responses) (c) question scoring / interpretation (e.g. use of numerical scoring / measures of central tendency / analysis of qualitative data) (d) format: (description of structured/unstructured/semi-structured)	10

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Question	Answer		Marks
10(a)	Level	The response:	
	Level 5 9–10 marks	- has all the required features, all with <u>detail</u>, with mostly appropriate terminology. AND <i>clearly applies</i> knowledge of methodology involved in planning an investigation.	
	Level 4 7–8 marks	- has all the required features, but only some of these with <u>detail</u>, with some appropriate terminology. AND <i>applies</i> knowledge of methodology involved in planning an investigation.	
	Level 3 5–6 marks	- has some of the required features with <u>detail</u> / all of the required features with no detail, and some appropriate terminology. AND <i>applies a basic</i> knowledge of methodology involved in planning an investigation.	
	Level 2 3–4 marks	- has at least two of the required features, with little appropriate terminology. AND <i>attempts</i> to use knowledge of methodology involved in planning an investigation.	
	Level 1 1–2 marks	- has one of the required features and uses little appropriate terminology. AND - makes a <i>limited attempt</i> to use knowledge of methodology involved in planning an investigation, e.g. may not use the method required by the question.	
	0 marks	No creditable response.	

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Question	Answer	Marks
10(b)(i)	Explain how <u>one</u> part of the procedure you described in part (a) helps to make the study reliable. Do <u>not</u> refer to sampling or ethics in your answer. identification of helpful part for reliability = 1 explanation (generic or linked) = 1 Part of procedure may relate to: • consistency within the rater • test-retest • replication Accept other practical/methodological features.	2
10(b)(ii)	Explain how <u>one</u> part of the procedure you described in part (a) could be a problem for the reliability of the study. Do <u>not</u> refer to sampling or ethics in your answer. identification of problem part for reliability = 1 explanation (generic or linked) = 1 Part of procedure may relate to: • consistency within and between raters (if compared) • test-retest • replication Accept other practical/methodological features.	2