
PSYCHOLOGY

9990/21

Paper 2 Research methods

May/June 2018

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.

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Generic Marking Principles

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

GENERIC MARKING PRINCIPLE 1:

Marks must be awarded in line with:

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

GENERIC MARKING PRINCIPLE 2:

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

GENERIC MARKING PRINCIPLE 3:

Marks must be awarded **positively**:

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

GENERIC MARKING PRINCIPLE 4:

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

GENERIC MARKING PRINCIPLE 5:

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

GENERIC MARKING PRINCIPLE 6:

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

Question	Answer	Marks
1	In the study by Canli et al. (brain scans and emotions), one variable was investigated by comparing neutral and negative scenes.	
1(a)	Is this an independent or a dependent variable? Include a reason for your answer. 1 mark for reason for it being the independent variable - the independent variable because it is being manipulated; - the IV because Canli et al. created two conditions; - the IV because there were two conditions of normal/neutral or unpleasant/negative;	1
1(b)	Outline how Canli et al. operationalised this variable. 1 mark for operationalisation. pictures were either normal/neutral because they were not arousing or unpleasant/negative because they were highly arousing;	1

Question	Answer	Marks
2	The study by Saavedra and Silverman investigated a boy with a phobia of buttons.	
2(a)	Identify the research method used in this study. 1 mark for case study	1
2(b)	Suggest <u>one</u> advantage of the research method in this study. 1 mark for identifying advantage. Plus 1 mark for linked detail. - allowed for in depth investigation/the collection of qualitative data; (1 for identification) - so reasons for the behaviour could be investigated; (1 for identification) - provided scope for therapy; (1 for identification/link) - to find out why he was afraid of buttons; (1 for identification/link) - allowed for the collection of data over time; (1 for identification/link) - to follow his progress through therapy; (1 for identification/link)	2

Question	Answer	Marks
3	Many of the core studies were laboratory experiments.	
3(a)	Explain <u>two</u> similarities between a laboratory experiment and a field experiment, using any core studies as examples. 1 mark for identifying a similarity. 2nd mark for detail, including comparisons × 2 Similarity: has an IV; give IV from a core study = 1 mark has a DV; give DV from a core study = 1 mark some controls are possible; give a control from a core study that <i>could</i> be implemented in the field; Note: different points can be from different core studies. e.g.: • both have IVs; (1 for identification of similarity) • e.g. Bandura et al. compared the effects of aggressive and non-aggressive models, which could be done in the field (with children from more and less aggressive homes); (1 for link) • both have DVs; (1 for identification of similarity) • e.g. Dement recorded dreams, which could be done at home (with a phone by the bed); (1 for link) • both use controls; (1 for identification of similarity) • e.g. Dement made sure all participants had no alcohol/Piliavin et al. kept the clothing the same for both victims; (1 for link)	4
3(b)	Explain <u>one</u> difference between a laboratory experiment and a field experiment, using any core study as an example. 1 mark for identifying a difference. Plus 1 mark for linked detail e.g.: • an e.g. of a specific DV <i>from a core study</i> is/is not normally performed in that environment • an e.g. of control <i>from a core study</i> that it would be hard to implement in the field Difference: • (a field experiment is) conducted in the situation which is normal for the behaviour being measured; (1) • e.g. Piliavin et al. field experiment measuring helping which people do go on subways; (+1) • e.g. Dement and Kleitman laboratory experiment measuring dreaming which people normally do at home (+1) • controlling variables is more difficult in the field; (1) • e.g. hard to implement Dement and Kleitman's controls on waking in the field; (+1)	2

Question	Answer	Marks
4	What does standard deviation measure? 1 mark for identifying that it is a measure of spread/dispersion; 1 mark for explaining that it shows how varied scores are around the mean; e.g. ‘The spread of the scores (1); around the mean (1)’ = 2 marks	2

Question	Answer	Marks
5	From the study by Laney et al. (false memory):	
5(a)	Identify <u>one</u> ethical guideline that was followed in this study. 1 mark for identification of an appropriate ethical guideline (any except deception) • Debriefing • Consent/Informed consent • Confidentiality • Right to withdraw	1
5(b)	Outline how this ethical guideline was followed in this study. Award 1 mark for how link to the study. <i>Debriefing:</i> Participants told about the aim of studying false memory (after the study); <i>(Informed) consent:</i> Participants were told they would be expected to recall childhood memories; <i>Confidentiality:</i> Participants were not named so the reader does not know who was misled about their childhood; <i>Right to withdraw:</i> Participants could leave as they did not have to do the first or second interview;	1
5(c)	State why this ethical guideline was important in this study. Award 1 mark for why it was important in this study. <i>Debriefing:</i> So the participants did not leave believing the false memory which could have been distressing/caused harm; <i>(Informed) consent:</i> If the participants’ childhood memories were horrible, they could choose not to participate; <i>Confidentiality:</i> So that if they were misled this would not be public/would not embarrass them/would not cause harm; <i>Right to withdraw:</i> The participants might want to withdraw their data because they felt tricked by the false memory;	1

Question	Answer	Marks
6	Describe what is meant by ‘order effects’, using any examples. 1 mark for basic definition. Plus 5 marks for detail/examples. order effects are consequences of doing tests/tasks more than once; • such as happens in a repeated measures design; • or in a longitudinal study; can include fatigue effects; • get worse with repetition; • e.g. getting bored; • or tired; can include practice effects; • get better with repetition; • such as remembering the answers to a test; • such as getting more skilled on a physical task;	6

Question	Answer	Marks
7	Kaleem is planning to investigate sleep and dreaming. He needs to find participants.	
7(a)	Outline <u>one</u> sampling technique that Kaleem could use to find a representative sample. 1 mark for identifying a representative sampling method (accept random, systematic, stratified). Plus 1 mark for detail. • random sampling; • chosen so that each person in the population has an equal chance of being in the sample; • e.g. giving every member of the population a number, putting them in a hat and selecting the first numbers/people who come out of the hat;	2
7(b)	Suggest <u>two</u> features of the participants that Kaleem should consider to make his sample representative. 1 mark for identification of a feature × 2 • age (range); • gender (ratio); • recall of dreams; • sleep patterns; • health; • drinking habits; • work pattern;	2

Question	Answer	Marks
7(c)	Explain why <u>one</u> of the features you suggested in part (b) would be important in Kaleem's study. 1 mark for identifying why the variable is important. 1 mark for elaboration/justification. <i>age:</i> • older/younger people might dream more/less; • so an age-biased sample will be less valid/if all 'dream less' age, the sample of dreams will be small; <i>gender:</i> • males/females might dream more/less; • so a gender-biased sample will be less valid; <i>whether they normally recall their dreams:</i> • if they do not, they will not be able to report dreams to Kaleem; • so it will be difficult to collect data/the data will be less valid; <i>whether they normally drink alcohol:</i> • if they do, this could reduce the amount of REM sleep; • so they will dream less than participants who do not normally drink alcohol; <i>whether they normally drink caffeinated drinks/coffee:</i> • if they do, this could reduce the amount of sleep; • so they will dream less than participants who do not normally drink caffeinated drinks/coffee;	2

Question	Answer	Marks
8	Penny is using cats and parrots in her experiment. Penny houses each animal alone and only gives them their daily food every evening. Her independent variable is the species. She thinks that parrots will share food because they are social animals whereas cats live on their own. To test this, two animals of the same species are put together with a small bowl of food every afternoon.	
8(a)	Penny's dependent variable is whether the animals share the food. Suggest how Penny could operationalise this dependent variable. 1 mark for identifying way to operationalise. 1 mark for elaboration/justification e.g. how it would be quantified. • food sharing could be operationalised as how much food each animal eats; • e.g. by counting the number of pieces of food each animal takes; • e.g. by weighing the animals • see whether one animal waits for the other/see if they both get something to eat; • e.g. by timing how long before each animal starts eating;	2
8(b)	Explain why the timing for the animals' daily feed is a potential ethical issue. 1 mark for identifying an appropriate ethical problem. 1 mark for explanation. • As it was in the evening they were food deprived for almost 24 hours when they were tested (in the afternoon); • this might make them more aggressive; • this could be distressing for the animals;	2
8(c)	Explain why the housing of the parrots was less ethical than the housing of the cats. 1 mark for explanation, which can be explicit comparison or detail. Cats are solitary anyway, so being kept on their own is not a problem/parrots are social animals so being isolated from other parrots could be distressing;	1

Question	Answer	Marks
8(d)	Penny has decided that she will be a covert observer. Suggest why she chose to be a covert observer in her study. 1 mark for reason (may be generic). Plus 2 marks for linked detail. • animals respond to people; • she therefore needs to be hidden; • cats and parrots are domestic animals; • so they would be likely to respond to people; • so that she does not act as an uncontrolled variable/distract their normal behaviour/reduce validity;	3
8(e)	Write an operationalised non-directional (two-tailed) hypothesis for Penny's experiment. 2 marks for a fully operationalised non-directional hypothesis, correctly using cats and parrots, and saying how food sharing will be measured 1 mark for a non-directional hypothesis which is not operationalised • Cats and parrots will differ in the time they spend sharing food (2) • There will be a difference in the number of pieces of food shared between the cats and parrots (2) • There will be a difference in food sharing between the cats and parrots (1) • There will be a difference in helpfulness between the cats and parrots (1) • There will be a difference in food sharing between animal species (1)	2

Question	Answer	Marks
9	Don and Pinja are planning to test whether older or younger people lose their way more often, even when using a map. They will time how long it takes each participant to find their way between two places in the university, using a map. They are talking about how to find participants and how to start the study. They often see older people returning from the shops in the morning and younger people after school in the evening.	
9(a)	Don wants to tell every participant where they are on the map at the start of the test. Explain why this would be important. 1 mark for identifying why that aspect of the procedure is important. 1 mark for explanation. • so that all participants are working from the same baseline/doing an equally hard task; • to standardise the procedure/to improve reliability; • so that differences between the participants are due to their navigational ability/are not due to how long it took them to understand the map;	2
9(b)	Pinja says they should test all the participants at midday rather than testing them whenever they see them. Explain why this would be important. 1 mark for identifying why that aspect of the procedure is important (can be generic e.g. 'as a control') 1 mark for explanation. • so that the young and old participants have an equal chance of finding their way quickly; • as it is more difficult to navigate when there are lots of students at the university; • so this would be a control/standardisation/increase reliability; • so that differences are not due to the extra time it takes to dodge round people; • so the results are more valid;	2

Question	Answer	Marks
9(c)	Identify <u>two</u> participant variables, other than age, and suggest how these could be controlled in this experiment. 1 mark for identifying a participant variable. 1 mark for how it would be controlled. × 2 • How far they normally walk/how fit they are; • Select young and old people with similar fitness levels/make the course shorter for the old people; • Whether they know the university; • make sure all participants do not know the university already/ask them if they have been there before; • Whether they have special navigational skills; • ask them about their job/hobbies and exclude skilled people/taxi drivers/orienteers;	4

Question	Answer	Marks				
10	Fajar has noticed that some of the younger children in her school believe their toys have feelings but the older children generally do not. She wants to find out more about what children believe and when beliefs change. She is planning to use a questionnaire.					
10(a)	Describe how Fajar could conduct a study using a questionnaire to find out about the children’s beliefs. Indicative content for a questionnaire: • What: content of question asked (e.g. information about age and beliefs) • How: open/closed questions • lie questions • filler questions • sampling technique • sample size • description of how closed questions will be scored • description of how quantitative data from closed questions will be analysed • description of how open questions will be interpreted • ethical issues Other appropriate responses should also be credited. Three major omissions are: What: content of questions asked (i.e. topics, examples) How: style of questions asked (e.g. open/closed) Who: range of ages of children (old and young/ages) The minor omission is: Where: location of participants when completing the questionnaire/how it is distributed 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 10
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10(b)	Identify <u>one</u> weakness/limitation with the procedure you have described in your answer to part (a) and suggest how your study might be done differently to overcome the problem. Answer will depend on problem identified. Problems may, for example, be matters of: Validity - operationalisation - difficulty with lying/social desirability - difficulty with response biases Reliability - inter-rater consistency - intra-rater consistency. This list is not exhaustive and other appropriate responses should also be credited. If the problem was an obvious omission in (a), marks can be awarded here if the candidate refers to the omission. <table><tr><th>Marks</th><th>Comment</th></tr><tr><td>3–4</td><td>Appropriate problem identified. Appropriate solution is clearly described.</td></tr><tr><td>2</td><td>Appropriate problem identified. <i>plus</i> EITHER Explanation of why it is a problem OR Ineffectual but possible solution described.</td></tr><tr><td>1</td><td>Appropriate problem identified. Little or no justification.</td></tr><tr><td>0</td><td>No response worthy of credit</td></tr></table>	Marks	Comment	3–4	Appropriate problem identified. Appropriate solution is clearly described.	2	Appropriate problem identified. <i>plus</i> EITHER Explanation of why it is a problem OR Ineffectual but possible solution described.	1	Appropriate problem identified. Little or no justification.	0	No response worthy of credit	4
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Question	Answer	Marks
1	In the study by Piliavin et al. (subway Samaritans), the number of times ill and drunk victims were helped was counted.	
1(a)	State how the independent variable was operationalised in this part of the study. 1 mark for naming or identifying victim type/ill and drunk 1 mark for operationalisation e.g. cane and bottle For example: - ill and drunk/victim type; (1) - operationalisation e.g. cane and bottle/something in a bag; (1) Note: If only one level of the IV is operationalised, max 1, e.g. 'The sick man carried a cane'	2
1(b)	Suggest <u>one</u> advantage of the way in which the independent variable was operationalised. 1 mark for an advantage (it does not have to be linked) - ill and drunk were easy to create; - ill and drunk were convincing for the passengers; - there were no differences other than the cane and bottle / the victims were the same in ways other than the IV;	1
2	Describe <u>two</u> of the controls from the study by Andrade (doodling). 1 mark for identifying a control and 1 mark for detail. × 2 (All participants were made equally) bored/tired (1); by taking them just after another study; (2nd mark) standardised instructions (1); e.g. saying 'write down the people who can or might come but not those who can't'. (2nd mark) (Note: does not have to be verbatim) all participants had paper available (1); so any participants could have doodled. (2nd mark) the controls had lined/plain paper and the experimental group had special doodling paper / shapes (2) random assignment to condition (1) otherwise the doodlers would choose the doodling group (2nd mark) <i>Controls are keeping things the same between levels of the IV (e.g. making sure both groups could doodle)</i> <i>Standardisation is keeping things the same between participants.</i> <i>Max 1 for standardisation and parts of the procedure which are necessarily standard for the study.</i>	4

Question	Answer	Marks
3	Milgram conducted many studies. One investigated whether the prestigious location (Yale University) affected obedience. He used the experimental method to compare the obedience in the original study at the university with the same study carried out in an old office block.	
3(a)	Write an operationalised directional hypothesis for this experiment. 1 mark for a correct directional hypothesis that is not operationalised. 2 marks for a correct directional hypothesis that is operationalised. For example: - There will be more obedience in the study at Yale than in the rundown office. (1) - More participants will reach 300 V / 450 V in the study at Yale than in the office. (2)	2
3(b)	Write a null hypothesis for this experiment. 1 mark for a correct null hypothesis. For example: - There will be no difference in obedience between Yale and the office. (1) - Any difference in obedience between Yale and the office is due to chance. (1) - Any difference in obedience between the two locations is due to chance. (1)	1

Question	Answer	Marks
4	The study by Canli et al. (brain scans and emotions) used only right-handed, female participants. Suggest <u>one</u> way in which this sample may limit the generalisability of the findings. 1 mark for identification of problem (may be generic) Plus 1 mark for detail linked to gender or handedness or to the study. For example: - Right-handed and left-handed people may differ in their emotions / the way they respond in a scanner. (1) - so the results would not generalise to left-handed people. (+1) - The results would not generalise to males. (1) - Men and women (may) differ in their emotions / the way they respond in a scanner. (+1)	2

Question	Answer	Marks
5	It has been suggested that for real childhood memories, highly emotional memories are remembered better than neutral memories.	
5(a)	Explain how <u>one</u> ethical guideline would be important when investigating this suggestion. 1 mark for identifying an appropriate ethical guideline (most likely protection or informed consent/deception but accept any) Plus 1 mark for applying this to the context. • protection of participants (from psychological harm) (1) • because looking for highly emotional memories might make them recall highly emotional unpleasant ones. (+1) • informed consent / (avoiding) deception (1) • because emotional memories might be unpleasant so they need to know this is possible in order to decide to participate. (+1) • right to withdraw (1) • if emotional memories are unpleasant they need the right to stop thinking about them (+1)	2
5(b)	Describe <u>one</u> way to collect data about a participant's childhood memories. 1 mark for identification of an appropriate data collection method (name or describe) Plus 1 mark for detail. • interview (them/their family/friends) (1) • e.g. use an unstructured interview about their childhood (with the participant themselves). (+1) • give a questionnaire (to them/their family/friends) (1) • e.g. use open questions such as 'Tell me about something you remember from your childhood'. (+1)	2

Question	Answer	Marks
6	Describe <u>one</u> similarity and <u>one</u> difference between observations and self reports, using any examples. Award up to 4 marks for the description of each similarity or difference 1 mark for each example that is linked to one method, up to a maximum of 2 per comparison. Examples can include examples from studies using observations or self reports, or of ways these <i>could</i> be used. <i>Similarities</i> • Observations and self reports can both use participants who are aware that they are being studied (1) • for example in Dement and Kleitman / Milgram the participants knew they were being watched and knew they were being asked questions (1 for example) • Observations and self reports can both collect data about behaviours (1) <i>Differences</i> • Only observations can use participants who are unaware that they are being studied (1) • for example in Bandura et al. / Schachter and Singer / Piliavin et al. the participants were unaware that they were being observed (1) • but would have known if they were being asked questions (in a self report) (1) • for example the boy with the button phobia knew he was being observed / in Dement and Kleitman / Milgram the participants knew they were being watched (1 for example) • Only self reports can both collect data about emotions (1) • because emotions/beliefs cannot be directly observed (as they are 'internal') (1 for detail)	6

Question	Answer	Marks
7	Hanif is investigating helping behaviour in animals. As part of his experiment, two chimpanzees are put together but it is possible that they might hurt each other, for example, by fighting rather than helping.	
7(a)	Explain how <u>one</u> ethical guideline, which relates to animals, is relevant to this study. 1 mark for identifying relevant ethical guideline (by name or description). Plus 1 mark for linked detail. For example: • pain and distress (1) • this should be minimised as if they were hurt (in the fight) this would be physically painful/stressful (+1) • the minimum necessary number of animals should be used (1) • because this is a potentially distressing study because they could get hurt/because at least two chimpanzees are needed (+1) • analgesia should be used (1) • if the animals get hurt (+1)	2
7(b)	Hanif is the only observer and wants to find out whether his recording of fighting behaviour is reliable over time. Explain what Hanif should do to measure his reliability. 1 mark for test-retest (by name or description). Plus 3 marks for detail (does not have to be explicitly linked to the situation, but such links could earn marks) For example: • Measure his test-retest reliability (1) • by using the same tests and scoring them twice (+1) • e.g. by videoing the chimpanzees' behaviour (+1) • then correlating his scores for the first and second viewing (+1) • and if the correlation is high he is reliable (+1) • e.g. by counting the number of times they help to see if it is the same (+1)	4
7(c)	Explain why Hanif may be more objective if he collects quantitative data rather than qualitative data. 1 mark for reason Plus 1 mark for detail (does not have to be linked). For example: • because it is numerical (1) • so does not need to be interpreted. (1) • so is less likely to be influenced by Hanif's personal opinion. (1)	2

Question	Answer	Marks
8	Elea is conducting an experiment to test whether people who sleep for more than eight hours per night are happier than people who sleep less than this.	
8(a)(i)	Elea's dependent variable is 'happiness'. Suggest how this could be operationalised. 1 mark for suggestion for how happiness could be measured. - e.g. by counting how many times the participant smiles (in an hour); - e.g. a rating scale from 0–10 answering the question 'How happy do you feel?' (0 = not at all, 10 = very); - e.g. with an interview asking them to describe their feelings and rating their response for happiness.	1
8(a)(ii)	Suggest <u>one</u> disadvantage of operationalising happiness in this way. 1 mark for identifying disadvantage. Plus 1 mark for why it is a disadvantage. - there may be <u>individual differences</u> (e.g. if counting smiles in an hour: people might be more naturally smiley, e.g. using a rating scale: people may interpret the 0–10 scale differently) <u>subjectivity</u> (e.g. if interviewing / using open questions on a questionnaire, researcher's interpretation of answers may differ from their intended expression of happiness)	2
8(b)(i)	Explain why randomly allocating participants to the sleep conditions would be unethical. 1 mark for reason (generic or linked). For example: - because people vary in terms of their need for sleep - so if 'long sleepers' were allocated to the 'short sleep' condition, they might feel ill/distressed. - sleep deprivation is dangerous.	1

Question	Answer	Marks
8(b)(ii)	Explain <u>one</u> methodological advantage of randomly allocating participants to the sleep conditions. 1 mark for reason (generic or linked). Plus 1 mark for linked detail. For example: • because you could be certain that it was differences in sleep time that was responsible for the happiness (1) • if the participants chose their own conditions, the 'long sleep' people might be happier but because of some other variable than the length of time they sleep. (+1) • because you would not be able to draw causal conclusions unless you knew that there were not systematic differences in happiness between the two sleep groups. (+1) • it reduces the effect of participant variables (1) • so not all 'sleepy' participants end up in one condition (which would act as a confounding variable) (+1)	2
8(c)	Suggest <u>one</u> sampling technique that could be used in this study. Justify your answer. 1 mark for naming an appropriate sampling technique. Plus 2 marks for explanation. Must be some link and justification for 3 marks For example: • opportunity sampling (1) • where people are chosen because of their availability (+1) • so they might live nearby so not mind sleeping over in the lab (+1) • random sampling (1) • where every member of the population has an equal chance of being picked for the sample (+1) • so there would be a range of people with different normal sleep times (+1) • volunteer sampling (1) • where people select themselves to be in the sample (+1) • e.g. respond to an advert for a study on sleep (+1) • so they would be likely to be willing to have their sleep changed/studied (+1)	3

Question	Answer	Marks
9	Ed and Jim are planning a field experiment about learning. They want to know whether young children learn to use mobile (cell) phones from older brothers or sisters. They each offer their phone to a younger brother or sister and also to a cousin who has no older brothers or sisters. They time how long it takes each child to find a game to play with on the phone.	
9(a)	Suggest why Ed and Jim chose a field experiment as their research method. 1 mark for a generic reason 1 mark for link. • fewer demand characteristics; • e.g. the children would be less self conscious about being watched; • higher ecological validity; • children play at home, they might not in a lab; Note: These are only examples, there will be many other acceptable answers.	2
9(b)	Explain the experimental design being used in this experiment. 1 mark for identification of design 1 mark for linked justification. • independent measures / groups / between subjects; • because a child either did or did not have older siblings;	2
9(c)	Suggest <u>one</u> control that should be used in this experiment. 1 mark for identification of a variable to control Plus 1 mark for justification of the need for this control (this can be generic, although is likely to be contextualised) Plus 1 mark for how a control could be implemented. age of child; because older ones would be better on phones anyway / younger ones might want to play more; have both children (about) the same age / both aged 6 years; use the same phones / same apps (for Ed and Jim / for siblings and cousins); because otherwise it could be a confounding variable / there may be individual differences between the children; (generic) and children may know some of the games but not others;	3

Question	Answer	Marks
10	Beth is looking at the treatment of people with phobias. She is investigating whether there is a relationship between how long they have been in therapy and the severity of their symptoms.	
10(a)	Describe how Beth could conduct a correlational study to investigate this relationship. Indicative content for a correlational study: • what: identification of variable 1 • what: identification of variable 2 • how: examples of ways to measure the variable such as questions/ tests/observations used • sampling technique • sample size • description of how closed questions will be scored • description of how data will analysed, e.g. use of scattergram • ethical issues Other appropriate responses should also be credited. Three major omissions for a correlational study are: What: – variable 1 (correct operationalisation and quantification of first correlational variable) – variable 2 (correct operationalisation and quantification of second correlational variable) How: – technique for producing/collecting data i.e. procedure (e.g. tests, observations, questionnaires). The minor omissions are: where – location of participants when data is collected (e.g. clinics) who – participants (must be phobics) Mark according to the levels of response criteria below: Level 3 (8–10 marks) • Response is described in sufficient detail to be replicable. • Response may have a minor omission. • Use of psychological terminology is accurate and comprehensive. Level 2 (5–7 marks) • Response is in some detail. • Response has minor omission(s). • Use of psychological terminology is accurate. Level 1 (1–4 marks) • Response is basic in detail. • Response has major omission(s). • If response is impossible to conduct max. 2. • Use of psychological terminology is mainly accurate. Level 0 (0 marks) No response worthy of credit.	10

Question	Answer	Marks										
10(b)	Identify <u>one</u> weakness/limitation with the procedure you have described in your answer to part (a) and suggest how your study might be done differently to overcome the problem. Answer will depend on problem identified. Problems may, for example, be matters of: Validity - operationalisation (of severity) - cannot determine causality [Note: max 2 for 'causality' answer as cannot be solved within the context of a <i>correlational</i> study] Reliability - standardisation - intra-rater consistency (of severity measures) Ethics - issues with phobias (harm) This list is not exhaustive and other appropriate responses should also be credited. If the problem was an obvious omission in (a), marks can be awarded here if the candidate refers to the omission. <table><tr><th>Marks</th><th>Comment</th></tr><tr><td>3–4</td><td>Appropriate problem identified. Appropriate solution is clearly described.</td></tr><tr><td>2</td><td>Appropriate problem identified. <i>plus</i> EITHER Explanation of why it is a problem OR Ineffectual but possible solution described.</td></tr><tr><td>1</td><td>Appropriate problem identified. Little or no justification.</td></tr><tr><td>0</td><td>No response worthy of credit</td></tr></table>	Marks	Comment	3–4	Appropriate problem identified. Appropriate solution is clearly described.	2	Appropriate problem identified. <i>plus</i> EITHER Explanation of why it is a problem OR Ineffectual but possible solution described.	1	Appropriate problem identified. Little or no justification.	0	No response worthy of credit	4
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PSYCHOLOGY

9990/23

Paper 2 Research methods

May/June 2018

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.

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This document consists of **11** printed pages.



Cambridge Assessment
International Education

Generic Marking Principles

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

GENERIC MARKING PRINCIPLE 1:

Marks must be awarded in line with:

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

GENERIC MARKING PRINCIPLE 2:

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

GENERIC MARKING PRINCIPLE 3:

Marks must be awarded **positively**:

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

GENERIC MARKING PRINCIPLE 4:

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

GENERIC MARKING PRINCIPLE 5:

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

GENERIC MARKING PRINCIPLE 6:

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

Question	Answer	Mark
1	Explain what is meant by the ‘aim’ of a study, using an example. 1 mark for explaining the term. Plus 1 mark for link. • What the researcher plans to test/find/expects (1) • e.g. Bandura was looking for the effects of imitation / whether children copied aggressive models / if there would be sex differences in imitation (+1)	2

Question	Answer	Mark
2(a)	Identify the sampling technique used in the study by Milgram (obedience). 1 mark for naming or describing the sampling technique • volunteer/self-selected; • getting participants by asking for them;	1
2(b)	Suggest <u>one</u> disadvantage of this sampling technique. Both marks are for the disadvantage. No link is required. 1 mark for identifying a disadvantage (generic or linked) Plus 1 mark for detail of the disadvantage (generic or linked). • (it produces a) narrow sample; (1) • so is biased; (+1) • not generalisable / will not be representative; (1) • because it is limited to the kinds of people who see the request / who respond; (+1) • it is limited because only readers of the newspaper could possibly be participants; (1) • so it is not representative of people who did not read that newspaper (and who might differ in some way, e.g. educationally and therefore in their obedience level); (+1)	2

Question	Answer	Mark
3	In the study by Dement and Kleitman (sleep and dreams), the experimenter sometimes entered the room after the participant had completed their dream report and asked them some questions.	
3(a)	State <u>one</u> type of interview could have been used in this part of the study. Justify your choice. 1 mark for identifying an interview type (by name or description). Plus 1 mark for link. • Structured / it would have been important for all participants to be asked the same questions (generic) to elicit the same information about their dreams (linked) (2) • Semi-structured, so that they generated some comparable data for each participant (generic), but could also ask specific questions about their particular dream (linked) (2) • Unstructured / ask different questions to each participant (generic) so that they could be tailored to the dream (linked) (2)	2
3(b)	Suggest <u>one</u> advantage of this type of interview. Both marks are for the advantage. 1 mark for identifying an advantage (can be a term, but max 1 for terms) 1 mark for detail of the advantage. Award marks for generic and linked advantages. • <i>Structured</i>: they are reliable/objective; so any interviewer bias is limited/so the researchers would not have influenced what the participants said = 2 marks • Semi-structured: they collect qualitative and quantitative data improving validity; as qualitative gives detail and quantitative is objective = 2 marks • <i>unstructured</i>: they are flexible/the researcher can respond to what the participant says; this means there is a better chance of finding the information you want/ they could have asked specifically about things moving in the dream = 2 marks Note: any interview type could produce quantitative and/or qualitative data	2

Question	Answer	Mark
4	In the study by Schachter and Singer (two factors in emotion), participants were told that the study was about vitamins and vision. This was not true, so the participants could not give informed consent.	
4(a)	Explain <u>one</u> other ethical guideline broken by telling the participants that the study was about vitamins and vision. 1 mark for identifying an appropriate ethical guideline (most likely deception) Plus 1 mark for applying this to the context. • Deception; • because it was actually about emotions/adrenalin; • Protection from harm; • because even though there was information from the health centre, a participant might have had a reaction to adrenalin / might have been emotionally unstable so been at risk;	2
4(b)	Explain <u>one</u> advantage of telling the participants that the study was about vitamins and vision. 1 mark for identifying an advantage. Plus 1 mark for detail. • so that the participants would not know that they were having their arousal level / physiology manipulated; • which means they would not anticipate the physical reactions/symptoms/effects (of the adrenalin); • to reduce demand characteristics / don't know real aim;	2

Question	Answer	Mark
5	Yamamoto et al. (chimpanzee helping) used bar charts to display their results. Draw a bar chart to show <u>how</u> the results of this study were displayed. Award 1 mark for each of: • 2-bar bar chart (separate bars) • x-axis labels 'stick' and 'straw'/ first object chosen; • x-axis heading 'tool which a recipient needed' OWTTE • y-axis values (0–100%) • y-axis heading '(amount of) help offered' OWTTE (e.g. 'chose correct object')	3

Question	Answer	Mark
6	Describe differences between subjectivity and objectivity, using any examples. 1 mark max for each definition. 1 mark for each example that is linked to one type of question, up to a maximum of 2. Examples can include examples from any studies, or of ways they <i>could</i> affect studies. • Subjective: personal perspective; (1) • Objective: independent / non-personal viewpoint; (1) • qualitative/descriptive data tends to be more subjective/less objective; (1) • e.g. answers to ‘Describe ...’/open questions are interpreted by researchers i.e. are subjective; (1) • objectivity (often) leads to greater reliability / subjectivity (often) leads to lower reliability; (1) • e.g. Milgram’s voltage measure was objective and would be the same for every participant, i.e. reliable; (1) • quantitative/numerical data tends to be more objective / less subjective; (1) • e.g. Baron-Cohen could only interpret choices on the eyes test in one way, so it was objective; (1)	6

Question	Answer	Mark
7	Xanthe is looking for a relationship between how funny a person finds a joke and how much activity there is in a particular brain region. She plans to measure brain activity using a brain scan.	
7(a)	Suggest <u>one</u> way that Xanthe could measure how funny a participant thinks each joke is. 1 mark for identifying a way to measure funniness. Plus 1 mark for detail. • by measuring laughter; (1) • e.g. by timing how long they laugh for; (+1) • by asking them to say how funny they thought it was / judge feelings towards jokes; (1) • e.g. by rating on a scale (of 1–5, where 5 is the funniest); (+1) • by observing how much they smile; (1) • e.g. estimating how wide their mouth is; (+1)	2

Question	Answer	Mark
7(b)	Xanthe expects to find that the funnier a person finds a joke, the more brain activity there will be. Explain the type of relationship she is expecting in this study. 1 mark for each point below. • positive; • correlation; • between funniness and brain activity;	3
7(c)	State which measure of central tendency Xanthe should use with the data from the brain scans. Justify your choice. 1 mark for naming mean 1 mark for justification mean; because the data is points on a scale / equal value / a scientific measurement / interval data / ratio data / because it takes all the points into account; (2 marks)	2

Question	Answer	Mark
8	Albert is investigating autism. He plans to obtain a sample of people with autism and a control group. He will compare how well these participants judge the feelings of dolls which are either dancing, crying, waving or smiling.	
8(a)	Identify the independent variable in this experiment. 1 mark for stating both type of participants. • autistic and control/normal/mentally healthy;	1
8(b)	Suggest how the dependent variable in this experiment could be measured. 1 mark for identifying the DV 1 mark for any appropriate operationalisation • by choosing a descriptive word for the doll's feelings from a list (2) • by asking them to describe how the doll is feeling (2) • ask them to choose between happy and sad (1)	2

Question	Answer	Mark
8(c)	Explain <u>one</u> advantage of using dolls rather than people in this procedure. 1 mark for generic advantage 1 mark for link to experiment (e.g. dolls) • they are more easily controlled than people; • dolls will always do the same thing / people might display emotions differently for some participants than others; • because people are more complex / varied than dolls;	2
8(d)	Explain <u>one</u> disadvantage of using dolls rather than people in this procedure. 1 mark for generic disadvantage 1 mark for link to experiment • they are different from real life / unlike people / lack ecological validity / low mundane realism; • people have facial expressions/movements/gestures that make deducing emotions easier; • dolls may make people feel uncomfortable/embarrassed/afraid;	2
8(e)	Describe the experimental design used in this experiment. 1 mark for identifying independent measures Plus 1 mark for linking answer (autistic and normal participants are separate groups)	2

Question	Answer	Mark
9	Laken is planning a case study of a child with a phobia of chairs. She is worried about how she will collect data from the child as he will not sit on a chair, so she is planning to sit on the floor with him.	
9(a)	Explain the ethical guideline Laken is following by choosing to sit on the floor. 1 mark for identification of protection from (psychological) harm. Plus 1 mark for detail linked to the study. • Not scaring him / to protect him from (psychological harm/distress) (1) • he might be frightened by having to sit on a chair; (+1)	2

Question	Answer	Mark
9(b)	Suggest <u>one</u> way that Laken could collect data from the child's parents, other than by interview. 1 mark for identifying an appropriate alternative method e.g. questionnaire Plus 1 mark for detail Plus 1 mark for detail applied to the situation • questionnaire; (1) • they could be sent questions through the post / by email / online; (+1) • they could be open/closed questions; (+1) • e.g. asking when the phobia started; (+1) • what the symptoms of the phobia are; (+1) • which types of chairs he is most frightened of; (+1)	3
9(c)	Suggest why Laken chose to use the case study method in this research. 1 mark for reason (does not have to be linked but can be) Plus 1 mark for detail linked to the study • to obtain detailed/descriptive/in-depth data; (1) • for example to find out the causes/symptoms of his phobia; (+1) • because she only had one/participant/phobic/child to study; (1) • so could explore the causes/symptoms / treat his phobia; (+1) • because she could use a range of different methods (interviews/questionnaires/observations); (1) • for example observing how he reacted to a chair and sending a questionnaire to the parents; (+1) • because it meant a long time could be spent on one person; (1) • and a long time is needed to study the phobia/find a therapy; (+1) • because it offers an opportunity for therapy; (1) • so they could go slowly enough to not frighten the child more; (+1)	

Question	Answer	Mark				
10	Taavi works in an office and has been asked to conduct an observation of employees' doodling. He is aiming to observe their doodling and what else they are doing while they doodle.					
10(a)	Describe how Taavi could conduct an observation of employees' doodling. Indicative content for an observational study: • what: identification of behavioural categories • operationalisation of each behavioural category • how: whether the observation is (at least two of): – naturalistic/controlled, structured/unstructured, covert/overt, participant/non-participant • sampling technique • sample size • description of how tallying will be done • description of how data will analysed, e.g. use of averages/bar charts • ethical issues Other appropriate responses should also be credited. Three major omissions for an observational study are: What: – behaviours that will be recorded e.g. doodling and 'other work' identified, at least one named (detail e.g. definition/operationalisation) How: any two of: – naturalistic/controlled, structured/unstructured, covert/overt, participant/non-participant (detail is how they are achieved OR more than two) The minor omissions are: where – location of participants when data is collected (e.g. office) who – participants (must be office workers) 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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Question	Answer	Mark										
10(b)	Identify <u>one</u> weakness/limitation with the procedure you have described in your answer to part (a) and suggest how your study might be done differently to overcome the problem. Answer will depend on problem identified. Problems may, for example, be matters of: Validity - operationalisation (of doodling / other behaviours) - difficulty with demand characteristics / researcher effects Reliability - standardisation - intra-rater consistency (e.g. of recording doodles). Ethics - privacy (at work) - harm/distress (employees might be worried about consequences) This list is not exhaustive and other appropriate responses should also be credited. If the problem was an obvious omission in (a), marks can be awarded here if the candidate refers to the omission. <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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