

Section D
Research Methods – Designing an Investigation

Answer **all** questions in this section.

You have been asked to carry out an **experiment** to investigate whether noise affects reading speed. The theory is that people will take longer to read a passage from a book when there is a lot of background noise than when it is silent.

Use this space to plan your investigation.

20 State an alternative hypothesis for your investigation.

.....
..... [2]

21 (a) What experimental design would you choose in your investigation? Justify your answer.

.....
..... [2]

(b) Describe **one** strength of using this experimental design in your investigation.

..... [1]

22 Outline the procedure you would use in your investigation.

.....

.....

.....

..... [4]

23 Explain how **one** ethical issue may impact on your investigation.

Your chosen ethical issue:

Impact:.....

..... [3]

24 Explain how **one** measure of central tendency could be used to analyse your data.

.....

..... [2]

25 Describe **two** weaknesses of using an experiment for your investigation.

1.....

.....

2.....

.....[4]

END OF QUESTION PAPER

SPECIMEN

Question	Answer	Marks	Guidance
	<p>limited evidence.</p> <p>0 marks: No credit worthy response.</p> <p>AO3</p> <p>Level 3 (5-7 marks):</p> <p>There is a thorough evaluation which offers breadth and/or depth, providing a thorough discussion of the stated area and at least one other area of psychology. Points are coherent and relevant and the response is developed in order to reach a substantiated judgement in response to the question.</p> <p>Level 2 (3-4 marks):</p> <p>There is a good evaluation which offers breadth and/or depth providing a good discussion of the stated area and one other area of psychology. Points may be brief but should still be relevant and used to reach a supported judgement in response to the question.</p> <p>Level 1 (1-2 marks):</p> <p>There may be some basic attempt at evaluation but it will be weak and consideration of other areas of psychology may be inaccurate. Judgements will be either unclear or absent.</p> <p>0 marks: No credit worthy response.</p>		
20	<p>State an alternative hypothesis for your investigation.</p> <p>1 mark for recognising that an alternative hypothesis</p>	<p>2</p> <p>AO2</p>	<p>An answer that is:</p> <p>An aim/question/correlation/relationship is capped at 1 mark.</p>

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		<p>predicts a difference.</p> <p>1 mark for the accurate identification of both variables.</p> <p><u>Example of a 1 mark answer:</u></p> <ul style="list-style-type: none"> Students will take longer to read a passage from a book (1). <p><u>Example of a 2 mark answer:</u></p> <ul style="list-style-type: none"> Students will take longer to read a passage from a book (1) when there is a lot of background noise than when reading a passage from a book in silence (1). <p>Other appropriate wordings should be credited but the prediction and variables must be correct for full marks.</p>		<p>An answer that refers to:</p> <p>There being a difference/no difference is capped at 1 mark (as the source states that the theory is that it will take longer to read a passage from a book when there is a lot of background noise than when it is silent).</p> <p>NB: hypotheses can be phrased in either the present or future tense, but not the past tense.</p>
21	a	<p>What experimental design would you choose in your investigation? Justify your answer.</p> <p>Repeated measures design (1):</p> <ul style="list-style-type: none"> A small sample is needed as participants take part in both experimental conditions (1). <p>Independent measures design (1):</p> <ul style="list-style-type: none"> Participants are unlikely to respond with demand characteristics as they will have little opportunity to work out the aim of the experiment as they only take part in one condition (1). 	<p>2</p> <p>AO2</p>	<p>1 mark for naming either repeated measures design or independent measures design.</p> <p>1 mark for justification of design (small sample size required for RM).</p>

Question	Answer	Marks	Guidance
b	<p>Describe one strength of using this experimental design in your investigation.</p> <p>1 mark for stating a strength of the design identified in part (a).</p> <p><u>Example answers for a repeated measures design:</u></p> <p>Individual differences will not influence the findings as the same participants take part in both experimental conditions (1).</p> <p><u>Examples of answers for an independent measures design:</u></p> <ul style="list-style-type: none"> • Boredom will not influence the findings as participants only take part in one condition (1). • Practice effects will not influence the findings as participants will only take part in one condition (1). <p>Other appropriate strengths should be credited.</p>	<p>1 AO3</p>	<p>If the candidate gives a strength of the design not identified in part (a) no marks can be awarded.</p>
22	<p>Outline the procedure you would use in your investigation.</p> <p>1 mark for identifying a basic procedure and/or one feature of the procedure.</p> <p>2 marks for a reasonably feasible procedure and/or two features of the procedure.</p> <p>3 marks for describing a feasible procedure and/or three features of the procedure.</p> <p>4 marks for a more detailed description of a feasible procedure and/or four or more features of the</p>	<p>4 AO2</p>	<p>The emphasis is on how not why.</p> <p>Consider any of the following:</p> <ul style="list-style-type: none"> • How the independent variable will be operationalised • Who will comprise the sample. • How the sample will be gathered • How the groups will be selected, e.g. random allocation into the two conditions • How reading time will be measured e.g. tape recording the reading activity and then timing how long it took to read the passage

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	<p>procedure.</p> <p><u>Examples of a 1 mark answer:</u></p> <ul style="list-style-type: none"> I would randomly allocate my participants to the two conditions by putting the names of all twenty participants in a hat and placing the first ten names I pull out in the noisy conditions and the second ten names in the silent condition (1). I would measure reading times by timing (with a stop watch) how long it took each participant to read the given passage aloud (1). <p><u>Examples of a 2 mark answer:</u></p> <ul style="list-style-type: none"> I would ask participants in both conditions to wear headphones so I could control noise levels (1). I would make sure that all participants read the same passage (1). I would control for noise levels in the noisy condition by asking participants to wear headphones and then play the same music at the same level through the headphones (1). Participants would then read the passage aloud whilst I time how long it takes them to read it (1). <p><u>Examples of a 3 mark answer:</u></p> <ul style="list-style-type: none"> Both conditions of the experiment would be conducted in the same classroom (1). I would ask all participants to wear headphones and then play background music over the headphones for those in the noisy condition and nothing for those in the silent condition (1). I would then ask all participants to read a given passage aloud into a 		<ul style="list-style-type: none"> Location of the investigation Controls, e.g. the passage to be read, noise levels/noise, time of day By whom (details of researcher) Any instructions given to participants <p>Do NOT credit any aspect of the investigation that has been / will be awarded in separate questions.</p> <p>Be mindful of contradictory procedures in light of other information provided in other question parts.</p>

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	<p>tape recorder and time how long it took them (1).</p> <ul style="list-style-type: none"> I would randomly allocate my participants to the two conditions by putting the names of all twenty participants in a hat and placing the first ten names I pull out in the noisy conditions and the second ten names in the silent condition (1). I would ask all participants to wear headphones and then play background music over the headphones for those in the noisy condition and nothing for those in the silent condition (1). I would then ask all participants to read a given passage aloud into a tape recorder so I could play each recording back and time how long each one lasted (1). <p><u>Examples of a 4 mark answer:</u></p> <ul style="list-style-type: none"> Both conditions of the experiment would be conducted in the same classroom (1). I would ask all participants to wear headphones and then play background music over the headphones for those in the noisy condition and nothing for those in the silent condition (1). I would then ask all participants to read a given passage aloud into a tape recorder and time how long it took them (1). I would then add up all the times in the noisy condition and divide by the number of participants in that condition so I could find the mean reading time. I would then do the same for the noisy condition (1). I would randomly allocate my participants to the two conditions by putting the names of all twenty participants in a hat and placing the first ten names I pull out in the noisy conditions and the second ten names in the silent condition (1). I 		

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	<p>would ask all participants to wear headphones and then play background music over the headphones for those in the noisy condition and nothing for those in the silent condition (1). I would then ask all participants to read a given passage aloud into a tape recorder so I could play each recording back and time how long each one lasted (1). I would then calculate the average reading time for each condition and display them in a bar graph so I could see whether the average reading time was quicker in the noisy condition or the silent condition (1).</p> <p>Other appropriate outlines should be credited.</p>		
23	<p>Explain how one ethical issue may impact on your investigation.</p> <p>1 mark for identifying an appropriate ethical issue that may impact on the candidate's investigation.</p> <p>Likely issues will be:</p> <p>Stress/psychological harm, informed consent, right to withdraw, debriefing, confidentiality, deception.</p> <p>1 mark for stating how the issue may impact on the investigation.</p> <p>1 mark for an elaborated response explaining the consequences of the issue's impact.</p> <p><u>Examples of a 1 mark answer:</u></p> <p>Mere identification of an appropriate ethical issue e.g.</p>	<p>3 1xAO1 2xAO3</p>	

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	<ul style="list-style-type: none"> • Your chosen ethical issue: confidentiality (1). • Your chosen ethical issue: consent (1). <p><u>Examples of a 2 mark answer:</u></p> <ul style="list-style-type: none"> • Confidentiality (1) may impact on my investigation if participant's names become known (1). • Stress (1) may impact on my investigation if participants become worried by the noise / have difficulty reading the text (1). <p><u>Examples of a 3 mark answer:</u></p> <ul style="list-style-type: none"> • Confidentiality (1) may impact on my investigation if participants are not assured that their names will not be disclosed (1). If anonymity is not assured, they may not want to take part and withdraw from the investigation (1). • Stress (1) may impact on my investigation if participants become worried by the noise / have difficulty reading the text (1). This may make them perform badly and so affect my findings (1). <p>Other appropriate explanations should be credited.</p>		
24	<p>Explain how one measure of central tendency could be used to analyse your data.</p> <p>1 mark for identifying a measure of central tendency.</p> <p>1 mark for application of how the chosen measure of central tendency would be calculated.</p> <p><u>Examples of a 1 mark answer:</u></p> <ul style="list-style-type: none"> • I would use the mean (1). • I would use the mode (1). 	<p style="text-align: center;">2</p> <p style="text-align: center;">1xAO1</p> <p style="text-align: center;">1xAO2</p>	

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	<ul style="list-style-type: none"> • I would use the median (1). <p><u>Examples of a 2 mark answer:</u></p> <ul style="list-style-type: none"> • I would use the mean (1) by adding all the scores in the data set together and then dividing the total by the actual number of scores in the data set (1). • I would use the mode (1) by finding the most common score in the data set (1). • I would use the median (1) by calculating the middle score once I have put all the scores in the data set in numerical order (1). <p>Other appropriate descriptions should be credited.</p>		
25	<p>Describe two weaknesses of using an experiment for your investigation.</p> <p>1 mark for identifying a weakness of an experiment.</p> <p>1 mark for explaining the identified weakness in the context of the investigation.</p> <p><u>Examples of a 1 mark answer:</u></p> <ul style="list-style-type: none"> • One weakness of an experiment is that you might get demand characteristics (1). • One weakness of an experiment is that it may lack ecological validity (1). <p><u>Examples of a 2 mark answer:</u></p> <ul style="list-style-type: none"> • One weakness of an experiment is that you might get demand characteristics (1). In this 	<p>4</p> <p>2xAO2</p> <p>2xAO3</p>	

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	<p>investigation the students may work out that the effect of noise (on reading time) is being measured (especially if they take part in both conditions) and then purposely read slower/faster in the noisy/silent condition to please the experimenter (1).</p> <ul style="list-style-type: none">• One weakness of an experiment is that it may lack ecological validity,(1) In this investigation being timed whilst reading a passage from a book is not a real-life situation and so may not reflect actual reading times in either noisy or silent conditions (1). <p>Other appropriate, contextualised weaknesses should be credited.</p>		