

Cambridge International AS & A Level

PSYCHOLOGY**9990/21**

Paper 2 Research methods

May/June 2025**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 May/June 2025 series for most Cambridge IGCSE, Cambridge International A and AS Level components, and some Cambridge O Level components.

This document consists of **27** printed pages.

PUBLISHED**Generic Marking Principles**

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

GENERIC MARKING PRINCIPLE 1:

Marks must be awarded in line with:

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

GENERIC MARKING PRINCIPLE 2:

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

GENERIC MARKING PRINCIPLE 3:

Marks must be awarded **positively**:

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

GENERIC MARKING PRINCIPLE 4:

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

PUBLISHED**GENERIC MARKING PRINCIPLE 5:**

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

GENERIC MARKING PRINCIPLE 6:

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

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

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

From this it follows that we:

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

2 Presentation of mark scheme:

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

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.

Annotations guidance for centres

Examiners use a system of annotations as a shorthand for communicating their marking decisions to one another. Examiners are trained during the standardisation process on how and when to use annotations. The purpose of annotations is to inform the standardisation and monitoring processes and guide the supervising examiners when they are checking the work of examiners within their team. The meaning of annotations and how they are used is specific to each component and is understood by all examiners who mark the component.

We publish annotations in our mark schemes to help centres understand the annotations they may see on copies of scripts. Note that there may not be a direct correlation between the number of annotations on a script and the mark awarded. Similarly, the use of an annotation may not be an indication of the quality of the response.

The annotations listed below were available to examiners marking this component in this series.

Annotations

Annotation	Meaning
	Correct point
	Incorrect point
BOD	Benefit of doubt
REP	Repetition (of stem or within response)
	Unclear point
GM	Generic mark
L1 L2 L3 L4 L5	Used to show Level 1, 2, 3, 4, or 5 in the 10-mark planning Q
NAQ	Not answering question

Annotation	Meaning
	Acknowledge blank pages
	Something is missing
	Used for each point of description of a required feature in the 10-mark planning Q

Important marking guidelines for reference

Parts of the mark scheme include instructions for marking answers to modified braille questions. These instructions are in blue and are for the Principal Examiner and Team Leaders **only**. Do **not** use the braille instructions to mark standard responses.

Question	Answer	Marks	Guidance
1(a)	Describe what is meant by a questionnaire. Description = 1 Detail = 1 • Self-report / questions; • Written/ on paper / online; • Written questions = 2	2	
1(b)	Explain <u>one</u> practical strength of using a questionnaire. Explanation = 1 Detail / comparison = 1 • unlikely to lie / low risk of social desirability/more likely to be honest: (explanation) • because not face to face / no researcher present / fill in alone: (detail) • Wider sample as can be posted/online (explanation) • which means that it will be more representative/generalisable (detail)	2	Accept fewer demand characteristics Ethical advantages = 0

PUBLISHED

Question	Answer	Marks	Guidance
2(a)	The study by Bandura et al. (aggression) provides no information about whether or not consent was obtained from the participants Outline what is meant by ‘consent’. Outline = 1 Consent = agreeing to take part in a study	1	Answer does not require informed consent but it is correct
2(b)	Suggest why obtaining consent would have been important <u>in this study</u>. Linked suggestion = 1 Detail or second linked suggestion = 1 • The children could have been made (permanently) more aggressive; i.e. needs learn/imitate • The children could have been hurt; • The parents might not have wanted the children to learn aggression;	2	The children / parents had a choice = 0 [not linked] The children / parents might not have wanted to participate = 0 [NAQ/not linked]

PUBLISHED

Question	Answer	Marks	Guidance
3(a)	In the study by Milgram, obedience was tested. Participants with a range of different occupations and ages were used to improve generalisability. Suggest <u>one</u> reason why using participants with different occupations could be important to Milgram's test of obedience. Use an example in your answer. Linked suggestion = 1 Example = 1 Suggestion (linked to obedience) - because some occupations expect employees to be <u>more obedient/are more likely to be obedient</u> than other (linked suggestion) = 1 - As there may be a difference in levels of obedience dependent on occupation = 1 <u>Examples</u> - For example, managers / the police expect obedience from others; (example) - For example, workers must be (more) obedient to their employers; (example)	2	Generalisability = 0 as repeating the question

PUBLISHED

Question	Answer	Marks	Guidance
3(b)	Suggest <u>one</u> reason why using participants with different ages could be important to Milgram's test of obedience. Use an example in your answer. Linked suggestion = 1 Example = 1 These two elements must be separate. <u>Linked Suggestion</u> • younger people are expected to be more/less obedient (than older people); • <i>That different ages would have different levels of obedience</i> <u>Examples</u> • Parents / teachers expect children to obey; (example) • Older children give orders to younger children; (example)	2	

PUBLISHED

Question	Answer	Marks	Guidance									
4(a)	In the study by Baron-Cohen et al. (eyes test), the ages of all participants were known. The mean and standard deviation of the ages of participants in Groups 1 and 3 are shown in Table 4.1. <table><tr><td>Group</td><td>Mean</td><td>Standard deviation</td></tr><tr><td>Group 1 (AS/HFA adults)</td><td>29.7</td><td>14.5</td></tr><tr><td>Group 3 (Students)</td><td>20.8</td><td>0.8</td></tr></table> State what the means show about the ages of the two groups. Explanation = 1 • That the AS-HFA / Group 1 were older (than the Students/Group 3); ORA	Group	Mean	Standard deviation	Group 1 (AS/HFA adults)	29.7	14.5	Group 3 (Students)	20.8	0.8	1	The mean of the AS/HFA group (1) was bigger = 0 [NAQ]
Group	Mean	Standard deviation										
Group 1 (AS/HFA adults)	29.7	14.5										
Group 3 (Students)	20.8	0.8										
4(b)	State what the standard deviations show about the ages of the two groups. Explanation = 1 • The AS-HFA/ Group 1 ages were more spread out (than the students/3); ORA • Larger range of ages in group 1 than group 3	1	Greater deviation / deviated more = 0 [REP] The standard deviation of the AS/HFA group was bigger = 0 [NAQ]									

PUBLISHED

Question	Answer	Marks	Guidance
5	Explain <u>one</u> ethical weakness of the case study research method. Do <u>not</u> use consent in your answer. Identification of ethical weakness = 1 Detail = 1 • The participant might find it difficult to withdraw; (weakness) • because they have built up a relationship with the researcher; (detail) • There may be an invasion of privacy; (weakness) • the researcher cannot know in advance what they will ask/find; (detail) • Confidentiality may be at risk; (weakness) • because details about the P may make them identifiable; (detail) • Distress might be caused by the intensity; (weakness) • e.g. the depth of enquiry might bring up trauma; (detail) • e.g. Saavedra & Silverman were studying fear; (detail)	2	

PUBLISHED

Question	Answer	Marks	Guidance
6	Describe opportunity sampling and random sampling, using any example(s). 1 mark for each definition/point of detail, up to a maximum of 2 for each term/concept. 1 mark for each example, max 2 for each term/concept. Examples can include examples from any studies (core studies, other studies, candidate's own studies). Max 4 if no examples or if only about one term/concept. Only 1 example needed to access 6 marks. <u>Definition of 'sampling technique'=1 MAX</u> <u>Opportunity sampling:</u> • Using participants who are available at the time; (description) • Passers-by/students in the researcher's class; (detail) • <u>Baron-Cohen et al.</u> found participants in adult community education class (in Exeter)/(public) library (in Cambridge); (detail) • <u>Saavedra & Silverman</u> child (& mother) in treatment (at Florida International University); (detail) • <u>Piliavin et al.</u> subway passengers; (detail) <u>Random sampling:</u> • Each individual in the population has an equal chance of being selected; • getting a numbered list of people/your target population (1) and putting the numbers in a hat and drawing the number required / using a random number generator to select the sample size required; (1) (= 2 for detailed example here) • a study might use the list of all students in a school and select 30 from them (=1 for brief example)	6	No marks for evaluation e.g. more /less representative No marks for <u>Bandura et al, Holzel et al., Perry</u> et al. as no information on sampling in the original paper. Pozzulo – adults volunteered for pool but not known if there were opportunity or volunteer for sample, nor about child participants.

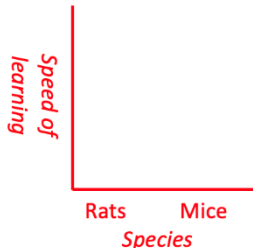
PUBLISHED

Question	Answer	Marks	Guidance
6	<u>Other examples</u> • Andrade – accept opportunity as although they had originally volunteered for a different study, they were recruited by opportunity after leaving it. • Dement & Kleitman accept opportunity. • Baron-Cohen used random sampling (allegedly) = 1 mark		
7(a)(i)	Dr Smith wants to compare how easily two species of animal learn to press a lever to receive food. Suggest <u>one</u> way that Dr Smith could produce a quantitative measure of how easily the animals learn. Identification of way = 1 Detail = 1 Accept any reasonable measure of ease/speed of learning Learning can be operant or classical conditioning or social learning • Skinner box; (way) =1 • Time how long before they press the lever / get food; (way or detail) =1 • Count the number of lever presses / get food; (way or detail) =1 • The quicker the pressing of the lever achieves food the quicker they learn; (detail) =1 • Time how long before they press a lever/get food (way); the quicker they press the lever/get food the quicker they learn =2	2	Count number of bar presses; in a Skinner box ; = 2

PUBLISHED

Question	Answer	Marks	Guidance
7(a)(ii)	The two species are very similar, but one is bigger than the other. For the way that you suggested for measuring how easily the animals learn in part (a)(i): Explain whether this would be valid for both species. Explanation (of why valid or invalid) = 1 Detail = 1 Valid because: • Both can operate the lever; (explanation) • As they are similar /both probably have paws; (detail) • The learning task would be equally easy; (explanation) • The task is measuring cognitive abilities to learn and not size so not relevant (explanation) Not valid because: • One is bigger so could reach the lever easily/more quickly; (explanation) • So they would look like they learned more easily; ORA (detail) • A bigger animal (with bigger paws) may struggle to press a small lever properly (explanation) • So they would struggle to get the food even when trying to press the lever (detail)	2	

PUBLISHED

Question	Answer	Marks	Guidance
7(b)	Draw the axes for a graph that could be used to show the results of Dr Smith's study using the measure of learning that you suggested in part (a)(i). You <u>must</u> label the axes.  For full marks must have 1 mark for x-axis label and 1 mark for y-axis label [i.e. x and y units but only 1 label = 2 marks max, not 3] x-axis label: 'Species'; x-axis units: <i>two named species/ species 1 and 2;</i> y-axis label: 'Ease of learning' (e.g. speed, number correct); y-axis units: numbers; For PE and TLs only: For the braille paper the question is: Describe the axes for a graph that could be used to show the results of Dr Smith's study using the measure of learning that you suggested in part (a)(i). You <u>must</u> include the labels for the axes.	3	

PUBLISHED

Question	Answer	Marks	Guidance
7(b)	Marks are allocated: 1 mark for label for x axis 1 mark for label for y axis 1 mark for either x axis units (two named species/species 1 and 2) OR Y axis units (numbers)		Use BOD when marking this Q on a braille script.
7(c)	Suggest how Dr Smith could follow <u>one</u> ethical guideline in relation to animals, other than ‘species’. Identification of animal guideline = 1 (does not need to be defined) Link = 1 • Distress; (guideline) • Make sure the animals are not frightened in the Skinner box; (link) • Housing; (guideline) • Rats and mice are social, they should not be housed alone; (link) • Deprivation; (guideline) • They must not be hungry just to make them learn; (link)	2	

PUBLISHED

Question	Answer	Marks	Guidance
8(a)(i)	Josie is collecting data from other students in her class to test the hypothesis ‘There is a relationship between tidiness of classwork and enjoyment of lessons’. Josie will use one of these measures of tidiness: • look at the work herself and decide whether each student’s work is tidy or not • ask the student to rate the tidiness of their work on a scale of 0 (untidy) to 5 (very tidy). Explain <u>one</u> problem about validity or reliability that Josie could have with <u>one</u> of her measures of tidiness. Linked problem = 1 Correct link to validity OR reliability = 1 Josie looks: • The student may have a system of working that Josie does not understand (like putting newest notes at the front, but Josie expects them at back), so thinks work is untidy; (linked problem) • This is a problem of validity; (correct validity) Students rate: • Different students might interpret the numbers differently, e.g. ‘3’ for one student might be much tidier than for another; (linked problem) • This is a problem of reliability; (correct reliability) • validity is limited because only 2-point data if Josie rates so doesn’t discriminate between different levels of tidiness = 2	2	

PUBLISHED

Question	Answer	Marks	Guidance
8(a)(ii)	Explain <u>one</u> problem about ethics that Josie could have with <u>one</u> of her measures of tidiness. Linked problem = 1 Correct link to guideline = 1 Looking at their work might be embarrassing; (linked problem) (Intrusion into) privacy / harm / distress; (correct guideline/issue)	2	
8(b)	The hypothesis that Josie is testing is correlational. Explain which <u>one</u> of the measures of tidiness in part (a) is <u>not</u> suitable for Josie to use in her correlation. No mark for selection of measure (e.g. 'look at the work herself') Explanation = 1 Link = 1 • Only continuous / scale / linear data can be correlated; (explanation) • Because it contains only nominal data / discrete / the data needs to be at least ordinal; (explanation) • And tidy or not tidy is not continuous / is only in categories; (link)	2	Being quantitative (or qualitative) is irrelevant = 0 [NAQ]

PUBLISHED

Question	Answer	Marks	Guidance
8(c)(i)	Josie's data shows that students who enjoy lessons more have tidier work. Explain what Josie will conclude about her correlation. Explanation first mark Link second mark Positive (correlation); (explanation) As both variables go up together; (explanation) When tidiness increases/is more, lesson enjoyment increases/is more; (link) ORA	2	Causal relationships = 0 e.g. One variable causes the other one increase = 0 e.g. Having a tidy work makes students enjoy lessons more = 0
8(c)(ii)	Explain whether Josie can conclude that having tidier classwork influences students' enjoyment of lessons. Explanation = 1 Detail (generic or linked) = 1 Explanation - No, a correlation does not mean causation; (explanation) - No, correlations do not test for causal effects; (explanation) Detail - She would not know which of the two variables was the cause; (detail) - A third factor could be causing the correlation; (detail) Linked detail (Tidiness and enjoyment) could be due to parents; (linked detail) - The tidy work might make students get better grades or students who get better grades might happen to keep their files tidy; (linked detail)	2	

PUBLISHED

Question	Answer	Marks	Guidance
9(a)(i)	Dr Gao is planning a longitudinal study about changes in reading habits. She will study the same group of participants from childhood, through adolescence and into adulthood. Dr Gao will need to contact her participants at regular intervals: Dr Gao is deciding how often to test her participants, and is considering: weekly yearly. Explain which of these intervals is the <u>most</u> suitable for Dr Gao's study. <u>Explanation</u> of yearly = 1 - Children's reading does not change fast enough to be visible over a week; - Changes in reading ability are slow, so could take a year to show - testing children every week would be unkind/intense/a lot of pressure/stressful.	1	•
9(a)(ii)	Suggest how Dr Gao could contact her participants during the study. Suggesting how to recontact = 1 Send letter/email (to address collected at the start of study); phone (with number collected as start of study);	1	

PUBLISHED

Question	Answer	Marks	Guidance
9(a)(iii)	Suggest <u>two</u> problems that Dr Gao may have when trying to contact her participants at regular intervals. Problem = 1 x2 • They might not reply; • They may have changed address/phone number; • They may have died/become too ill to participate; • They may no longer want to participate; • They may not be available (at that time for a call); • They may have gone on holiday so cannot reply; • They may have withdrawn	2	

PUBLISHED

Question	Answer	Marks	Guidance
9(b)	A colleague, Dr Roberts, says that the study could be conducted by comparing participants of different ages at one point in time. Suggest <u>one</u> advantage of Dr Robert's idea compared to Dr Gao's plan for a longitudinal study. Do <u>not</u> refer to contacting participants in your answer. Advantage of Dr Roberts' idea/disadvantage of longitudinal = 1 Link = 1 Advantage (or disadvantage of longitudinal) • Differences may be due to society not age/ (disadvantage) • Dr Roberts' idea would mean that you do not have a third variable of culture/societal changes which may affect reading habits (advantage) • You would be less likely to have participants drop out (subject attrition) when doing the study at one-point in time (advantage) Link • Time available for reading changes with society; (link) • People now have less time for reading than they did; (link) • People read more on the internet now rather than books; (link) • Reading materials change over time; (link) • The results more representative of reading habits than a longitudinal study (where people have dropped out) (link)	2	References to changes in reading over the lifespan = 0 [NAQ] Children read comics but adults read newspapers = 0 [NAQ]

10(a)	Dr Miller is researching factors that affect how well people sleep. He wants to know whether creative activities (such as art, music or dance) help people to sleep well. Describe how Dr Miller could conduct an experiment using an independent measures design to investigate whether creative activities help people to sleep well. Do <u>not</u> describe sample/sampling technique or ethical issues/guidelines in your answer. To mark Q10a, create four ‘imaginary columns’ down one margin, using one column for each of the four required features. Tick each feature (tick-a, tick-b, tick-c, tick-d) when it appears, then underline the letter () for detail. Use L1, L2, L3, L4, L5 at the end of the response to indicate the level. Use the table opposite to mark candidate responses to this question. The four required features for this experiment are: (a) independent variable: (different creative activities: e.g. art, music, dance – any two, <u>operationalised</u>) (b) dependent variable: (sleep ‘well’, e.g. quality, time asleep, depth of sleep, feeling in the morning/use of an EEG to measure sleep) (c) controls/standardisation; (sleep location, time to bed, comfort of bed etc. At least two, must be explicit) (d) experimental design: (independent measures, how allocated i.e. random) And/OR (d) location if conducted as a field experiment: (creative activities in classes etc.) Other appropriate responses should also be credited.	10	<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 <i>clearly applies</i> knowledge of methodology involved in planning this 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 <i>applies</i> knowledge of methodology involved in planning this 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 detail</u>, and some appropriate terminology. AND <i>applies a basic</i> knowledge of methodology involved in planning this 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 <i>attempts</i> to use knowledge of methodology involved in planning this investigation. </td></tr></table>	Level	The response:	Level 5 9–10 marks	- has all the required features, all with <u>detail</u>, with mostly appropriate terminology. AND <i>clearly applies</i> knowledge of methodology involved in planning this investigation.	Level 4 7–8 marks	- has all the required features, but only some of these with <u>detail</u>, with some appropriate terminology. AND <i>applies</i> knowledge of methodology involved in planning this investigation.	Level 3 5–6 marks	- has some of the required features with <u>detail</u> / all of the required features with <u>no detail</u>, and some appropriate terminology. AND <i>applies a basic</i> knowledge of methodology involved in planning this investigation.	Level 2 3–4 marks	- has at least two of the required features, with little appropriate terminology. AND <i>attempts</i> to use knowledge of methodology involved in planning this investigation.
Level	The response:												
Level 5 9–10 marks	- has all the required features, all with <u>detail</u>, with mostly appropriate terminology. AND <i>clearly applies</i> knowledge of methodology involved in planning this investigation.												
Level 4 7–8 marks	- has all the required features, but only some of these with <u>detail</u>, with some appropriate terminology. AND <i>applies</i> knowledge of methodology involved in planning this investigation.												
Level 3 5–6 marks	- has some of the required features with <u>detail</u> / all of the required features with <u>no detail</u>, and some appropriate terminology. AND <i>applies a basic</i> knowledge of methodology involved in planning this investigation.												
Level 2 3–4 marks	- has at least two of the required features, with little appropriate terminology. AND <i>attempts</i> to use knowledge of methodology involved in planning this investigation.												

PUBLISHED

Question	Answer	Marks	Guidance							
10(a)			<table><tr><th>Level</th><th>The response:</th></tr><tr><td>Level 1 1–2 marks</td><td> - has one of the required features and uses little appropriate terminology. AND - makes a <i>limited attempt</i> to use knowledge of methodology involved in planning this 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>	Level	The response:	Level 1 1–2 marks	- has one of the required features and uses little appropriate terminology. AND - makes a <i>limited attempt</i> to use knowledge of methodology involved in planning this investigation, e.g. may not use the method required by the question.	0 marks	No creditable response.	
Level	The response:									
Level 1 1–2 marks	- has one of the required features and uses little appropriate terminology. AND - makes a <i>limited attempt</i> to use knowledge of methodology involved in planning this investigation, e.g. may not use the method required by the question.									
0 marks	No creditable response.									
10(b)(i)	Explain <u>one</u> advantage of using an independent measures design in this study compared to using a repeated measures design. Do <u>not</u> refer to ethics in your answer. Identification of advantage (can be generic) = 1 explanation (linked) = 1 (no) order effects; (generic advantage) participants only experienced one IV level so would not get bored sleeping at a lab / better at getting to sleep in an unfamiliar place; (link) (fewer) demand characteristics / participants only see one condition so would have less idea about the aim of the study; (generic advantage) If they had dance and art classes, they would guess it would affect sleep so would try to sleep / report better sleep (for one condition); (link)	2	No marks for ethics							

PUBLISHED

Question	Answer	Marks	Guidance
10(b)(ii)	Explain <u>one</u> disadvantage of using an independent measures design in this study compared to using a repeated measures design. Do <u>not</u> refer to ethics in your answer. Identification of disadvantage (can be generic) = 1 explanation (linked) = 1 (higher risk of) participant variables / individual differences; (generic disadvantage) the people in one group may all have been better sleepers anyway; (link) sample size needs to be bigger; (generic disadvantage) so, need to get more people who are willing to report their sleep / start or do different creative activities / stop doing creative activities; (link)	2	No marks for ethics

Cambridge International AS & A Level

PSYCHOLOGY**9990/22**

Paper 2 Research methods

May/June 2025**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 May/June 2025 series for most Cambridge IGCSE, Cambridge International A and AS Level components, and some Cambridge O Level components.

This document consists of **26** printed pages.

PUBLISHED**Generic Marking Principles**

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

GENERIC MARKING PRINCIPLE 1:

Marks must be awarded in line with:

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

GENERIC MARKING PRINCIPLE 2:

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

GENERIC MARKING PRINCIPLE 3:

Marks must be awarded **positively**:

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

GENERIC MARKING PRINCIPLE 4:

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

PUBLISHED**GENERIC MARKING PRINCIPLE 5:**

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

GENERIC MARKING PRINCIPLE 6:

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

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

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

From this it follows that we:

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

2 Presentation of mark scheme:

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

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.

Annotations guidance for centres

Examiners use a system of annotations as a shorthand for communicating their marking decisions to one another. Examiners are trained during the standardisation process on how and when to use annotations. The purpose of annotations is to inform the standardisation and monitoring processes and guide the supervising examiners when they are checking the work of examiners within their team. The meaning of annotations and how they are used is specific to each component and is understood by all examiners who mark the component.

We publish annotations in our mark schemes to help centres understand the annotations they may see on copies of scripts. Note that there may not be a direct correlation between the number of annotations on a script and the mark awarded. Similarly, the use of an annotation may not be an indication of the quality of the response.

The annotations listed below were available to examiners marking this component in this series.

Annotations

Annotation	Meaning
	Correct point
	Incorrect point
	Benefit of doubt
	Repetition (of stem or within response)
	Unclear point
	Generic mark
    	Used to show Level 1, 2, 3, 4, or 5 in the 10-mark planning Q
	Not answering question

Annotation	Meaning
	Acknowledge blank pages
	Something is missing
	Used for each point of description of a required feature in the 10-mark planning Q

PUBLISHED

Question	Answer	Marks	Guidance
1	Explain how the independent variable (IV) was operationalised in the study by Andrade (doodling). IV = 1 Detail = 1 Doodling or no doodling: (IV) [doodling or not = minimum] Whether Ps had paper and pen to doodle on/had paper with doodling shapes on (or not); (detail)	2	doodling and control = 0

Question	Answer	Marks	Guidance
2(a)	In the study by Hassett et al. (monkey toy preferences), some of the data was displayed on graphs. This included a comparison of time spent playing with different types of toys by males and females. Name the type of graph used to display this data. Name = 1 Bar chart/graph [DEFINITIVE]	1	

PUBLISHED

Question	Answer	Marks	Guidance
2(b)	Explain why this graph was a suitable way to display this data. Explanation = 1 Detail or second explanation = 1 • Because male and female are discrete categories • So, you can compare males and females/plush and wheeled toys/data. • Because the vertical/x axis would be males and females/ plush and wheeled toys (explanation); and the horizontal axis/y axis would be the time taken (detail) = 2	2	

Question	Answer	Marks	Guidance
3(a)(i)	In the study by Milgram, two types of data were collected to demonstrate obedience. One example of each type was: • voltage reached when the participant refused to continue • comments from the participants. For the example of ‘voltage reached when the participant refused to continue’: Identify this type of data. Quantitative/objective data = 1 (DEFINITIVE)	1	

PUBLISHED

Question	Answer	Marks	Guidance
3(a)(ii)	State the highest voltage at which all participants obeyed. 300 (v) = 1 [DEFINITIVE] Voltage level of 300 / e.g. obedient was ‘stopping after 300 V’	1	
3(b)(i)	For the example of ‘comments from the participants’ Identify this type of data. Qualitative/subjective data = 1 (definitive)	1	

PUBLISHED

Question	Answer	Marks	Guidance
3(b)(ii)	Outline <u>one</u> of the comments made by a participant in this study. [0124] I think he's trying to communicate, he's knocking. ... Well it's not fair to shock the guy ... these are terrific volts. I don't think this is very humane. ... Oh, I can't go on with this; no, this isn't right. It's a hell of an experiment. The guy is suffering in there. No, I don't want to go on. This is crazy. [Subject refused to administer more shocks.] [0123] He's banging in there. I'm gonna chicken out. I'd like to continue, but I can't do that to a man. ... I'm sorry I can't do that to a man. I'll hurt his heart. You take your check. ... No really, I couldn't do it. behavior. In the post-experimental interviews subjects took pains to point out that they were not sadistic types, and that the laughter did not mean they enjoyed shocking the victim. Example of data from comments = 1 [does not have to be verbatim] • Participants asked if the victim was okay etc; • I think he's trying to communicate; • Well, it's not fair to shock the guy; • Oh, I can't go on with this; • The guy is suffering in there; • No, I don't want to go on; • I'm sorry I cannot do that to a man; • It'll hurt his heart;	1	Repetition of bullet point from question = 0 [REP] Accept as BOD "I don't want to continue anymore' as a variant of ai 'don't want to go on'. The teacher refused to give more shocks = 0 [REP]

PUBLISHED

Question	Answer	Marks	Guidance
3(c)	Suggest <u>one</u> strength for each type of data in this study. Strength of qualitative/quantitative data = 1 <u>Link to the study</u> for qualitative quantitative data = 1 <u>Qualitative</u> - Qualitative data gives a lot of detail / more informative/shows the thoughts/feelings behind their actions; (strength) - Participants showed their emotions in their comments; (link) <u>Quantitative</u> - Quantitative data can be compared/analysed easily/statistically; (strength) - It was easy to see that most Ps stopped at 300 V; (link) - The mode for disobedience was 300 V; (link) - This quantitative data was objective; (strength) - Participants with higher voltages were clearly more obedient; (link)	4	

PUBLISHED

Question	Answer	Marks	Guidance
4	In a study of learning, animals are taught to drop a small object into a hole. Suggest how ‘learning’ could be operationalised in this study. 1 mark for operational definition. Accept full definitions of learning i.e. the process of acquiring of new skills /knowledge/behaviours through experience/being taught. = 1 • Their accuracy of getting the small object in the hole increases; • How many small objects go into the hole on each trial; • How fast they can get (10) small objects into the hole; • How many minutes it takes <i>before</i> they get small objects into the hole;	1	

PUBLISHED

Question	Answer	Marks	Guidance
5	In some studies, scientific equipment is used to measure variables, such as brain activity or eye movements. Suggest <u>two</u> weaknesses of using scientific equipment to measure variables. Weakness = 1 (×2) Detail = 1 (×2) • Validity/distress/harm; (weakness) • People may be scared by the machines/being in an enclosed space/the noises that the machines make (weakness/detail) • So their behaviour may not represent what they would do in real life (detail) • Machine could be faulty without the researcher knowing; (weakness) • This could lower validity if it is not measuring the correct variable; (detail) • this could lower reliability if it is measuring inconsistently; (detail)	4	An example alone is not detail. The detail must explain the weakness. No mark for just term /validity/reliability/demand characteristics

PUBLISHED

Question	Answer	Marks	Guidance
6	Describe order effects, using any example(s). 1 mark for each definition/point of detail, up to a maximum of 2 for either order, fatigue or practice effects. 1 mark for each example, max 2 for either fatigue or practice. Examples can include examples from any studies (core studies, other studies, candidate's own studies). Max 4 if no examples or if only about either fatigue or practice. Only 1 example needed to access 6 marks. Order effects: • are consequences of doing tests/tasks more than once/repeating tasks; (definition) • performance is affected by the sequence in which a task is presented (definition) • this will happen in a repeated measures design; (detail) or in a longitudinal study; (detail) and be controlled through counterbalancing (detail) Fatigue effects: • Performance on a task get worse with repetition; (detail) • Often due to boredom; (detail or embedded example) • It maybe that the participants are tired; (detail or could be an example if embedded) practice effects: • Performance improves when repeating a task; (detail) • such as remembering the correct answers to a test; (example) • such as getting more skilled on a physical task; (example)	6	

PUBLISHED

Question	Answer	Marks	Guidance
6	<u>Study examples</u> • Dement & Kleitman: randomisation of REM and nREM wakings for participant WD so less risk of ‘practise’ effects (example) • Andrade (independent measures but) counterbalancing used to avoid order effects between the names and places tests; (example) • Perry: rep measures repetitions in Expt 1/ Expt 2 (choosing rooms: distance between chairs etc) (example); • Hölzel: Rep measures - before and after eight-week MBSR intervention – risk of order effects on FFMQ; (example) • Pozzulo: randomized the position of the target in photos between participants so reduced order effects/order of video clips varied to reduce order effects (counterbalancing)		

PUBLISHED

Question	Answer	Marks	Guidance
7(a)(i)	Inma is observing one student at a time in the playground, to investigate how often each individual talks to other students. Inma is concerned about two uncontrolled variables: a student being observed when few other students are present a student with a headache may talk less. Explain which <u>one</u> of these is a participant variable. 1 mark for explanation (no mark for identification) <u>(Having a headache might make students talk less)</u> because a headache is internal / each individual is different / individual differences / their body state matters; (explanation)	1	Because having a headache might make them appear less friendly = 0 [NAQ]

PUBLISHED

Question	Answer	Marks	Guidance
7(a)(ii)	Suggest how Inma could limit the effect of the participant variable. 1 mark for suggestion (can be solved by mitigation or elimination) 1 mark for detail Accept 2 brief ways for 2 marks (but must both be for the same variable) <u>Participant variable: headache</u> • Do more than one observation of each person; (suggestion) To make sure the data is representative of each student; (detail) • Ask students about their health before/after the observation; (suggestion) and remove them from the sample if they were unwell; (detail) • Observe them after they've had treatment for their headache (suggestion) To ensure that the results obtained are representative of their true behaviour (detail)	2	
7(b)(i)	Explain which <u>one</u> of these is a situational variable. 1 mark for explanation (<u>no mark for identification</u>) <u>(Being observed when there are few students around)</u> • because this is something external / in the environment (explanation)	1	

PUBLISHED

Question	Answer	Marks	Guidance
7(b)(ii)	Suggest how Inma could limit the effect of the situational variable. 1 mark for suggestion (can be solved by mitigation or elimination) 1 mark for detail Accept 2 brief ways for 2 marks (but must both be for the same variable) <u>Situational variable: few students around</u> • Limit the effect by collecting data when lots of students; (suggestion) e.g. when there are more than 50 students in the room; (detail) e.g. by using the end of lunchtime when the students have eaten so are in the common room; (detail) • Record in the corridor or playground; (suggestion) Because they are always crowded; (detail)	2	

PUBLISHED

Question	Answer	Marks	Guidance
7(c)(i)	Inma is also concerned about the effect of social desirability on her results. Suggest <u>one</u> way that social desirability could affect Inma's results. 1 mark for identification of a possible source of social desirability in this study (generic or linked) 1 mark for effect on results (linked) <u>Identification</u> • The participants might become aware of the aim; (generic identification) • The participants might become aware of the aim from Inma only recording when the person talks; (linked identification) • The participants may want to look good/have a positive reaction and so change their behaviour (generic identification) <u>Linked effect on results</u> • This could lead them to talk more / less; (linked effect on results) • They might want to exaggerate the amount they talk; (linked effect on results)	2	

PUBLISHED

Question	Answer	Marks	Guidance
7(c)(ii)	Suggest how Inma might reduce the effect of social desirability on her results. 1 mark for identification of a way to reduce social desirability (generic) 1 mark for detailed link Accept 2 brief ways for 2 marks (still need to be linked in some way) • Hide the aim of the study; (generic) E.g. say they were observing studying; (linked detail) So, it is not obvious that it is a study about talking; (linked detail) • Making herself a covert observer; (generic) E.g. by pretending to be a new student / a cleaner; (linked detail)	2	

Question	Answer	Marks	Guidance
8(a)(i)	Kong is interviewing people about friendliness. He tells his participants his study is about how they spend their free time. Kong uses two measures of friendliness: • timing the duration of eye contact between himself and each participant • asking the question ‘Are you excited or scared at parties?’. State which measure of central tendency Kong should use to analyse his data from timing the duration of eye contact. 1 mark for stating mean (definitive)	1	

PUBLISHED

Question	Answer	Marks	Guidance
8(a)(ii)	State which measure of central tendency Kong should use to analyse his data from asking participants ‘Are you excited or scared at parties?’. 1 mark for stating mode (definitive)	1	
8(b)(i)	Kong’s friend says that both of his measures of friendliness could be unethical, but for different reasons. Explain <u>one</u> reason why timing the duration of eye contact could break <u>one</u> ethical guideline. 1 mark for identifying a reason, e.g. guideline 1 mark for linked detail related to the guideline. • Consent; (guideline) Kong said it was a study on free time and it isn’t; (link) • Consent/deception (guideline) The participants would be aware that they were answering questions but would be unaware that they were being timed; (link) • Protection from harm (guideline) The experimenter <i>making</i> eye contact and seeing how long it is maintained may make the participant feel uncomfortable (link)	2	Accept any other reasonable applications

PUBLISHED

Question	Answer	Marks	Guidance
8(b)(ii)	Explain <u>one</u> reason why asking participants ‘Are you excited or scared at parties?’ could break <u>one</u> ethical guideline. You <u>must</u> use a different ethical guideline from your answer to part (b)(i). 1 mark for identifying a different reason from b(i), e.g. guideline but okay to explain the issue not state it 1 mark for <u>linked detail related to the guideline.</u> • Protection from harm; (guideline) Shy participants might find the question of whether they are scared embarrassing; (link) • Privacy; (guideline) They might believe their partying habits were too personal; (link) • Consent/deception; (guideline) Kong said it was a study on free time, and it isn't; (link)	2	Accept any other reasonable applications
8(c)	Kong will use opportunity sampling. Outline what is meant by ‘opportunity sampling’, using Kong’s study as an example. 1 mark for outline of opportunity sampling 1 mark for linked example (naming Kong is enough) <u>Outline</u> • Opportunity sampling is finding participants who are available; (outline) • Gathering nearby participants / by convenience; (outline) <u>Linked example</u> • Kong could approach people in the street / at his school/at a park; (linked example)	2	

PUBLISHED

Question	Answer	Marks	Guidance
9(a)	Dr Shaw is planning a questionnaire about early childhood memories. There are <u>two</u> techniques for presenting a questionnaire to participants. Identify the <u>two</u> techniques. 1 mark for identifying ×2 (definitive) - Paper and pencil (accept 'written') - Online (accept 'by computer')	2	
9(b)	For <u>one</u> of the questionnaire techniques that you identified in part (a): Suggest <u>one</u> reason why this would be appropriate for Dr Shaw to use. 1 mark for reason suggested 1 mark for detail (<u>linked</u>) <i>Paper & pencil:</i> - May feel more private; (reason) - Some childhood memories may be unpleasant; (linked detail) <i>Online:</i> - Participants don't have to bother to send it back/can sent it out to a wider sample of people; (reason) - So would get a more representative set of results about childhood memories; (linked detail)	2	

Question	Answer	Marks	Guidance										
10(a)	Dr Brent works in a busy hospital. There are noises from equipment and people on the wards. He thinks there might be a link between two variables: • how noisy wards are • the quality of patients’ sleep. Describe how Dr Brent could conduct a study to investigate whether there is a correlation between how noisy wards are and the quality of patients’ sleep. Do <u>not</u> describe sample/sampling technique or ethical issues/guidelines in your answer. To mark Q10a, create four ‘imaginary columns’ down one margin, using one column for each of the four required features. Tick each feature (tick-a, tick-b, tick-c, tick-d) when it appears, then underline the letter () for detail. Use L1, L2, L3, L4, L5 at the end of the response to indicate the level. Use the table opposite to mark candidate responses to this question. The four required features for this correlational study are: (a) two co-variables (quality of sleep & level of noise on wards). (b) measure of variable 1 (sleep quality – how measured i.e. questionnaire (scale)/EEG (time or stages)/interview (rating) (c) measure of variable 2 (noise on wards – how recorded i.e. decibel counter/questionnaire/rating scale). (d) nature of relationship (positive/negative, strong/weak linked to variables) and how could be presented (scattergraph) Other appropriate responses should also be credited	10	<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 • <i>clearly applies</i> knowledge of methodology involved in planning this 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 • <i>applies</i> knowledge of methodology involved in planning this 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 no detail, and some appropriate terminology. AND • <i>applies a basic</i> knowledge of methodology involved in planning this 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 • <i>attempts</i> to use knowledge of methodology involved in planning this investigation. </td></tr></table>	Level	The response:	Level 5 9–10 marks	• has all the required features, all with <u>detail</u>, with mostly appropriate terminology. AND • <i>clearly applies</i> knowledge of methodology involved in planning this investigation.	Level 4 7–8 marks	• has all the required features, but only some of these with <u>detail</u>, with some appropriate terminology. AND • <i>applies</i> knowledge of methodology involved in planning this investigation.	Level 3 5–6 marks	• has some of the required features with <u>detail</u> / all of the required features with no detail, and some appropriate terminology. AND • <i>applies a basic</i> knowledge of methodology involved in planning this investigation.	Level 2 3–4 marks	• has at least two of the required features, with little appropriate terminology. AND • <i>attempts</i> to use knowledge of methodology involved in planning this investigation.
Level	The response:												
Level 5 9–10 marks	• has all the required features, all with <u>detail</u>, with mostly appropriate terminology. AND • <i>clearly applies</i> knowledge of methodology involved in planning this investigation.												
Level 4 7–8 marks	• has all the required features, but only some of these with <u>detail</u>, with some appropriate terminology. AND • <i>applies</i> knowledge of methodology involved in planning this investigation.												
Level 3 5–6 marks	• has some of the required features with <u>detail</u> / all of the required features with no detail, and some appropriate terminology. AND • <i>applies a basic</i> knowledge of methodology involved in planning this investigation.												
Level 2 3–4 marks	• has at least two of the required features, with little appropriate terminology. AND • <i>attempts</i> to use knowledge of methodology involved in planning this investigation.												

PUBLISHED

Question	Answer	Marks	Guidance							
10(a)			<table><tr><th>Level</th><th>The response:</th></tr><tr><td>Level 1 1–2 marks</td><td> - has one of the required features and uses little appropriate terminology. AND - makes a <i>limited attempt</i> to use knowledge of methodology involved in planning this 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>	Level	The response:	Level 1 1–2 marks	- has one of the required features and uses little appropriate terminology. AND - makes a <i>limited attempt</i> to use knowledge of methodology involved in planning this investigation, e.g. may not use the method required by the question.	0 marks	No creditable response.	
Level	The response:									
Level 1 1–2 marks	- has one of the required features and uses little appropriate terminology. AND - makes a <i>limited attempt</i> to use knowledge of methodology involved in planning this investigation, e.g. may not use the method required by the question.									
0 marks	No creditable response.									
10(b)	For <u>one</u> of the variables you have described in part (a): Explain <u>one</u> practical strength and <u>one</u> practical limitation in relation to this variable. Identification of strength = 1 explanation (generic or linked) = 1 Part of procedure may relate to: - operationalisation - situational / participant variables Accept other practical strengths Identification of limitation = 1 explanation (generic or linked) = 1 Part of procedure may relate to: - operationalisation - situational / participant variables Accept other practical limitations	4	If strength and limitation are about different variables, only one gains credit. Mark both and credit the best.							

Cambridge International AS & A Level

PSYCHOLOGY**9990/23**

Paper 2 Research methods

May/June 2025**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 May/June 2025 series for most Cambridge IGCSE, Cambridge International A and AS Level components, and some Cambridge O Level components.

This document consists of **27** printed pages.

PUBLISHED**Generic Marking Principles**

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

GENERIC MARKING PRINCIPLE 1:

Marks must be awarded in line with:

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

GENERIC MARKING PRINCIPLE 2:

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

GENERIC MARKING PRINCIPLE 3:

Marks must be awarded **positively**:

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

GENERIC MARKING PRINCIPLE 4:

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

PUBLISHED**GENERIC MARKING PRINCIPLE 5:**

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

GENERIC MARKING PRINCIPLE 6:

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

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

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

From this it follows that we:

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

2 Presentation of mark scheme:

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

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.

Annotations guidance for centres

Examiners use a system of annotations as a shorthand for communicating their marking decisions to one another. Examiners are trained during the standardisation process on how and when to use annotations. The purpose of annotations is to inform the standardisation and monitoring processes and guide the supervising examiners when they are checking the work of examiners within their team. The meaning of annotations and how they are used is specific to each component and is understood by all examiners who mark the component.

We publish annotations in our mark schemes to help centres understand the annotations they may see on copies of scripts. Note that there may not be a direct correlation between the number of annotations on a script and the mark awarded. Similarly, the use of an annotation may not be an indication of the quality of the response.

The annotations listed below were available to examiners marking this component in this series.

Annotations

Annotation	Meaning
	Correct point
	Incorrect point
	Benefit of doubt
	Repetition (of stem or within response)
	Unclear point
	Generic mark
    	Used to show Level 1, 2, 3, 4, or 5 in the 10-mark planning Q
	Not answering question

Annotation	Meaning
	Acknowledge blank pages
	Something is missing
   	Used for each point of description of a required feature in the 10-mark planning Q

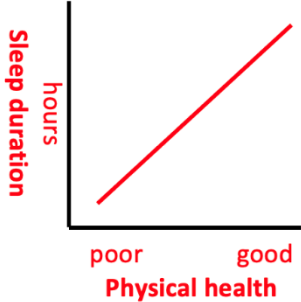
PUBLISHED

Question	Answer	Marks	Guidance
1(a)	Outline the ethical guideline of ‘confidentiality’. Outline = 1 • Keeping the identity of the participant a secret; • Not revealing who the participants were; • Keeping data secure from people not part of the study.	1	
1(b)	Explain <u>one</u> way that the ethical guideline of confidentiality was followed in the study by Dement and Kleitman (sleep and dreams). Generic explanation = 1 Linked explanation = 2 • The names of the participants were not published =1 (generic) • The participants’ names were replaced by their <u>initials</u> = 2 • Only the Ps’ <u>genders/occupations</u> were known (so they couldn’t be identified) = 2	2	

PUBLISHED

Question	Answer	Marks	Guidance
2(a)	Cognitive psychologists sometimes study people's recall of past events. Outline what is meant by 'subjectivity'. Outline = 1 • Seeing things from your own perspective; • Being unable to take on external viewpoint; • That your interpretation of behaviour is influenced by your own/personal bias.	1	'not being objective' / 'lacking objectivity' = 0 [NAQ]
2(b)	Suggest how subjectivity could be a problem when studying people's recall of past events. Suggestion of problem = 1 Detail = 1 Suggestion • Participants recall could be distorted (over time); • Events in between could interfere with memories; • New memories could overwrite old ones; • A bad event later might affect the way an early memory is remembered; (problem) • The researcher may have a memory of the same event Detail • So, two people might recall the same event differently; (deal) • Which may mean they interpret the information given differently to what the participant meant (detail)	2	

PUBLISHED

Question	Answer	Marks	Guidance
3(a)	A study tested the relationship between average number of hours of sleep per night and physical health. The participants slept in their own homes. The results showed a positive correlation. Sketch a graph to show the results of this study. You <u>must</u> label the axes.  2 axes with sleep and physical health (either way) = 1 positive correlation (line or points) = 1 'Hours' marked on the sleep axis = 1 Scale for health (words or numbers) = 1	3	

PUBLISHED

Question	Answer	Marks	Guidance
3(b)	Suggest <u>two</u> problems with collecting data about the number of hours of sleep in this study. Suggestion = 1 (×2) Link = 1 (×2) • Participants may lie; (suggestion) • They may feel they have to say they have slept a long time; (link) • Their sleep may be disturbed; (suggestion) E.g. by dogs/children at home; (link) • The environment they sleep in can't be controlled; (suggestion) E.g. how dark/noisy the (bed)room is; (link)	4	

PUBLISHED

Question	Answer	Marks	Guidance
4	An investigation is testing the hypothesis ‘Intelligence affects obedience’. State whether this is a directional or a non-directional hypothesis. Justify your answer. NO mark for ‘non-directional’/two-tailed (it is for justification) Justification = 1 (generic or specific) Link = 1 <i>(Non-directional because:) </i> • It only says that the results (DV) in the two conditions/ levels of the IV will be different; (generic justification =1) • As it only says the levels of obedience (DV) will be different based on the levels of intelligence (IV) (linked justification = 2) • The difference in obedience varies / differs with intelligence; (linked justification = 2)	2	

PUBLISHED

Question	Answer	Marks	Guidance
5	In the study by Bandura et al. (aggression) a sample of children was recruited from a university nursery. The sampling technique is not stated. Suggest why Bandura et al. may <u>not</u> have used volunteer sampling. Suggestion (of problem) = 1 Link = 1 • Bias/ lack of generalisability; = 1 (generic) • An aggressive child's parent may have been too embarrassed to let their child take part; (linked problem) = 2 • Parents of non-aggressive children might have been too worried about consequences to let them take part = 2 (linked problem)	2	

PUBLISHED

Question	Answer	Marks	Guidance
6	Describe structured interviews and semi-structured interviews, using any example(s). 1 mark for each definition/point of detail, up to a maximum of 2 for each term/concept. 1 mark for each example, max 2 for each term/concept. Examples can include examples from any studies (core studies, other studies, candidate's own studies). Max 4 if no examples or if only about one term/concept. Only 1 example needed to access 6 marks. Interviews • self-report / a way to ask the participant questions; • face-to-face/ telephone/ real time; • can include open and closed questions; (no 'example' marks for open and closed) structured: • interview follows set questions/a script; • may also have set dress; • same tone of voice to standardise the interviewer; semi-structured: • interviews follow some questions the same; • the interviewer can add follow up questions based on the participant's responses;	6	

PUBLISHED

Question	Answer	Marks	Guidance
6	Examples • Dement & Kleitman asked all Ps whether they had had a dream but sometimes asked them more questions about each dream; • Saavedra and Silverman used interviews at the 6 and 12 month follow up period to ask about progress (general interview example) • Milgram conducted interviews one year after the study had finished to see how the participants felt about the study.		

PUBLISHED

Question	Answer	Marks	Guidance
7(a)	Dr Jones is conducting a case study of a man, Kevan, who has been practising mindfulness for 10 years. Suggest <u>two</u> questions that Dr Jones could use in a self-report (questionnaire or interview) that would investigate different features of Kevan's mindfulness. Question relevant to mindfulness (×2) Can be open or closed • Describe how you have learned mindfulness; • Tick each of the following that you have done to help with mindfulness: body scan, yoga, sitting meditation; • Why do you think you find it so easy to enter a mindful state? • How easy do you think you find it to enter a mindful state 0 (not at all easy) to 5 (very easy); • How often do you practice mindfulness? • What do you think is the most important part of your mindfulness. routine	2	Accept questions from FFMQ

PUBLISHED

Question	Answer	Marks	Guidance
7(b)(i)	Dr Jones wants to investigate whether Kevan has changed in any other ways that could be linked to his mindfulness. He plans to interview Kevan's friends. Suggest <u>two</u> changes in Kevan that his friends could observe. These changes <u>must</u> be behavioural, emotional or cognitive. Change = 1 ×2 • Changes in his sleep/eating; (eating more/less, sleeping better, less tired) • Differences in sociability; (more friendly, happier) • Behaviour at work; (happier at work, more efficient at work, more motivated)	2	
7(b)(ii)	Explain why <u>one</u> of the changes that you suggested in part (b)(i) would be difficult to investigate. Explanation = 1 Detail = 1 • It would be difficult for friends to observe sleep (explanation) • As they usually do not live together and therefore would not see it regularly; (detail) • Friends could only observe behaviour outside of work (explanation) • So they wouldn't be able to observe whether he is more motivated at work/for work behaviour they would have to ask not observe (detail) • Friends would find it difficult to observe such changes as kindness (explanation) • As what one friend classes as kindness another wouldn't; (detail)	2	

PUBLISHED

Question	Answer	Marks	Guidance
7(c)(i)	Dr Jones has several different questions on his self-report that he has used repeatedly with similar case. He has identified two problems: Problem 1 – When he studies the responses to one item, he discovers that there are several different ways to interpret the answers. Problem 2 – He is concerned that another item, which was supposed to measure mindfulness, is measuring happiness instead Explain which problem relates to reliability. Explanation of why the problem relates to reliability = 1 (generic or specific) NO mark for 'Item or identification of Problem 1/differences in responses only. Item 1/differences in responses) - because (interpretation) not consistent; (justification)	1	Ignore comments that the <u>participant</u> is not consistent
7(c)(ii)	Explain which problem relates to validity. Explanation of why problem relates to validity = 1 (generic or specific) NO mark for 'Item or Problem 2/measuring happiness' Item 2/measuring happiness <u>because</u> not testing what it claims to; (justification) - Item 1 - because the inconsistencies mean Dr Jones can't be sure that any of the interpretations are true/correct	1	

PUBLISHED

Question	Answer	Marks	Guidance
8(a)	Dr Mohan has proposed a study using monkeys in a laboratory. A colleague has two suggestions to make the study more ethical: • suggestion 1: using animals which have less complex brains • suggestion 2: using videos of the animals' behaviour in the natural habitat. Explain why suggestion 1 would make Dr Mohan's study more ethical. Explanation (e.g. generic, based on guideline) = 1 Detail = 1 • Species (guideline) • Simpler animals will experience less distress; (detail) • Distress (guideline) • Simpler animals will suffer less / be less distressed; (detail)	2	
8(b)	Explain why suggestion 2 would make Dr Mohan's study more ethical. Explanation (e.g. generic, based on guideline) = 1 Detail = 1 Replacement (guideline); • Using (undisturbed) wild animals will avoid use in labs; (explanation/detail) • (undisturbed) wild animals will be less distressed than captive ones; (detail) Distress (guideline); • Wild animals will suffer less / be less distressed than captive ones; (detail)	2	

PUBLISHED

Question	Answer	Marks	Guidance
9(a)	Kioni is conducting a longitudinal study. Her aim is to study changes in personal space throughout her participants' lives. Kioni is deciding how frequently throughout her participants' lives she should test them. Suggest a suitable frequency for Kioni to use to test her participants throughout their lives. Frequency = 1 Must give at least 3 measures over an average lifespan Must not be more frequent than yearly Each year; Every two years from 15 – 40; At 10, 20, 30, etc;	1	
9(b)	Suggest <u>one</u> way for Kioni to re-contact her participants each time she needs to test them. Appropriate way to contact = 1 Link/detail = 1 - Email (way) to ask if they still want to be part of the study on personal space (link) - Phone (way) to say she would like their personal space to be tested again (link) and ask them about their personal space preferences (link) - Set up a group chat for the study and send a message (way) To say their yearly test on personal space is due (link)	2	

PUBLISHED

Question	Answer	Marks	Guidance
9(c)(i)	Describe <u>one</u> way that Kioni could measure personal space. Basic/incomplete outline of way = 1 Detailed/complete outline of way = 2 e.g. one of three from Perry <i>Original paper-and-pencil CID:</i> • Participants circled on paper where they would want a person approaching to stop = 1 • Participants imagined themselves in a room, and would draw a circle/line where they wanted an approaching person to stop – 2 <i>computerised CID:</i> • When figure approaches, they press spacebar when they want them to stop = 1 • Pp in centre of (virtual) 'room' and a figure approaches them from different entrances, and they press a spacebar to say when they would want them to stop =2 <i>room choice test:</i> • Participants will choose between rooms with chairs at different distances = 1 • Participants can be shown images of rooms with chairs at different distances and would choose which one they would use to (allegedly) talk to a person.	2	

PUBLISHED

Question	Answer	Marks	Guidance
9(c)(ii)	For the way that you described in part (ci): Suggest one strength of measuring personal space in this way. Strength = 1 Detail = 1 <i>Original paper-and-pencil CID:</i> • Simple to use; (strength) • So can easily gather a large therefore representative sample; <i>computerised CID:</i> • High ecological validity; (strength) • Because static / real people move / we approach people in space; <i>room choice test:</i> • Low social desirability / demand characteristics; • Because distance decision is embedded in other tasks;	2	

PUBLISHED

Question	Answer	Marks	Guidance
9(d)(i)	Kioni is concerned that there may be variables other than age that could affect an individual's personal space preferences. Suggest <u>two</u> variables that could affect an individual's personal space, other than age and gender. Variable affecting personal space (x2) • Culture; • Number of siblings; • Mental health; • Past experiences • Personality (extrovert/introvert/empathy)	2	Age / gender = 0 [NAQ]

PUBLISHED

Question	Answer	Marks	Guidance
9(d)(ii)	For <u>one</u> of the variables that you suggested in part (di): Suggest how this variable could affect an individual's personal space. Effect of variable on personal space = 1 Detail = 1 Culture: • Being close is less/more acceptable in some cultures; (effect) e.g. (From Beaulieu 2006) Anglo-Saxons> Asians> Caucasians> Mediterranean's> Latinos; (detail) Number of siblings: • People with siblings are used to being close to people; (effect) So would tolerate smaller personal spaces; (detail) Mental health: • Some disorders make closeness more easy/difficult; (effect) e.g. some people with Down's syndrome accept closer contact; (detail) e.g. some people with autism find close contact difficult; (detail)	2	

Question	Answer	Marks	Guidance											
10(a)	Isla is a teacher. She thinks that allowing students to play with an object in class will improve attention. Isla is unsure whether it will be better to play with a pen or play with a different object that is not used for writing. Describe how Isla could conduct an experiment to test whether attention is better with a pen or an object that is not used for writing. Do <u>not</u> describe sample/sampling technique or ethical issues/guidelines in your answer. To mark Q10a, create four ‘imaginary columns’ down one margin, using one column for each of the four required features. Tick each feature (tick-a, tick-b, tick-c, tick-d) when it appears, then underline the letter (<u>✓_a</u>) for detail. Use L1, L2, L3, L4, L5 at the end of the response to indicate the level. Use the table opposite to mark candidate responses to this question. The four required features for this experiment are: (a) independent variable: (different objects: pen and e.g. key ring, elastic bands – consider match of second object to ‘pen’ – is it ‘playable with’?) (b) dependent variable: (attention: operationalisation – in a <i>lesson</i>; scores on test) (c) controls/standardisation; (classroom, lesson – e.g. interest, length etc. At least two) (d) experimental design: (repeated – counterbalancing? or independent measures - how allocated?) Other appropriate responses should also be credited.	10	<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 <i>clearly applies</i> 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 <i>applies</i> 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 detail</u>, and some appropriate terminology. - AND <i>applies a basic</i> 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 <i>attempts</i> to use knowledge of methodology involved in planning an investigation. </td></tr></table>	Level	The response:	Level 5 9–10 marks	- has all the required features, all with <u>detail</u>, with mostly appropriate terminology. - AND <i>clearly applies</i> knowledge of methodology involved in planning an investigation.	Level 4 7–8 marks	- has all the required features, but only some of these with <u>detail</u>, with some appropriate terminology. - AND <i>applies</i> knowledge of methodology involved in planning an investigation.	Level 3 5–6 marks	- has some of the required features with <u>detail</u> / all of the required features with <u>no detail</u>, and some appropriate terminology. - AND <i>applies a basic</i> knowledge of methodology involved in planning an investigation.	Level 2 3–4 marks	- has at least two of the required features, with little appropriate terminology. - AND <i>attempts</i> to use knowledge of methodology involved in planning an investigation.	
Level	The response:													
Level 5 9–10 marks	- has all the required features, all with <u>detail</u>, with mostly appropriate terminology. - AND <i>clearly applies</i> knowledge of methodology involved in planning an investigation.													
Level 4 7–8 marks	- has all the required features, but only some of these with <u>detail</u>, with some appropriate terminology. - AND <i>applies</i> knowledge of methodology involved in planning an investigation.													
Level 3 5–6 marks	- has some of the required features with <u>detail</u> / all of the required features with <u>no detail</u>, and some appropriate terminology. - AND <i>applies a basic</i> knowledge of methodology involved in planning an investigation.													
Level 2 3–4 marks	- has at least two of the required features, with little appropriate terminology. - AND <i>attempts</i> to use knowledge of methodology involved in planning an investigation.													

PUBLISHED

Question	Answer	Marks	Guidance						
10(a)			<table><tr><th>Level</th><th>The response:</th></tr><tr><td>Level 1 1–2 marks</td><td> - has one of the required features and uses little appropriate terminology. AND - makes a <i>limited attempt</i> to use knowledge of methodology involved in planning an investigation, e.g. may not use the method required by the question. </td></tr><tr><td>0 marks</td><td>No creditable response.</td></tr></table>	Level	The response:	Level 1 1–2 marks	- has one of the required features and uses little appropriate terminology. AND - makes a <i>limited attempt</i> to use knowledge of methodology involved in planning an investigation, e.g. may not use the method required by the question.	0 marks	No creditable response.
Level	The response:								
Level 1 1–2 marks	- has one of the required features and uses little appropriate terminology. AND - makes a <i>limited attempt</i> to use knowledge of methodology involved in planning an investigation, e.g. may not use the method required by the question.								
0 marks	No creditable response.								
10(b)(i)	For <u>one</u> feature of the experiment you have described in part <u>(a)</u>: Explain why that feature is a strength of the study. Do <u>not</u> refer to sampling or ethics in your answer. Identification of = 1 explanation (generic or linked) = 1 Part of procedure may relate to: - operationalisation - situational / participant variables factors - controls - design / counterbalancing Accept other strengths	2	No marks for: ethics or sampling technique If (bi) and (bii) are about different features, only one gains credit. Mark both and credit the best.						

PUBLISHED

Question	Answer	Marks	Guidance
10(b)(ii)	Explain how that feature could be a weakness of the study. Do <u>not</u> refer to sampling or ethics in your answer. Identification of = 1 explanation (generic or linked) = 1 Part of procedure may relate to: • operationalisation • situational / participant variables factors • controls • design / counterbalancing Accept other weaknesses	2	No marks for: ethics or sampling technique If (b)(i) and (b)(ii) are about different features, only one gains credit. Mark both and credit the best.