Cambridge International AS & A Level

Cambridge Assessment International Education
Cambridge International Advanced Subsidiary and Advanced Level

PSYCHOLOGY **9990/21**

Paper 2 Research Methods **October/November 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.

Cambridge International is publishing the mark schemes for the October/November 2018 series for most Cambridge IGCSE™, Cambridge International A and AS Level components and some Cambridge O Level components.

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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.

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Question	Answer	Marks
1(a)	**Explain what is meant by a 'repeated measures design'.** 1 mark for definition of repeated measures Every participant does all / both of the levels / conditions (of the IV) = 1 mark	**1**
1(b)	**Suggest <u>one</u> advantage of using a repeated measures design, using any core study as an example.** 1 mark for identifying advantage. 2nd mark for detail linked to core study • overcomes problems with individual differences; (1 for identification) • e.g. in Yamamoto, if one chimp was more helpful than another (this would confound an independent measures design); (1 for link)	**2**

Question	Answer	Marks
2	**The study by Pepperberg (parrot learning) used an animal.** **Explain what is meant by 'deprivation' and 'aversive stimuli' in animal research.** 1 mark for each definition, the two may be described together and may be defined by example. • deprivation is doing without something = 1 mark • deprivation is for example an animal not being given food / water = 1 mark • aversive stimuli are things (which are present) that the animal does not like / is afraid of / that hurt = 1 mark • aversive stimuli include electric shocks / aggressive animals / loud noises = 1 mark • water: deprivation is having none, being forced to swim in it is aversive = 2 marks • other animals (for a social species): none is deprivation, too many is aversive = 2 marks	**2**

Question	Answer	Marks
3(a)	**Explain what is meant by 'reliability', using <u>one</u> example from the study by Bandura et al. (aggression).** 1 mark for definition 1 mark for linked example • reliability is about consistency = 1 mark • to be reliable, measures must measure the phenomenon in the same way each time = 1 mark • e.g. Bandura et al. standardised the procedure, e.g. by always having the model display behaviour for the same length of time / in the same place, etc. = 1 mark for example • In Bandura et al., they made sure that both researchers scored aggression in a similar way (= link mark), i.e. were reliable, by using the same list of behaviours (= definition mark) = 2 marks	**2**
3(b)	**Suggest <u>one</u> problem with reliability in any core study, other than the Bandura et al. study.** Award 1 mark for identification of problem Award 1 mark for linked example (from any core study except Bandura et al.) • Dement and Kleitman may not have interpreted all the dream reports in the same way = 1 mark • If Schachter and Singer's participants interpreted the scales differently, they could have appeared more happy/angry than other participants = 2 marks **Note:** These are only examples, there will be many other acceptable answers.	**2**

Question	Answer	Marks
4	**In the study by Milgram (obedience), the results he recorded were the final voltage each participant gave to the learner.**	
4(a)	**State the range of these results.** 1 mark for range of 300–450 (volts) / (450 – 300 =) 150 (volts)	**1**

Question	Answer	Marks
4(b)(i)	**Milgram could have calculated the mean and the range of the final voltages given.** **Explain what information the range provides about a set of data, using Milgram's results as an example.** 1 mark for identification of why the range is useful / what the range tells us (may be generic or linked) Award 1 mark for linking explanation to Milgram's results. • the range tells us how variable / spread the results are = 1 mark • there was a spread of voltages, which shows not everyone is equally obedient = 2 marks • some stopped at 300, which shows that some people are less obedient / more resistant = 2 marks • some participants gave the maximum, so we know that people / Americans can be very obedient = 2 marks	**2**
4(b)(ii)	**Explain why it would have been better for Milgram to calculate the standard deviation rather than the range.** relative advantage of standard deviation / disadvantage of the range 1 mark partial, 2 marks full • the range does not indicate how the results are distributed between the extremes / it does not provide information about the spread around the mean = 1 mark • so it does not indicate how many people were close to each end = 1 mark • e.g. you would not know how many people gave (closer to) 300 or gave 450 V with the range = 1 mark	**2**

Question	Answer	Marks
5	**Explain why low validity would be a problem in experiments.** 1 mark for saying why low validity is a problem 1 mark for linking to experiments. Note: these two points may be combined for 2 marks Validity is being sure you are investigating what you intended to; Validity is testing or measuring what you claim to test or measure = 1 mark If the study is valid your results are more credible = 1 mark Which means you can believe your findings = 1 mark So the results would be more useful = 1 mark You would not be able to draw a causal conclusion = 1 mark You would not be able to generalise your findings beyond the experimental situation = 1 mark You would not know whether the IV (or extraneous variables) were the cause of changes in the DV = 2 marks Validity means being accurate = 0	**2**

Question	Answer	Marks
6	**Describe the similarities and differences between naturalistic and controlled observations, using any examples.** 1 mark for each definition, up to a maximum of 2 in total if there is no explicit comparison. 1 mark for each identified point of comparison + 1 mark for elaboration with *both* types of observation. 1 mark for each example that is linked to one type of observation. Examples can include examples from studies using such observations, or of ways it *could* be used. 4 marks for each type of observation. Max 2 marks in total for all one side e.g. all about naturalistic observations, i.e. no correct comparisons. For example: Naturalistic observations are where the participants are being observed without interference (1 for definition) • such as if children's aggression was observed during school playtime (1 for detail) • for example in Dement and Kleitman the participants' eye movements were initially observed without interrupting their dreaming (1 for example) Controlled observation is when participants are in a situation which is set up for the observation (1 for definition) • such as if helping behaviour was watched when a stooge pretended to lose a contact lens (1 for detail) • for example in Bandura et al. the aggressive play situation was artificial/ in Schachter and Singer the happy/angry stooge created the situation / in Piliavin et al. the participants' reactions were observed to the ill/drunk victim (1 for example) Naturalistic observations: • Are in 'natural' / 'naturalistic' settings (taken to mean non-manipulated settings) • unlike *controlled observations* which are in controlled / artificial settings • can be overt or covert (i.e. role of the observer is hidden or not) • though usually hidden in naturalistic observations so also accept 'always covert' • like / unlike controlled observations where the observer may or may not be hidden • can be participant or non-participant (i.e. part of the social group being observed or not) • like controlled observations where the observer may or may not be part of group.	**6**

Question	Answer	Marks
7	**Gavin is testing the hypothesis that 'People are more likely to drop rubbish on the ground when there is already rubbish on the ground'. He is conducting a field experiment in a quiet street. His independent variable is whether the street already has rubbish on the ground or not. Gavin's dependent variable is whether people drop a leaflet given to them by a stooge onto the ground or not.**	
7(a)	**State the type of hypothesis Gavin is testing. Include a reason for your answer.** 1 mark for type of hypothesis. 1 mark for the reason (even if name is incorrect). This may or may not be linked. • directional hypothesis / one-tailed hypothesis = 1 mark • because he is saying the way the IV will affect the DV (not just that there will be a difference) = 1 mark • as Gavin says rubbish will make people litter more, not just that it will have an effect on littering = 1 mark	**2**
7(b)	**Outline <u>one</u> way in which the participants in Gavin's study are being deceived.** 1 mark for a way in which they are deceived. • They are given a leaflet as part of the experiment; • They do not know that they are being observed; • They do not know they are in an experiment / study / that they are participants;	**1**
7(c)	**Explain <u>one</u> reason why Gavin chose to conduct a field experiment rather than a laboratory experiment.** 1 mark for a reason (can be generic) 1 further mark for detail (can be generic 1 further mark for linking detail to Gavin's study. • (likely to be more) ecologically valid = 1 mark (generic) • as the participant is in the normal environment for the behaviour being studied = 2nd mark (generic) • and Gavin's participants are on the street, which is where people throw litter = 3rd mark (linked) • participants (likely to be) unaware that they are in a study = 1 mark (generic) • so fewer demand characteristics = 2nd mark (generic) • so Gavin's participants would not avoid littering because they knew they were being watched = 3rd mark (linked)	**3**

Question	Answer	Marks
7(d)	**Explain <u>one</u> disadvantage of using a field experiment in Gavin's study.** 1 mark for a disadvantage (can be generic) 2nd mark for disadvantage linked to Gavin's study. • (likely to be) few controls = 1 mark (generic) • so littering behaviour may vary because of other factors than the IV = 2nd mark (linked) • it might not work e.g. because of demand characteristics = 1 mark (generic) • because they might realise the litter-dropping stooge is not real = 2nd mark (linked)	**2**

Question	Answer	Marks
8	**Lakha is planning to conduct a study to correlate helpfulness and intelligence. She is going to ask her participants to use an online IQ test and is going to measure helpfulness in the laboratory.**	
8(a)	**Suggest <u>one</u> way that Lakha could measure helpfulness for her correlation.** 1 mark for suggestion that produces ordinal, interval or ratio data (i.e. that could be correlated) 2nd mark for detail e.g. operationalisation. • using a questionnaire = 1 mark • with questions like 'How likely would you be to assist an old person crossing the street? (on a scale of 0–10) = 2nd mark • by setting up a situation with a stooge = 1 mark • so the participant was asked to help clear up a mess to see how much effort they make (and rate it) = 2nd mark	**2**
8(b)	**Suggest <u>one</u> advantage of the measure of helpfulness that you gave in part <u>(a)</u>.** 1 mark for suggested advantage 2nd mark for detail • reliable because objective = 1 mark • e.g. in the questionnaire they could only give a number, so the response does not need to be interpreted = 2nd mark • valid because few demand characteristics = 1 mark • e.g. because with the stooge they would not know helping was part of the study, so they would act normally = 2nd mark **Note:** These are only examples, there will be many other acceptable answers.	**2**
8(c)	**Name the type of graph Lakha should use to plot her results.** 1 mark for scatter graph	**1**

Question	Answer	Marks
8(d)	**Describe the pattern Lakha will see in her results if she finds a negative correlation between the two variables.** **You may use a drawing in your answer.**  1 mark for 'As one variable goes up the other goes down' OWTTE Accept diagram (does not have to be labelled):	**1**
8(e)	**A problem with the participants doing an online IQ test at home is that they may cheat.** **Explain the effect this would have on the negative correlation if only the less helpful participants cheated.** Both marks for explaining the effect on the correlation. • less helpful participants would score better than they should (so would look like they had higher IQs) • so the negative correlation would look steeper • because the most unhelpful people (the most intelligent ones) would appear (even) more intelligent • it would be less valid, because Lakha would be measuring cheating not IQ	**2**

Question	Answer	Marks
9	**Kyle conducted an investigation into doodling during lessons by boys and girls. He counted the number of doodles and how much paper was used per hour when doodling. He had several concerns about uncontrolled variables in his study.**	
9(a)	**Define quantitative data, using Kyle's data as an example.** 1 mark for quantitative data is numerical. 2nd mark for Kyle's data (count of doodles / area of doodles [in cm^2]).	**2**

Question	Answer	Marks
9(b)	**Kyle observed doodling in different lessons and was concerned that the science lessons may have been more interesting than other subjects.** **Name this type of uncontrolled variable <u>and</u> explain why it could be a problem.** 1 mark for type of variable. 2 marks for explanation. • (how interesting the lesson is could be) a situational variable • because it is a feature of the experimental setting, i.e. the lesson • because students might doodle less in these lessons / might doodle more in other lessons • so it would look like boys doodled less / girls would seem to doodle more. • so there would be an apparent gender difference (that did not exist / that was due to an uncontrolled variable)	**3**
9(c)	**On one of the days Kyle collected data, the girls had been on a school trip the day before, so may have been tired, but the boys had not.** **Name this type of uncontrolled variable <u>and</u> explain why it could be a problem.** 1 mark for type of variable. 2 marks for explanation. • (tiredness could be) a participant variable • because it is internal to the individuals • it might make the girls doodle more / less than they would normally • so there would be an apparent gender difference (that did not exist / that was due to an uncontrolled variable)	**3**

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Question	Answer	Marks
10	**Emma is planning to conduct an interview-based study about how well people think their pets/domesticated animals learn, for example whether cats learn to respond to their names.**	
10(a)	**Describe how Emma could conduct her interview-based study to discover what people think about how well their pets/domesticated animals learn.** Three major omissions for an interview study are: What: – content of questions asked (i.e. topics, examples) How: – interview structure detail (e.g. structured / unstructured / semi-structured) – style of questions asked (e.g. open / closed) The minor omissions are: where – location of participants when being interviewed who – participants (pet/domesticated animal owners) Indicative content for an interview study: What: content of questions asked (i.e. topics, examples) How: open/closed questions about beliefs about pets interview structure detail (e.g. structured / unstructured / semi-structured) 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 analysed description of how open questions will be interpreted ethical issues Other appropriate responses should also be credited.	**10**
10(a)	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.	

<table>
<tr><th>Question</th><th>Answer</th><th>Marks</th></tr>
<tr><td>10(b)</td><td>
Identify <u>one</u> weakness/limitation with the procedure you have described in your answer to part <u>(a)</u> 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
• standardisation
• intra-rater consistency (e.g. due to subjectivity of Emma’s interpretation – may also be validity)

This list is not exhaustive and other appropriate responses should also be credited.

<table>
<tr><th>marks</th><th>comment</th></tr>
<tr><td>3–4</td><td>Appropriate problem identified.
Appropriate solution is clearly described.</td></tr>
<tr><td>2</td><td>Appropriate problem identified.
plus
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>
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</td><td>4</td></tr>
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