

AS LEVEL

Candidate Style Answers

H167/01

PSYCHOLOGY

Sample Candidate Answers with Commentaries

Unit 1: Research Methods

July 2015



AS LEVEL PSYCHOLOGY

First teaching of this specification is from September 2015 with first examinations in summer 2016.

Unit 1: Research Methods (H167/01)

Candidate Style Answers with Commentaries

Section A: Multiple choice (15 x 1 mark questions)

Question 1

Which is a type of observation in psychological research?

- A participant
- B population
- C practical
- D principal

Answer	Commentary
A <i>participant</i>	A is the correct answer, the challenge being that 'participant' has another meaning in psychological research as well as being a type of observation. B and C are terms taken from the specification, which do not apply to observations specifically and D is a feasible (but incorrect) option.

Question 2

What is always included in an academic reference?

- A date of publication
- B location of research
- C method used in research
- D participants used in research

Answer	Commentary
A <i>date of publication</i>	A is the correct answer and is checking the candidate can recall the structure of an academic reference. B, C and D are all feasible but would not necessarily feature unless in part of the research title.

Question 3

Which is a null hypothesis?

- A** 'Extroverted people will not 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.'

Answer	Commentary
D <i>'There will be no significant difference between extroverted and introverted people in terms of how well they perform in front of an audience.'</i>	D is the correct answer. A could imply there is no difference, but can also imply introverts perform better so, strictly speaking, this is not a null hypothesis. B predicts a difference rather than no difference. In C, the use of 'negative' may imply a null hypothesis but it actually predicts a correlation rather than no correlation.

Question 4

Which is an example of secondary data?

- A** autobiography of a serial killer
- B** observation notes on the behaviours of a serial killer
- C** readings from the brain scan of a serial killer
- D** recording of an interview with a serial killer

Answer	Commentary
A <i>autobiography of a serial killer</i>	A is the correct answer as this would not come directly from the 'subject'. B, C and D all represent examples of primary data coming directly from observation, scanning and interview respectively.

Question 5

What is a strength of using a questionnaire to carry out psychological research?

- A** high response rates are guaranteed, giving representative data
- B** questions can be changed in order to follow new lines of enquiry
- C** respondents are unable to lie in their answers, giving reliable data
- D** responses can be compared to identify patterns in data

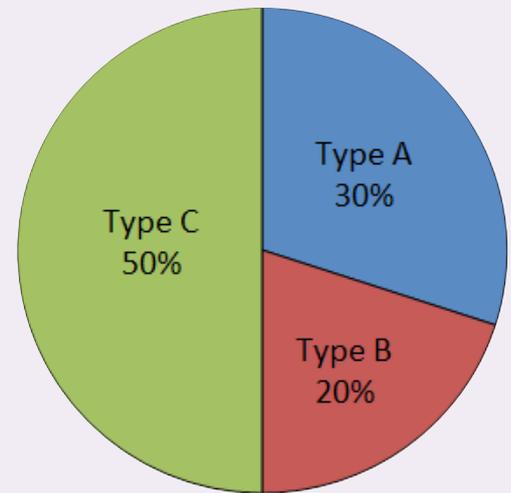
Answer	Commentary
D <i>responses can be compared to identify patterns in data</i>	D is the correct answer as questions are always pre-determined. A is wrong as response rates can be quite low depending on how it's administered. B is wrong as questions are pre-set. C is wrong as respondents can easily lie, if they wish, without comeback.

Question 6

Look at the pie chart.

What fraction of divorced adults had a Type B attachment?

- A $1/5$
- B $3/10$
- C $2/5$
- D $1/2$



Answer	Commentary
A $1/5$	A is the correct answer. B and D may be chosen by mistake if the key is not read properly. C may be chosen if candidate converts 20 to 2 as in $2/5$.

Question 7

What is meant by event sampling in psychological observations?

- A participants are observed to identify certain categories of behaviour
- B every occurrence of behaviour, as specified on a predetermined checklist, is observed and recorded within a specified period of time
- C participants' behaviours are observed in set intervals of time
- D occurrences of behaviour are observed and then rated against a set of categories within a specified period of time

Answer	Commentary
B every occurrence of behaviour, as specified on a predetermined checklist, is observed and recorded within a specified period of time	B is the correct answer. The other answers represent other features of observation listed on the specification; A is the use of behavioural categories, C is time sampling, and D is the use of coding frames.

Question 8

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

Answer	Commentary
A <i>high risk of observer effect</i>	A is the correct answer - the reference to 'observer' makes it appear obvious but this may be seen as a bluff by an uncertain candidate. B is wrong as observations tend to have high levels rather than low levels of ecological validity but it essentially depends on whether it's a controlled observation or not. C is wrong as this depends on characteristics of the sample not the method used. D is wrong as this depends on the number of observers not the type of observation.

Question 9

Look at the following data from an investigation using the test-retest technique on four personality inventories. The same participants completed all inventories, with the same interval between both tests. All tests were scored out of 100.

Inventory	Mean from Test 1	Mean from Test 2
Alpha	94.0	90.2
Beta	27.5	24.6
Delta	25.3	30.3
Gamma	27.9	89.2

Using the data, which inventory has the highest level of external reliability?

- A** Alpha
- B** Beta
- C** Delta
- D** Gamma

Answer	Commentary
B <i>Beta</i>	B is the correct answer as it has the smallest difference at 2.9. A is wrong but the difference of 3.8 is close so relies on careful calculation. C is wrong with a difference of 5.0 but some candidates may assume an increase is more reliable than a decrease. D shows a large difference suggesting very poor external reliability.

Question 10

What is the purpose of an Abstract in a practical report?

- A** an overview of the main stages of an investigation
- B** the rationale behind an investigation
- C** the raw data from an investigation
- D** the main conclusions of an investigation

Answer	Commentary
A <i>an overview of the main stages of an investigation</i>	A is the correct answer. B is too narrow and only covers part of the Abstract. D is also too narrow but the use of 'summarise' may suggest an Abstract. C describes one of the purposes of an Appendix rather than an Abstract.

Question 11

Which would give a researcher a random sample of 20 participants?

- A** choosing every 3rd person from a list of 60 names listed in order of age
- B** sticking a pin 20 times into a piece of paper listing 50 names in alphabetical order
- C** taking out 20 names from a container of 100 names
- D** using the first 20 people that enter a building

Answer	Commentary
C <i>taking out 20 names from a container of 100 names</i>	C is the correct answer as each name has equal chance of being selected and can only be selected once. A is wrong as this is systematic rather than random. B is wrong there is a selection bias here so not random – or candidate may rightly assume a name may be missed or selected more than once. D is wrong as this is opportunity sampling but appears 'random' in an everyday sense.

Question 12

What is meant by criterion validity?

- A** how well findings are matched by other research findings
- B** how well findings generalise to real life situations
- C** how well findings measure what they intend to measure
- D** how well findings predict what happens beyond the research

Answer	Commentary
D <i>how well findings predict what happens beyond the research</i>	D is the correct answer. A, B and C are other types of validity; concurrent, ecological and face respectively.

Question 13

Which will give the most representative sample of British teenagers in an investigation into the use of the internet?

- A** a sample drawn from five GCSE Computer Science classes in a secondary school
- B** a sample drawn from ten sixth form colleges across the United Kingdom
- C** a sample drawn from three secondary schools from different parts of the United Kingdom
- D** a sample drawn from users of an online gaming website based in the United Kingdom

Answer	Commentary
C <i>a sample drawn from three secondary schools from different parts of the United Kingdom</i>	C is the correct answer as three schools is wide ranging and covers all ages of teenagers. A is too small and narrow e.g. limited age range, specialist use, only one geographical area. B is wide ranging in terms of number and geography but only 16 to 19 year olds so not representative of all teenagers. D is too specialist and we cannot guarantee they will be teenagers or be British.

Question 14

Which statement suggests that a researcher is being accused of observer bias?

- A** 'her observation sheet had not been standardised'
- B** 'her perceptions were influenced by what she expected to see'
- C** 'she only observed one culture and not any others'
- D** 'she purposely manipulated her results to match her hypothesis'

Answer	Commentary
B <i>'her perceptions were influenced by what she expected to see'</i>	B is the correct answer. A may lead to bias but is more an issue of reliability. C is about cultural or sample bias rather than observer bias. D is more about corruption; bias is less intentional than this.

Question 15

Which is a way of addressing the issue of demand characteristics in an experiment?

- A** not giving instructions to the participants
- B** not measuring participants' behaviour
- C** not sharing the aim with participants until the end
- D** not testing participants together

Answer	Commentary
C <i>not sharing the aim with participants until the end</i>	C is the correct answer as the aim can suggest what the experimenter expects to find out. A is not feasible; participants will almost always need instructions. B is not logical as all experiments measure something. D is not necessarily relevant as participants may be more likely to identify demand characteristics together but not a given.

Section B: Research design and response

(35 marks)

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 six different tasks including balancing on a beam, catching a ball and copying a dance routine.

16. The psychologist's hypothesis predicted a significant negative correlation. Using this information above, explain what she was expecting the results to show. [2]

Mark/Band	Answer	Commentary
0 marks	<i>She expected the results to show a relationship between physical co-ordination and language ability.</i>	The response does not refer to the fact a negative correlation is predicted. No credit for applying to the study unless this first part is correct.
1 mark	<i>That as one thing went up then another thing would go down.</i>	The candidate did demonstrate a basic knowledge of the direction of a negative correlation. One mark (just) for understanding as one variable increases, another decreases. But, the response could be clearer, using more accurate terms to outline a negative correlation. It also needs to make an explicit reference to the study.
1 mark	<i>She predicts that someone with a high score on one test will have a low score on the other, and vice versa.</i>	The candidate understood the question but did not apply what they knew adequately enough to the study. One mark for demonstrating understanding of the direction of the predicted correlation, but not a second mark as the application is too weak. The response should have made reference to what was being measured (scored) in the tests.

17. Write a closed question which could have been used to test participants' understanding of the meaning of a word. [1]

Mark/Band	Answer	Commentary
1 mark	<i>What is a definition of law? A Justice B Crime C Society D Prison</i>	Although there isn't actually a correct definition of law offered but this is not what is being assessed. The candidate understood how to construct a closed question even if the content was not accurate. The candidate knew that using multiple choice is a way of closing a question and received a mark for this.
0 marks	<i>On a scale of 1 to 10, how much do you agree with abortion. (10=strongly agree and 1=strongly disagree).</i>	No marks were awarded, as this question does not relate to understanding the meaning of words. The question needed to measure language ability. Although the candidate understood how to construct a closed question the context was wrong.
0 marks	<i>Do you understand the meaning of 'commercial'?</i>	No marks awarded as the question is too ambiguous in terms of being a closed question. The question needs to be clearly closed – ideally by offering a choice of answers – simply using yes/no would work here, even if it does make it a very unreliable measure.

18. Explain why the data collected in this study is an example of quantitative data. [3]

Mark/Band	Answer	Commentary
1 mark	<i>Quantitative data means data in number form which is why there are 40 questions and 6 tasks.</i>	One mark is awarded for recognising the quantitative data is numerical. However, the response needs to be applied to the study correctly. The focus is on the numbers that appear in the source rather than recognising that quantitative data refers to the measures.
1 mark	<i>The data is quantitative because physical co-ordination and verbal ability are both measured using a scoring system.</i>	The candidate understood that the way that variables are measured generates quantitative data and a mark is given for briefly applying knowledge to the source. However, the response needs to say why the data is quantitative. There also needs to be a clearer distinction between how the two variables were measured so that separate marks can be earned.
3 marks	<i>The data is quantitative because numerical measures have been taken for both variables e.g. an overall rating is given for physical co-ordination. This is necessary as correlations rely on plotting numbers to look for a relationship – therefore the data cannot be qualitative.</i>	The candidate has addressed the question at a number of levels. One mark is achieved for defining quantitative data in the first statement. One mark for an example of quantitative data from the source i.e. the ratings. One mark for understanding how quantitative data is a prerequisite for carrying out a correlation.

19. (a) Name the graph that would be used to show a correlational analysis. [1]

Mark/Band	Answer	Commentary
1 mark	<i>Scattergraph</i>	Although scatter diagram is the term used in the specification. The candidate achieves the mark as this an acceptable name.
0 marks		Although a scatter diagram is drawn, the question requires it to be named which has not been done.

19. (b) Name the section of a practical report where a graph would be presented. [1]

Mark/Band	Answer	Commentary
0 marks	<i>The Findings section</i>	The candidate knew that the graph was part of the findings but misnamed the section.
1 mark	<i>Results</i>	The response is correct as it gives the name of the section as it appears in the specification (and published journals).

20. (a) Explain why the data collected in this study is an example of quantitative data. [3]

Mark/Band	Answer	Commentary
2 marks	<i>One strength of a self-selected sample is the fact that participants are all volunteers and this therefore avoids any ethical issues as the researchers cannot be accused of not getting consent.</i>	One mark for raising the issue of ethics, and then back credit the reason why the sampling technique is ethical. The response should make reference to the study to secure full marks. Therefore, 2 marks were awarded, as the candidate understood a strength of self-selected samples but did not demonstrate skills of application as their answer was not in the context of the study.
0 marks	<i>Self-selected samples are good because participants have chosen to take part in the research.</i>	The candidate understood why self-selected samples may be advantageous but did not articulate this explicitly enough. Therefore, no marks are awarded as the answer reads as description rather than evaluation.
0 marks	<i>Self-selected samples are a quick way of obtaining a sample.</i>	The candidate knew a potential strength of self-selecting samples but not one that allowed them to demonstrate understanding. The strength needs to be qualified – perhaps by being explicit about which sampling techniques self-selection is quicker than (and why).

20. (b) Describe one weakness of using a self-selected sample in this study. [3]		
Mark/Band	Answer	Commentary
2 marks	<i>A weakness of this sample is that results can be biased as the people that come forward may not be representative. For example, the people may not represent everyone's verbal ability and physical co-ordination.</i>	One mark for the weakness (bias) and a further mark for an elaboration of the point. Although there is some reference to the study – the point made could be applied to any sampling method really. The answer definitely needs to explain why self-selection specifically causes bias in order to achieve 3 marks.
2 marks	<i>You can't generalise from a self-selecting sample because out-going people will do well in the physical task as they know they're being watched.</i>	One mark is awarded for difficulties with generalisation and another mark for referencing the study. The candidate knew a weakness with some attempt to apply to the study but this aspect of the answer could have been developed. The effect of the type of respondents represented through self-selected sampling (out-going) is implicit rather than explicit. This is why only two marks were awarded.
0 marks	<i>Self-selecting samples can lead to socially desirable responses because they will know what they are volunteering for and behave accordingly e.g. doing badly on the co-ordination task when they've done well on the other one.</i>	The candidate did make some link between volunteering and the limitations of this, but wrongly assumed that all volunteers would have given informed consent rather than just consent.

21 Outline how each of the following ethical considerations could have been dealt with in this study. (a) Confidentiality [2] (b) Informed Consent [2] (c) Protection of participant [2]		
Mark/Band	Answer	Commentary
2 marks	<i>Confidentiality could have been dealt with not using the names of participants when publishing results just using participant numbers instead. Informed consent could have been dealt with by making sure the participants knew what the aim of the study was before they agreed to take part – using a briefing to do this and then getting them to sign to give consent. Protection of participants could have been dealt with by making sure that participants were offered counselling at the end of the study.</i>	One mark for the answer that refers to confidentiality and one mark for the answer that refers to informed consent. No marks for the answer that refers to protection of participant as counselling does not seem appropriate for the study in question. There needs to be better application to the study in the source. The first two points (which gain credit) are well developed but do not make explicit reference to this study.
4 marks	<i>The participants' scores on the tests should not be identifiable unless you're the psychologist. As long as the pairs of scores are matched to each participant then a number will do. The participants should have been told that their language and co-ordination was being tested and then they know what they are signing up for. Each participant's scores are personal and the other participants should not know how they've done.</i>	Two marks for the first point – one for the showing understanding of the issue of confidentiality and one (just) for implying participants should be numbered rather than named. Two marks for the second point – one for showing understanding of the issue of consent and one for understanding when this is informed, both apparent through application. No marks are awarded for the final point as this is addressing the issue of confidentiality which has been credited already. The third point needs to deal with a third, distinct issue. It would be better if the application to the study was clearer and more explicit.

22 Explain why the data from the language ability test may be criticised for lacking construct validity. [3]

Mark/Band	Answer	Commentary
1 mark	<i>This means that findings didn't apply to real-life situations. In real-life, you would test more than just spelling and word meanings if you wanted to know whether someone had good or bad language ability.</i>	The candidate could identify the problem inherent in the measure of language ability, but could not express this explicitly by defining (lack of) construct validity. One mark is therefore awarded for the application to the study even though the explanation of a lack of construct validity is wrong.
1 mark	<i>Construct validity measures the extent to which a construct (behaviour) is assessed as it would be in reality. Here, verbal ability is measured by testing participants' spelling ability and their ability to understand the meaning of words.</i>	The candidate had obvious knowledge of the concept (construct validity) but was unable to adequately apply this to the study and make a judgement on the measures being used. One mark for demonstrating understanding of the concept of construct validity. Only 1 mark was achieved because the response only stated how verbal ability was measured in the study but did not comment on this with reference to (low) construct validity.
3 marks	<i>The data from the language ability test may be criticised for lacking construct validity because it is quantitative data which some psychologist would say is too simplistic - reducing a complex phenomenon (language) down to scores means that we lose the essence of this unique human behaviour. In everyday life, if we judged an individual to have a high level of ability, we would not be basing this on two simple scores taken from two narrow tests.</i>	The candidate clearly focused on the study itself and did this in an elaborate way whilst demonstrating understanding of construct validity at the same time. One mark is awarded for demonstrating an understanding of low construct validity within the response, signified by words such as 'simplistic', 'reducing' and 'narrow'. Two further marks are gained for well-developed application of ideas to the study.

23 You have been asked to carry out a follow-up study to investigate the difference in the language ability of people when they are carrying out a physical task and when they are not.

Explain how you would carry out an experiment to investigate if there is a difference or not. Justify your decisions as part of your explanation.

[12]

You must refer to:
field **or** laboratory experiments
the experimental design you would use
at least one control you would use.

You should use your own experience of carrying out an experiment to inform your response.

Mark/Band	Answer	Commentary
Level 1 1-3 marks	<i>I'd choose a field experiment because this is more realistic and people will behave more normally. I would test passers-by on the street by getting them to juggle something whilst asking them questions to see how well they can do both things at the same time.</i>	The candidate made some effort to address the question set although limited. One of the required features was addressed and the candidate demonstrated knowledge here. There was weak application of chosen technique. Justification was also weak. The information was basic and was communicated with a lack of structure. There is no reference to their own experience. A Level 1 response.
Level 2 4-6 marks	<i>In my experiment I would split my participants into two groups with one group doing the verbal ability test at the same time as a physical task and the other group doing just the test. The reason for doing this is to avoid any order effects. However, I don't want the findings to be different because the people in each group are too different so I would match them up on things like intelligence, age and verbal ability. When I did a test at school I found those in higher sets did better regardless of their condition. I would also make sure that both groups had the same amount of time to do the test and make sure that the physical task was always the same.</i>	The candidate produced a reasonable response which took into account the breadth of the question. Some of the required features were addressed and the candidate demonstrated knowledge of these. There was limited evidence of application in the description of techniques suggesting a basic understanding. There was an attempt to justify decisions but this was quite weak. There is some reference to the candidate's own practical experience. The information had relevance and was presented with some structure. Level 2 is appropriate for all AOs. For AO1 the candidate shows knowledge of experimental designs and controls but does not address the type of experiment being used. For AO2 there is an attempt to apply knowledge to the investigation – most notably by outlining how the candidate will be divided and matched, and for suggesting what might be controlled. AO3 marks are gained for justifying the choice of design (although brief) and for justifying the matching of participants.

<p>Level 3 7-9 marks</p>	<p><i>I would choose a lab experiment so my environment is controlled, like I did when I did my experiment in a quiet classroom. This means I can test language ability without any other distractions like outside noise. Noise could affect participants' ability to do well in either condition as it may stop them from speaking fluently.</i></p> <p><i>Speaking fluently will be how language ability is tested, and the participants will be scored on how many times they make mistakes when reciting a passage they have learned – either walking across a balancing beam or not. The passage will have to be the same for both conditions to make things fair. When I did practicals at college it was important that things were standardised to make results valid.</i></p> <p><i>Participants will do one condition or the other because I will be using the same passage so it may be easier to get it right a second time because they have recited it under test conditions once already, I found these order effects occurred when testing memory of the same word list in my college practicals. I will also make sure that I use an assistant to help with the scoring to make sure we agree on the number of errors that have been made.</i></p>	<p>The candidate offered a feasible design for this investigation which was clearly contextualised and included some level of analysis through justification. There is also some reference to practicals carried out. All of the required features were addressed and the candidate demonstrated reasonably accurate knowledge of each. There was some evidence of application in the description of features showing a level of understanding. There was some appropriate justification of decisions and, at points, this was contextualised with reference to the investigation brief. There was a line of reasoning presented with some structure. A sound Level 3 response.</p> <p>AO1 marks awarded for showing knowledge of experiments, experimental methods and controls even though only the first of these was made explicit.</p> <p>AO2 marks for applying ideas to the investigation e.g. identifying IV and DV, allocation of participants to conditions, use of assistant and reducing distractions as controls.</p> <p>AO3 marks for justifying the use of a laboratory and for justifying the use of independent groups (implicit reference to practice effect).</p> <p>The answer could refer to the key terms more explicitly to signpost these more obviously for the examiner. More AO2 marks could be earned by adding more detail on the procedure to be used in the investigation – most obviously by considering more controls. There are missed opportunities to justify decisions – for example, furthering explaining the benefits of a second psychologist judging verbal ability.</p> <p>No AO1 marks as the candidate does not demonstrate a good enough understanding of experimentation – field or otherwise. There is no reference to experimental design or controls.</p> <p>One AO2 mark for suggesting how verbal ability testing and the physical task may be set up.</p> <p>One AO3 mark for justifying the use of a field experiment even though this is not in context.</p> <p>The answer should refer to all three criteria listed in the question: type of experiment, experimental design and control(s). The use of experimentation could be better applied by recognising there needs to be a control condition as well as the experimental condition. It would also be better if there is some indication of how verbal ability is going to be measured.</p>
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**Level 4
10-12
marks**

I would carry out this experiment in a laboratory setting. Although this can be artificial, the high level of control would allow me to standardise extraneous variables that could affect the performance of the participants such as lighting or temperature. I would use a repeated measures design so ensure I am comparing like with like. I would use headphones and a tape recording to play 20 sets of 4 words to participants, and each time they would have to place the words in alphabetical order. Every time they got a set correct they would score a point. This is completely objective and cannot be open to interpretation. In one condition, they would do this sitting down whilst in the other condition they would have to stack blocks into a tower at the same time (the physical task). Because of the nature of the task, I would check all participants had good hearing and no learning impairments that would make the alphabetical task particularly difficult. It would not matter if they were not that good at the task, as I would be using them for both conditions anyway so their performance could still change. I would obviously want to change the sets of words for each condition to avoid a practice effect, but would match the words so that each verbal task was equally challenging otherwise this becomes a confounding variable. Just in case one verbal task is slightly easier than the other, I would make sure that half the participants did the first verbal task with the tower exercise while the other half did the second verbal task with tower exercise. I would also make sure I counterbalanced the order of conditions because if the tower exercise was always done in the second condition, participants may not perform so well because of a fatigue effect. It would be difficult to avoid demand characteristics however, as the participants may catch on to the aim by the time they do the second condition, whatever condition that is.

Using the laboratory experimental method in my own study of the effects of time of day on memory enabled me to ensure each participant was tested in the same quiet room. Using repeated measures design enabled me to be sure that any differences in memory was not simply attributable to some participants having a superior memory to begin with, regardless of time of day tested. When I carried out a practical project into the effect of memory improvement techniques, I found that some participants in the control already used these. Therefore individual differences would be reduced in this study.

The candidate produced an excellent response with coherent use of many key ideas and terms. All of the required features were addressed and the candidate demonstrated accurate knowledge of each. There was very good evidence of application in the description of features showing high levels of understanding. There was appropriate justification of nearly all decisions which was contextualised with reference to the investigation brief. There is a well-developed line of reasoning which was clear and logically structured. The information presented was largely relevant and substantiated. Without doubt, a Level 4 response.

The candidate scores high on all assessment objectives. Two AO1 marks are appropriate as the candidate shows knowledge of all three features – understanding is clear even if largely implicit.

AO2 marks are gained through a very detailed account of how the investigation would run with an obvious focus on the demands of the brief.

AO3 is excellent as there is a breadth of reasons offered for the various choices made i.e. choice of laboratory, choice of experimental design, choice of measure for DV, choice of controls.

The candidate makes explicit reference to their own practical work to further explain the advantages of using a repeated measures design laboratory experiment.

The candidate addressed all of the criteria through effective application to the investigation. Justification of design decisions was evident throughout.

Section C: Data analysis and interpretation

A psychologist carried out a quasi-experimental study to investigate if there is a difference in job satisfaction levels depending on working environment. He looked specifically at whether there was a difference between office workers who had their own personal desk and those that had to 'hot desk', i.e. had no particular desks and shared all desks with others.

He approached two separate insurance companies – one that used 'hot desking' and one where people had their own personal desk – who agreed to the psychologist interviewing a random sample of employees. A structured interview was used where each employee was rated on how much they enjoyed their job using a scale from 1 to 10, with 10 indicating high job satisfaction.

The results from the study are shown in the table below.

A table to show the frequency of job satisfaction ratings and median ratings for employees working in a hot desking office and employees working in an office with personal desks.

Job Satisfaction Rating	Frequency (tally) from Hot Desking office	Frequency (tally) from Personal Desk office
1	2	0
2	3	2
3	3	2
4	3	4
5	10	8
6	6	8
7	4	8
8	4	0
9	1	0
10	0	0
Median Rating	5	5.5
Range	9	6

24 Outline how a median is calculated. [2]

Mark/Band	Answer	Commentary
2 marks	<i>Place scores in ascending order, and then find the one in the middle.</i>	The candidate addressed both parts of the calculation. One mark for knowing that the scores need to be organised in numerical order and one mark for knowing that the central one is then taken to give the median.
1 mark	<i>The middle number.</i>	One mark (just) for knowing the median requires a middle number to be identified. As well as being clearer on where the middle number is coming from, the answer should also include the detail about the ordering of numbers.
0 marks	<i>Line up the numbers from smallest to biggest and then find the average.</i>	It is not enough to state that an average is found; the answer needs to say how. Therefore, no marks are awarded as the idea of organising the data set into numerical order cannot be credited alone.

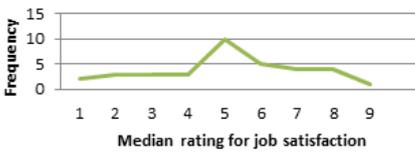
25 Outline a conclusion that can be drawn from the above table. Refer to the median ratings as part of your answer. **[2]**

Mark/Band	Answer	Commentary
2 marks	<i>The hot desking workers reported slightly less job satisfaction than the workers with a personal desk with a difference of only 0.5 between the median ratings.</i>	The candidate clearly addressed both parts of the question. One mark for drawing an appropriate conclusion and one mark for analysing the difference between the medians from each condition.
1 mark	<i>There was no significant difference in job satisfaction between the two sets of workers as the medians were 5 for hot deskers and 5.5 for those with personal desks.</i>	The candidate interpreted data effectively, but did not explain the calculation they had made to come to their conclusion. One mark was therefore awarded for stating an appropriate conclusion. Medians need to be analysed in some way rather than merely quoted.
0 mark	<i>There was a close match between the ratings of the two lots of workers.</i>	No marks as there is not an obvious reference to median ratings – the answer could be referring to individual ratings. The response needs to refer to median ratings rather than just ratings. It also needs a clear conclusion that references job satisfaction as well as identifying the two sets of workers.

26 State which office had a greater dispersion of scores. Justify your answer. **[2]**

Mark/Band	Answer	Commentary
2 marks	<i>Hot desk. Because the range is 50% greater than the range from the other office.</i>	The candidate addressed the first part of the question and then drew a mathematical comparison between the two ranges to justify their first answer. One mark for identifying the correct office and one mark for reference to the ranges.
1 mark	<i>The workers from the hot desking office had a greater dispersion of scores because their range was 9.</i>	One mark for identifying the correct group of workers. The response needs to compare the ranges rather than simply quote one. Overall, the candidate understood what the data showed about dispersion but needed to be explicit about the comparison they had made.
0 mark	<i>The hot deskers have scores which are more spread out than those with personal desks.</i>	No marks as there is no direct answer to the first part of the question. Therefore, the second mark cannot be awarded. The response should start with a direct answer to the question, and then the interpretation of the data could be credited.

27 Draw a line graph to show the distribution of the frequency of ratings for the hot desking office. [4]

Mark/Band	Answer	Commentary
3 marks	<p>A line graph to show job satisfaction.</p> 	<p>The candidate understood how to plot a line graph but needed to be able to label it more appropriately. Two marks for an accurately plotted graph with appropriate scales. One mark for the labelling of the axes. The graph needs a more detailed title that references the hot desking office. In order to achieve 4 marks, it would be better if the word 'ratings' was used rather than 'score' when labelling the axes.</p>
1 mark	<p>A graph to show the range of ratings for job satisfaction from the workers in the hot desking office.</p> 	<p>The candidate broadly understood how to plot a line graph but was not careful enough in its construction. The x-axis should refer to ratings rather than median ratings. The frequency for the rating of 6 should be six. The scale for ratings should still go up to 10 even though the frequency for this rating is zero. One mark was awarded for the title.</p>

28 (a) Outline what is meant by a quasi experiment. [2]

Mark/Band	Answer	Commentary
1 mark	<p><i>A quasi experiment is where the independent variable is not open to direct manipulation. This is because the independent variable is naturally occurring.</i></p>	<p>Although the candidate explained why the independent variable could not be manipulated, this was not creditworthy in itself. They focused on defining the idea of 'quasi' rather than the whole concept of the 'quasi experiment'. The answer needs to deal with the 'experiment' part of the question by recognising there is also a dependent variable involved. One mark was awarded for knowledge of the term quasi in this context.</p>
0 marks	<p><i>A quasi experiment is when a psychologist studies something like the effect of active volcanoes which cannot be controlled by the psychologist.</i></p>	<p>The candidate knew something about quasi experiments but seemed unable to actually outline what one is. However, no marks were awarded as the reference to the naturally occurring IV is only through example and even then only 'one side' of the IV is given. The response needs to address the demands of the question by defining the method rather than giving an example of it.</p>

28 (b) Explain why the investigation into job satisfaction levels is an example of a quasi experiment. [2]		
Mark/Band	Answer	Commentary
1 mark	<i>A quasi experiment is where the independent variable is not open to direct manipulation. This is because the independent variable is naturally occurring.</i>	Although the candidate explained why the independent variable could not be manipulated, this was not creditworthy in itself. They focused on defining the idea of 'quasi' rather than the whole concept of the 'quasi experiment'. The answer needs to deal with the 'experiment' part of the question by recognising there is also a dependent variable involved. One mark was awarded for knowledge of the term quasi in this context.
0 marks	<i>A quasi experiment is when a psychologist studies something like the effect of active volcanoes which cannot be controlled by the psychologist.</i>	The candidate knew something about quasi experiments but seemed unable to actually outline what one is. However, no marks were awarded as the reference to the naturally occurring IV is only through example and even then only 'one side' of the IV is given. The response needs to address the demands of the question by defining the method rather than giving an example of it.

29 The psychologist used a structured interview to collect the data. Describe how a structured interview is different from an unstructured interview. [3]		
Mark/Band	Answer	Commentary
2 marks	<i>Structured interviews use pre-set questions whereas unstructured interviews are more conversational. This means structured interviews can provide data that can be more easily analysed.</i>	The candidate understood the difference between the two types of interview but needed to make sure that their answer used technical ideas throughout. One AO1 mark for defining structured interviews. One AO3 mark for an implied difference in terms of ease of analysing data. Also, the response assumes it's obvious what 'conversational' means but this should be clarified.
2 marks	<i>Unstructured interviews generate questions based on what is being said by the participant whereas structured interviews are not interested in this. This means structured interviews can be more focused on the aim of the research.</i>	The candidate showed some understanding of the difference between the two types of interview but needed to be explicit about how structured interviews are set up. One AO1 mark for defining unstructured interviews. One AO3 mark for an implied difference in terms of being more focused. It is not enough to say that the structured interview does not do the same as the unstructured interview – it needs to be clear how it approaches its questioning instead.
1 mark	<i>Structured interviews used closed questions while unstructured interviews use open questions. Therefore a structured interview achieves more reliable data compared to an unstructured interview which achieves more valid data.</i>	The candidate is clearly confused about different types of interviews and different types of questions but, perhaps conveniently, the distinction between open and closed questions also applies to unstructured and structured interviews. One AO3 mark for an explicit distinction that focuses on the quality of data. The answer should be outlining how questions are constructed rather than types of questions used.

30 (a) Outline the purpose of peer review in psychological research. [3]

Mark/Band	Answer	Commentary
1 mark	<i>Peer review is when different psychologists check each other's work. This is to check there has been no cheating when it comes to results.</i>	The candidate knew something about peer review but the idea that it is in place to counter cheating was too simplistic for credit. One mark was awarded for knowing peer review involves examining another's work. The response needs to demonstrate a more sophisticated understanding of why peer review takes place.
2 marks	<i>Peer review is a means of establishing reliability through using a professional to validate the research of another.</i>	The candidate used key terminology effectively to demonstrate their understanding but unfortunately did not expand on what they knew. One mark for knowing peer review involves examining another's work (validation) and one mark for understanding the purpose behind this (establishing reliability). The response needs to be developed further to secure all three marks available.

30 (b) Following a peer review, the following statement was made about the study above:

'There is a potential issue with social desirability when considering these findings.'

Explain what this statement means in relation to this study. [5]

Mark/Band	Answer	Commentary
3 marks	<i>This suggests that some of the workers were giving unreliable ratings because they thought they ought to pretend they were satisfied with their job when they were not. They might have done this because they were worried about their job security for instance.</i>	The candidate demonstrated understanding of social desirability which went beyond just knowing what the term meant. One AO1 mark was awarded for an implied understanding of social desirability through the example. One AO2 mark was achieved for offering a reason why social desirability may occur in the context of the study. One AO3 mark was given for giving an effect of the problem i.e. unreliable ratings. The response needs more depth by exploring the reasons for and effects of socially desirable responses, in the context of this study.
3 marks	<i>Social desirability occurs when participants do or say something to make themselves look or feel better. This is often because they want to appear as a good participant in front of the researcher – someone they probably see as quite important. Of course, this can skew findings so that the researcher is not really getting a true picture of job satisfaction.</i>	The candidate demonstrated understanding of social desirability but was unable to consider it adequately enough in relation to the study. One AO1 mark for a clear definition of social desirability. Two AO3 marks - one for an explanation of why the issue arises and one for the potential consequences of it. The response needs much more contextualisation with a reference to the study that goes beyond the two words 'job' and 'satisfaction'.
3 marks	<i>Socially desirability may be a problem in this study because workers may not want to admit to liking their jobs in front of their co-workers because it's not seen as cool. Of course, the opposite could happen and they may say they like their jobs even more than they do because they might look stupid being in a job they don't really like that much. Either way, you can't trust the results any more because people aren't sharing their true feelings about work.</i>	The candidate demonstrated understanding of social desirability but their answer could have addressed the question more obviously using technical terminology and better communication. Two AO2 marks for the two different reasons given for the potential of social desirable responses in this study. One AO3 mark for the outcome of such responses. The answer could have made it clearer what social desirability is. The quality of communication could also be improved.



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