CAMBRIDGE
International Education

Cambridge International AS & A Level

PSYCHOLOGY **9990/22**

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.

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.

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).

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

BOD	benefit of doubt	✓	correct point [use **one tick per mark** except in last question part (a)]	✗	incorrect point	✓a ✓b ✓c ✓d	use for each point of description of a **required feature** in part (a) of last Q
NBOD	no benefit of doubt	GM	indicates a point is a Generic Mark	CONT	continued (use 'link' icon)		
^	'something is missing'	?	unclear point	NAQ	not answering question		
REP	repetition (of stem/ within response)	~~~	use wiggly underline/ highlighter to bring attention to a key part	✓a ~~~	underline letter-tick when required feature is in enough ***detail***	L1 L2 L3 L4 L5	use to show Level 1, 2, 3, 4 or 5 in part (a) of last Q
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 un elated 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.

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**

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**

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**

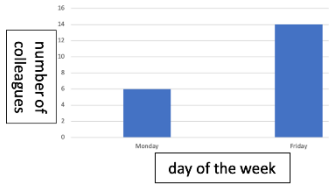
Question	Answer	Marks
5	**Describe the techniques of 'paper and pencil' questionnaires and 'online' questionnaires, using any example(s).** 1 mark for each definition/point of detail, up to a maximum of 4 in total. 1 mark for each example, max 2 for each term/concept. Examples can include examples from 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. **Paper and Pencil** • 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 **Online** • '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**) **Both** • **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 **face-to-face** (often by post) Note: Perry did **not** use paper & pencil CIDS	**6**

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**

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**

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**

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.**	

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 *Laughter:* 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) *Questionnaire/interview (scale/close question):* 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) *Questionnaire (open question):* 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**

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**

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

Question	Answer	Marks
9(b)(i)	**Explain how <u>one</u> feature of the procedure you described in part <u>(a)</u> 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 <u>(a)</u> 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**