OCR
Oxford Cambridge and RSA

Sample Question Paper

AS Level Psychology

H169/01 Research methods

Time allowed: 1 hour 30 minutes

You must have:
• a scientific or graphical calculator

Please write clearly in black ink. **Do not write in the barcodes.**

Centre number ☐☐☐☐☐   Candidate number ☐☐☐☐

First name(s) _____

Last name _____

INSTRUCTIONS
• Use black ink. You can use an HB pencil, but only for graphs and diagrams.
• Write your answer to each question in the space provided. If you need extra space use the lined pages at the end of this booklet. The question numbers must be clearly shown.
• Answer **all** the questions.

INFORMATION
• The total mark for this paper is **56**.
• The marks for each question are shown in brackets **[ ]**.
• This document has **16** pages.

ADVICE
• Read each question carefully before you start your answer.

Section A

Multiple Choice

For each question, put the letter of the correct answer in the box provided.

1   Which of the following is a null hypothesis?

A   'Extroverted people will perform significantly better in front of an audience than introverted people.'

B   'There will be a significant difference between the performance of extroverted and introverted people when in front of an audience.'

C   'There will be a significant negative correlation between how introverted people are and how well they perform in front of an audience.'

D   'There will be no significant difference between extroverted and introverted people in terms of how well they perform in front of an audience.'

Your answer   **[1]**

2   Which of these is correct when the result of an inferential statistical test is $p < 0.05$?

A   accept both the alternative and null hypotheses

B   reject both the alternative and null hypotheses

C   reject the alternative hypothesis

D   reject the null hypothesis

Your answer   **[1]**

3   Which of the following is a strength of using a questionnaire to carry out psychological research?

A   data is always reliable

B   high response rates are guaranteed

C   respondents are unable to lie in their answers

D   responses can be compared to identify patterns in data

Your answer   **[1]**

4 Look at the pie chart below.

Pie chart to show the distributions of infant attachment types in a sample of divorced adults
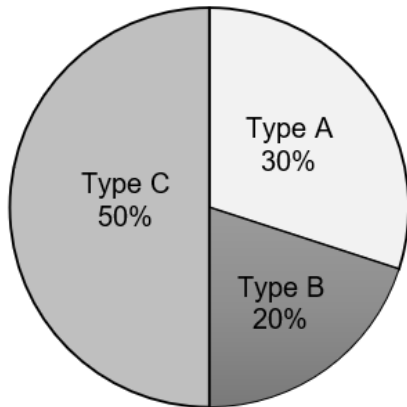
What fraction of divorced adults had a Type B attachment?

A $\frac{1}{5}$

B $\frac{3}{10}$

C $\frac{2}{5}$

D $\frac{1}{2}$

Your answer ☐ **[1]**

5 What is a weakness of using an overt observation in psychological research?

A high risk of observer effect

B low levels of ecological validity

C poor generalisability to population

D reduced inter-rater reliability

Your answer ☐ **[1]**

6 The table shows the results from research using four different tests. The same participants completed all tests twice (at Time 1 and Time 2) with the same interval between both tests. All tests were scored out of 100.

Test	Mean score from Time 1	Mean score from Time 2
Test 1	99.7	90.2
Test 2	27.5	24.6
Test 3	25.3	30.3
Test 4	27.9	89.2

Using the data in the table, which test has the highest level of external (test-retest) reliability?

A Test 1

B Test 2

C Test 3

D Test 4

Your answer [   ]   **[1]**

7 Which of the following is a random sample?

A where a researcher recruits someone, who then recruits someone else, and so on

B where anyone who is freely available at the time is chosen to participate

C where everyone in the target population has an equal chance of being selected

D where some form of system is used, such as selecting every third person from a list

Your answer [   ]   **[1]**

8 Which of the following is always included in an academic reference?

A date of publication

B location of research

C method used in the research

D participants used in the research

Your answer [   ]   **[1]**

9 Which of the following is a type of observation in psychological research?

    A   participant

    B   population

    C   practical

    D   principal

Your answer ☐   **[1]**

10 Look at the following scatter diagram.

A graph to show the relationship between empathy scores and leadership scores
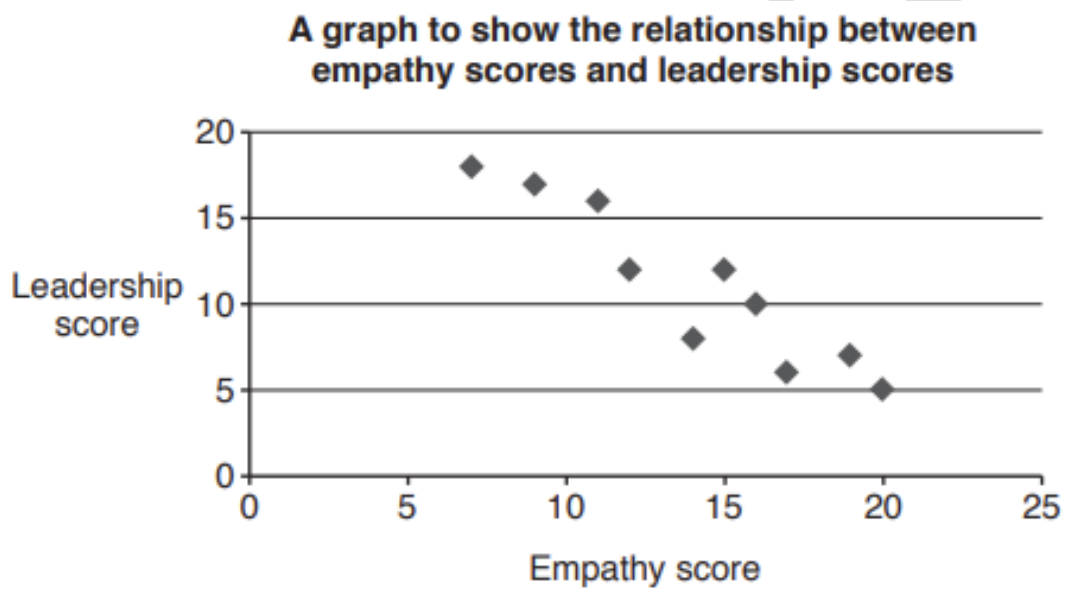
Which of the following is the best estimate of the correlation coefficient for the above data?

    A   -0.8

    B   -0.2

    C   +0.2

    D   +0.8

Your answer ☐   **[1]**

Section B

Research design and response

A psychologist was interested in the relationship between individuals' language ability and their physical co-ordination. She used a correlational analysis to investigate this in a self-selected sample of 34 adult participants.

Each participant completed a language ability test. This test involved both having to spell a list of 20 words and answering 20 closed questions on the meaning of words. The participants' physical co-ordination was then calculated by rating them on a scale across six different tasks including balancing on a beam, catching a ball and copying a dance routine.

11 Explain why the data collected in this investigation is an example of quantitative data.

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....**[3]**

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(a) Explain **one** strength of using a self-selected sample in this investigation.

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(b) Explain **one** weakness of using a self-selected sample in this investigation.

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....**[3]**

13 Suggest how confidentiality could have been dealt with in this investigation.

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....**[2]**

14 Explain why the data from the language ability test may be criticised for lacking construct validity.

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....**[3]**

15 Explain how you would carry out a follow-up investigation using the experimental method to investigate if there is a difference in the language ability of people when they are carrying out a physical task and when they are not.

You **must** refer to the following required features in your answer:

- the experimental design you would use
- how you would operationalise the dependent variable to obtain quantitative data
- how you would attempt to reduce the influence of one extraneous variable.

Justify the decisions you have made for each required feature as part of your explanation.

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 Turn over

Section C

Data analysis and interpretation

A psychologist conducted an observation to investigate how people react when walking towards each other along a corridor in a building where lots of different office staff work. To do this, she asked for permission to set up hidden cameras for a day to record people's encounters along one of the main corridors connecting one part of the building to another. The results from the investigation are shown in the table below.

Table 1: Different behaviours observed as two people approach each other in a corridor.

Avoids eye contact	Smiles	Says hello	Makes eye contact	Nods	Total
80	48	40	24	8	200

16 This investigation is an example of a structured observation.
Outline what is meant by a structured observation.

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....**[2]**

17 Identify the level of data that was obtained in this investigation.

....**[1]**

18 Calculate the ratio of the number of times people avoided eye contact to the number of times people smiled.

Express your answer in its simplest form.

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....**[2]**

19 Sketch a pie chart to show the data collected in this investigation.

[4]

20 Outline **two** conclusions that can be made from the data collected in this investigation.

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(a) In a follow-up investigation conducted a month later, the researcher recorded a total of 310 behaviours using the same categories as before. 125 of the recorded behaviours were classified as 'avoids eye contact'.

What percentage of the total number of behaviours recorded in this follow-up investigation were classified as 'avoids eye contact'?

Express your answer to two significant figures.
Show your workings.

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....**[2]**

(b) Tick (✓) the box below that represents the type of data collected in this study. **[1]**

Primary, quantitative data	Primary, qualitative data	Secondary, quantitative data	Secondary, qualitative data
☐	☐	☐	☐

22 Outline what is meant by a covert observation.

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....**[2]**

END OF QUESTION PAPER

ADDITIONAL ANSWER SPACE

If additional space is required, you should use the following lined page(s). The question number(s) must be clearly shown in the margin(s).

BLANK PAGE

OCR
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Sample Mark Scheme

AS Level Psychology H169/01 Research methods

MARK SCHEME

Duration: 1 hour 30 minutes

MAXIMUM MARK 56

Version: **Sample**

This document has 13 pages

MARKING INSTRUCTIONS

PREPARATION FOR MARKING

MARKING

1. Mark strictly to the mark scheme.

2. Marks awarded must relate directly to the marking criteria.

3. **Crossed Out Responses**
Where a candidate has crossed out a response and provided a clear alternative then the crossed-out response is not marked. Where no alternative response has been provided, examiners may give candidates the benefit of the doubt and mark the crossed-out response where legible.

   Rubric Error Responses – Optional Questions
Where candidates have a choice of question across a whole paper or a whole section and have provided more answers than required, then all responses are marked and the highest mark allowable within the rubric is given. Select the highest mark from those awarded. *(The underlying assumption is that the candidate has penalised themselves by attempting more questions than necessary in the time allowed.)*

   Multiple Choice Question Responses
When a multiple choice question has only a single, correct response and a candidate provides two responses (even if one of these responses is correct), then no mark should be awarded (as it is not possible to determine which was the first response selected by the candidate).

   Contradictory Responses
When a candidate provides contradictory responses, then no mark should be awarded, even if one of the answers is correct.

   Short Answer Questions (requiring only a list by way of a response, usually worth only **one mark per response**)
Where candidates are required to provide a set number of short answer responses then only the set number of responses should be marked. The response space should be marked from left to right on each line and then line by line until the required number of responses have been considered. The remaining responses should not then be marked. Examiners will have to apply judgement as to whether a 'second response' on a line is a development of the 'first response', rather than a separate, discrete response. *(The underlying assumption is that the candidate is attempting to hedge their bets and therefore getting undue benefit rather than engaging with the question and giving the most relevant/correct responses.)*

Short Answer Questions (requiring a more developed response, worth **two or more marks**)
If the candidates are required to provide a description of, say, three items or factors and four items or factors are provided, then mark on a similar basis – that is downwards (as it is unlikely in this situation that a candidate will provide more than one response in each section of the response space.)

Longer Answer Questions (requiring a developed response)
Where candidates have provided two (or more) responses to a medium or high tariff question which only required a single (developed) response and not crossed out the first response, then only the first response should be marked. Examiners will need to apply professional judgement as to whether the second (or a subsequent) response is a 'new start' or simply a poorly expressed continuation of the first response.

4. Always check the pages (and additional objects if present) at the end of the response in case any answers have been continued there. If the candidate has continued an answer there, then add a tick to confirm that the work has been seen.

5. Award No Response (NR) if:
   - there is nothing written in the answer space

Award Zero '0' if:
   - anything is written in the answer space and is not worthy of credit (this includes text and symbols).

6. For answers marked by levels of response:
   a. **To determine the level** – start at the highest level and work down until you reach the level that matches the answer
   b. **To determine the mark within the level**, consider the following

Descriptor	Award mark
On the borderline of this level and the one below	At bottom of level
Just enough achievement on balance for this level	Above bottom and either below middle or at middle of level (depending on number of marks available)
Meets the criteria but with some slight inconsistency	Above middle and either below top of level or at middle of level (depending on number of marks available)
Consistently meets the criteria for this level	At top of level

7. Subject Specific Marking Instructions

Section A: Multiple choice

Question	Answer	AO	Guidance
1	D	AO2	There will be no significant difference between extroverted and introverted people in terms of how well they perform in front of an audience.
2	D	AO1	Reject the null hypothesis
3	D	AO1	Responses can be compared to identify patterns in data.
4	A	AO2	$\frac{1}{5}$
5	A	AO1	High risk of observer effect.
6	B	AO2	Test 2.
7	C	AO1	Where everyone in the target population has an equal chance of being selected
8	A	AO1	Date of publication.
9	A	AO1	Participant.
10	B	AO2	-0.8

Section B: Research design and response

Q11: Explain why the data collected in this investigation is an example of quantitative data. **(3 marks)**	
Marking Criteria (AO1 x 1, AO2 x 2)	**Guidance**
3 marks: Identifying that the data is quantitative because it is numerical and clearly explaining this is relation to **both** variables under investigation.	Example 3 mark answer: The data in this investigation is quantitative because it is numerical data. The language test is based on the number of correct answers given as a score and physical coordination was measured using a rating scale which would produce a numerical score.
2 marks: Identifying that the data is quantitative because it is numerical and **clearly** explaining this is relation to **one** of the variables under investigation.	OR Identifying that the data is quantitative because it is numerical and **briefly** explaining this is relation to **both** variables under investigation.	
1 mark: Relevant detail about quantitative data identified, but not outlined in the context of this investigation.	
0 marks: No creditworthy response.	

Q12(a): Explain **one** strength of using a self-selected sample in this investigation. (**3 marks**)	
Marking Criteria (AO1 x 1, AO2 x 1, AO3 x 1)	**Guidance**
Candidates will analyse and evaluate the use of the self-selected sampling method in order to:	Possible strengths: ▪ Less chance of attrition as participants have volunteered to take part (resulting in a large sample and increased population validity).
3 marks: Identify a relevant strength of the self-selected sample which is explained in detail in the context of the investigation.	▪ Requires less time and effort on behalf of the researcher (as opposed to random sampling).
2 marks: Identify a relevant strength of the self-selected sample which is briefly explained in the context of the investigation.	▪ Any other appropriate point.
1 mark: Identify a relevant strength of the self-selected sample.	**NB. Context is required to access 2 marks or above.**
0 marks: No creditworthy response.	

Q12(b): Explain **one** weakness of using a self-selected sample in this investigation. **(3 marks)**

Marking Criteria (AO1 x 1, AO2 x 1, AO3 x 1)	Guidance
Candidates will analyse and evaluate the use of the self-selected sampling method in order to:	Possible weaknesses:
3 marks: Identify a relevant weakness of the self-selected sample which is explained in detail in the context of the investigation.	▪ Greater chance of a biased sample as participants may have similar characteristics, e.g. retired people or people interested in the topic under investigation, which can reduce the population validity.
2 marks: Identify a relevant weakness of the self-selected sample which is briefly explained in the context of the investigation.	▪ The sample is less generalisable as participants have chosen themselves and therefore less likely to represent the target population (as opposed to a random sample).
1 mark: Identify a relevant weakness of the self-selected sample.	▪ Any other appropriate point.
0 marks: No creditworthy response.	**NB. Context is required to access 2 marks or above.**

Q13: Suggest how confidentiality could have been dealt with in this investigation. **(2 marks)**

Marking Criteria (AO3 x 2)	Guidance
2 marks: Clear and detailed suggestion of how confidentiality could have been dealt with in this investigation.	Possible suggestions: ▪ Anonymous responses/not recording any personally identifiable information. ▪ Any other appropriate suggestion.
1 mark: Brief or unclear attempt to suggest how confidentiality could have been dealt with in this investigation.	Example 2 mark answer:
0 marks: No creditworthy response.	The language ability test scores could have been kept anonymous, for example by making sure that numbers were used to match scores rather than names.

Q14: Explain why the data from the language ability test may be criticised for lacking construct validity. **(3 marks)**

Marking Criteria (AO1 x 1, AO3 x 2)	Guidance
3 marks: Relevant criticism made in relation to construct validity and explained in detail in the context of this investigation. The answer demonstrates (explicitly or implicitly) an understanding of construct validity.	<u>Example 3 mark answer:</u> Findings lack construct validity when a narrow measure has been used, therefore reducing the complexity of a behaviour. In this study, they only measured language ability in terms of spelling and understanding word meaning, however there are other elements of language ability that weren't measured such as speaking or listening ability. Therefore, it wasn't a fully valid measure of language ability.
2 marks: Relevant criticism made in relation to construct validity, and briefly explained in the context of this investigation. The answer demonstrates (explicitly or implicitly) an understanding of construct validity.	**NB.** Examiners should be mindful that construct validity may not be explicitly defined/described and that the understanding may be more implicit in the response. However, the response must be clearly related to construct validity, rather than any other type of validity.
1 mark: Relevant criticism made in relation to construct validity (whether in context or not). The answer demonstrates (explicitly or implicitly) an understanding of construct validity.	
0 marks: No creditworthy response.	

Q15: Explain how you would carry out a follow-up investigation using the experimental method to investigate if there is a difference in the language ability of people when they are carrying out a physical task and when they are not. You **must** refer to the following required features in your answer:

- the experimental design you would use
- how you would operationalise the dependent variable to obtain quantitative data
- how you would attempt to reduce the influence of one extraneous variable.

Justify the decisions you have made for each required feature as part of your explanation.   **(12 marks)**

Marking Criteria			Guidance
	AO2 x 6	**AO3 x 6**	**Suggestions for Required Features could include:**
Level	The candidate applies knowledge and understanding of scientific ideas, processes, techniques and procedures for the theoretical design of a practical study by:	The candidate analyses, interprets and evaluates scientific information, ideas and evidence to develop and refine practical design through the justification of decisions made by:	**RF1:** Independent Measures Design = different participants in the physical/non-physical conditions. Repeated Measures Design = same participants in the physical/non-physical conditions. Matched Participants Design = different participants in the physical/non-physical conditions but matched on a relevant characteristic.
Level 3 **(5–6 marks)**	Addressing **all three** Required Features (RFs) accurately, in context, and with sufficient clarity and detail to enable replication.	Providing accurate **and** detailed justification, in context, for **all three** design decisions.	**RF2:** Language ability could be operationalised in many different ways, e.g. by scores on a language test (e.g. raw scores or percentage scores), self-reported scores (e.g. a 1–10 scale), external ratings (e.g. an observer rating the language ability on a 1–10 scale whilst the task is being carried out). The method described <u>must</u> explicitly produce quantitative data. Any appropriate response should be credited.
Level 2 **(3–4 marks)**	Addressing **two** of the Required Features (RFs) accurately, in context, and with sufficient clarity and detail to enable replication.	Providing accurate justification with reasonable detail, in context, for **at least two** of the design decisions.	**RF3:** There are many extraneous variables that could be controlled, for example the time given to complete the tests (e.g. 1 minute in both conditions), the task given (e.g. the same language test used in both conditions) or if English is the first language of participant, etc. Any appropriate response should be credited. <u>Justification for Decisions:</u> The justification provided will depend on the suggestion made. Examples include:
Level 1 **(1–2 marks)**	Addressing **one** or more of the Required Features (RFs) accurately and with sufficient clarity and detail to enable replication.	Providing accurate justification **for at least one** of the design decisions.	**RF1:** If use of an IMD is suggested, this could be justified by the fact that there would be no order effects, or if use of an RMD is suggested, this could be justified by removal of participant variables. **RF2:** If a test score is suggested, this could be justified by the fact that it would be standardised and therefore replicable (to test reliability) across all participants.
0 marks	No creditworthy response.		**RF3:** Many suggestions could be justified by the fact that there would be the same experience for participants in both conditions, increasing internal validity and the likelihood of a causal relationship. For all required features, any appropriate justification should be credited.

Section C: Data analysis and interpretation

Q16: Outline what is meant by a structured observation. **(2 marks)**

Marking Criteria (AO1 x 2)	Guidance
2 marks: Clear and accurate description of a structured observation.	Example 2 mark answer: A structured observation uses explicitly predetermined behavioural categories to observe behaviour.
1 mark: Attempted description of a structured observation, which may lack clarity or be only partially accurate.	
0 marks: No creditworthy response.	

Q17: Identify the level of data that was obtained in this investigation. **(1 mark)**

Marking Criteria (AO2 x 1)	Guidance
1 mark: Stating 'nominal data'.	
0 marks: No creditworthy response.	

Q18: Calculate the ratio of the number of times people avoided eye contact to the number of times people smiled. Express your answer in its simplest form. **(2 marks)**

Marking Criteria (AO2 x 2)	Guidance
2 marks: Accurate ratio identified AND simplified.	Accurate ratio = 80:48 Simplified ratio = 5:3
1 mark: EITHER accurate ratio identified OR simplified ratio only stated.	
0 marks: No creditworthy response.	

Q19: Sketch a pie chart to show the data collected in this investigation. **(4 marks) [1+1+1+1]**

Marking Criteria (AO2 x 4)	Guidance
1 mark: For including an appropriate title.	**Pie chart showing the percentage of behaviours observed as two people approach each other along a corridor:**
1 mark: For correctly calculating percentages/fractions for each sector.	
1 mark: For drawing the sectors in proportional size to the data displayed.	
1 mark: For including appropriate labels for the sectors of the pie chart.	
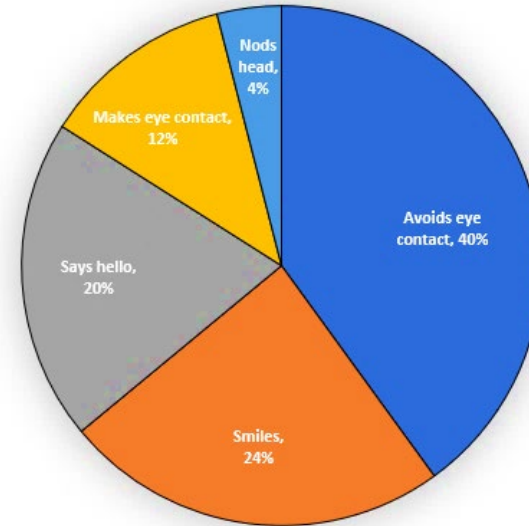
Avoids eye contact 40%
Smiles 24%
Says hello 20%
Makes eye contact 12%
Nods head 4%

NB.
Sectors of the pie chart only need to be approximate sizes. There is no need to check with a protractor or overlay.

Calculations could be percentages or fractions displayed within the sector of the pie chart or to the side.

Q20: Outline **two** conclusions that can be made from the data collected in this investigation. **(6 marks) [3+3]**

Marking Criteria (AO3 x 6)	Guidance
For each conclusion:	
3 marks: Relevant conclusion stated, supported by reference to relevant findings, and plausible explanation given for the conclusion.	Example conclusion (3 mark answer): The most frequent behaviour was to avoid eye-contact, occurring 40% of the time, which suggests people do not like to acknowledge each other in a corridor. This might be because there are a lot of different staff working in the building that they do not know.
2 marks: Relevant conclusion stated, and EITHER supported by reference to relevant findings OR plausible explanation given for the conclusion.	
1 mark: Relevant conclusion stated, and NEITHER supported by reference to relevant findings NOR plausible explanation given for the conclusion.	
0 marks: No creditworthy response.	

Q21(a): What percentage of the total number of behaviours recorded in this follow-up investigation were classified as 'avoids eye contact'? Express your answer to two significant figures. Show your workings. **(2 marks)**

Marking Criteria (AO1 x 1, AO2 x 1)	Guidance
2 marks: Accurate percentage calculated and answer given to two significant figures (40%) with accurate workings shown.	Example 2 mark answer: $(125 \div 310) \times 100$ $= 40\%$
1 mark: EITHER accurate percentage calculated given to two significant figures (40%) with no workings shown OR accurate percentage calculated given but not presented to two significant figures (e.g. 40.32%) with accurate workings shown.	
0 marks: No creditworthy response.	

Q21(b): Tick (✓) the box below that represents the type of data collected in this study. **(1 mark)**

Marking Criteria (AO2 x 1)	Guidance
1 mark: For placing a tick (✓) in the correct box (as shown in the guidance).	

Primary, quantitative data	Primary, qualitative data	Secondary, quantitative data	Secondary, qualitative data
✓	☐	☐	☐

Q22: Outline what is meant by a covert observation. **(2 marks)**

Marking Criteria (AO1 x 2)	Guidance
2 marks: Clear and accurate description of a covert observation.	Example 2 mark answer: An observation in which the participants are unaware that they are being observed by a researcher.
1 mark: Attempted description of a covert observation, which may lack clarity or be only partially accurate.	
0 marks: No creditworthy response.	

Assessment Objectives Grid

Question	AO1		AO2								AO3				Total	Maths	
	AO1.1a	AO1.1b	AO2.1a	AO2.1b	AO2.1c	AO2.1d	AO2.1e	AO2.1f	AO2.1g	AO2.1h	AO3.1a	AO3.1b	AO3.2a	AO3.2b		Maths Mark	Maths Skill
1				1											1		
2	1														1	1	D.1.4/ D.2.1
3		1													1		
4								1							1		
5		1													1		
6							1								1		
7		1													1	1	D.1.5
8	1														1		
9		1													1		
10										1					1	1	D.1.7
11	1					2									3	1	D.1.15
12(a)	1						1				1				3		
12(b)	1						1				1				3		
13													1	1	2		
14	1										1	1			3		
15			3				3						3	3	12		
16		2													2		
17						1									1	1	D.1.10
18										2					2	2	D.0.2
19										4					4	2	D.1.3
20											2	4			6	6	D.1.3
21(a)		1								1					2	2	D.0.2
21(b)										1					1	1	D.1.16
22		2													2		
Totals	6	9	3	1	0	3	5	1	0	10	5	5	4	4	56	18	
Total	15		23								18				56	18	

13