GCSE
PSYCHOLOGY
8182/1

Paper 1 Cognition and Behaviour

Mark scheme

June 2021

Version: 1.0 Final Mark Scheme

216G8182/1/MS

Mark schemes are prepared by the Lead Assessment Writer and considered, together with the relevant questions, by a panel of subject teachers. This mark scheme includes any amendments made at the standardisation events which all associates participate in and is the scheme which was used by them in this examination. The standardisation process ensures that the mark scheme covers the students' responses to questions and that every associate understands and applies it in the same correct way. As preparation for standardisation each associate analyses a number of students' scripts. Alternative answers not already covered by the mark scheme are discussed and legislated for. If, after the standardisation process, associates encounter unusual answers which have not been raised they are required to refer these to the Lead Examiner.

It must be stressed that a mark scheme is a working document, in many cases further developed and expanded on the basis of students' reactions to a particular paper. Assumptions about future mark schemes on the basis of one year's document should be avoided; whilst the guiding principles of assessment remain constant, details will change, depending on the content of a particular examination paper.

Further copies of this mark scheme are available from aqa.org.uk.

Level of response marking instructions

Level of response mark schemes are broken down into levels, each of which has a descriptor. The descriptor for the level shows the average performance for the level. There are marks in each level.

Before you apply the mark scheme to a student's answer read through the answer and annotate it (as instructed) to show the qualities that are being looked for. You can then apply the mark scheme.

Step 1 Determine a level

Start at the lowest level of the mark scheme and use it as a ladder to see whether the answer meets the descriptor for that level. The descriptor for the level indicates the different qualities that might be seen in the student's answer for that level. If it meets the lowest level then go to the next one and decide if it meets this level, and so on, until you have a match between the level descriptor and the answer. With practice and familiarity you will find that for better answers you will be able to quickly skip through the lower levels of the mark scheme.

When assigning a level you should look at the overall quality of the answer and not look to pick holes in small and specific parts of the answer where the student has not performed quite as well as the rest. If the answer covers different aspects of different levels of the mark scheme you should use a best fit approach for defining the level and then use the variability of the response to help decide the mark within the level, ie if the response is predominantly level 3 with a small amount of level 4 material it would be placed in level 3 but be awarded a mark near the top of the level because of the level 4 content.

Step 2 Determine a mark

Once you have assigned a level you need to decide on the mark. The descriptors on how to allocate marks can help with this. The exemplar materials used during standardisation will help. There will be an answer in the standardising materials which will correspond with each level of the mark scheme. This answer will have been awarded a mark by the Lead Examiner. You can compare the student's answer with the example to determine if it is the same standard, better or worse than the example. You can then use this to allocate a mark for the answer based on the Lead Examiner's mark on the example.

You may well need to read back through the answer as you apply the mark scheme to clarify points and assure yourself that the level and the mark are appropriate.

Indicative content in the mark scheme is provided as a guide for examiners. It is not intended to be exhaustive and you must credit other valid points. Students do not have to cover all of the points mentioned in the Indicative content to reach the highest level of the mark scheme.

An answer which contains nothing of relevance to the question must be awarded no marks.

Examiners are reminded that AO1 and AO2 are regarded as interdependent. When deciding on a mark in instances where there is an attempt at more than one assessment objective all attempts should be considered together using the best fit approach. In doing so, examiners should bear in mind the relative weightings of the assessment objectives.

When an answer only contains content related to one of the skills (AO1/AO2), then the levels descriptors for the award of marks for the skill attempted should be applied to the answer, up to the maximum mark available.

Section A

Memory

01	Oscar is learning both French and Spanish at school. Sometimes he gets confused and uses French words when he is speaking Spanish. Which of the following factors best explains the problem Oscar is experiencing? Shade **one** box. A. Context B. False memory C. Interference D. Serial position **[1 mark]**

Marks for this question: AO2 – 1 mark

Answer – C (Interference)

02	What is meant by 'storage' as a process of memory? **[2 marks]**

Marks for this question: AO1 – 2 marks

Up to **2 marks** for a definition.

2 marks: a clear and accurate definition.
1 mark: a limited or muddled definition.

Possible content:

- Holding information in the memory system + for use at some point in the future.

Accept other relevant content.

03	Outline the process of encoding. Refer to Libby and Yasir's conversation in your answer. **[4 marks]**

Marks for this question: AO1 – 2 marks and AO2 – 2 marks

Level	Marks	Description
2 Clear	**3–4**	AO1: Clear and accurate knowledge of the process of encoding with some detail. AO2: Clear and accurate application of knowledge and understanding of the process of encoding to Libby and Yasir's conversation. Relevant terminology is used consistently throughout. The answer demonstrates a high level of substantiated reasoning, and is clear, coherent and focused.
1 Basic	**1–2**	AO1: Limited or muddled knowledge of the process of encoding is present. AO2: Limited or muddled application of knowledge and understanding of the process of encoding to Libby and Yasir's conversation. Relevant terminology is occasionally used. The answer occasionally demonstrates substantiated reasoning, but may lack clarity, coherence, focus and logical structure.
0	**0**	No relevant content.

Possible content:

AO1
- Information taken into the memory is changed into a form that can be stored and later recalled.
- Information can be encoded semantically by what it means.
- Information can be encoded acoustically by how it sounds.
- Information can be encoded visually by how it looks.

AO2
- Libby plans to encode information semantically because she is recording the meaning of the key terms she needs to learn.
- Yasir plans to encode information visually because he is recording what he needs to learn using images and diagrams.

Accept other relevant content.

NOTE: Students do not have to refer to both Libby and Yasir to gain full AO2 marks.

04	Describe and evaluate the multi-store model of memory. **[9 marks]**

Marks for this question: AO1 – 4 marks and AO3 – 5 marks

Level	Marks	Description
3 Detailed	**7–9**	AO1: Relevant knowledge and understanding of the multi-store model of memory is accurate with detail. AO3: Analysis and evaluation of the multi-store model of memory is effective. Conclusions drawn are sound and fully expressed. Relevant terminology is used consistently throughout. The answer demonstrates a high level of substantiated reasoning, and is clear, coherent and focused.
2 Clear	**4–6**	AO1: Relevant knowledge and understanding of the multi-store model of memory is present but there are occasional inaccuracies/omissions. AO3: There may be some effective analysis and evaluation of the multi-store model of memory. Any attempt to draw conclusions may be limited. Relevant terminology is usually used. The answer frequently demonstrates substantiated reasoning and is clear, generally coherent and focused although structure may lack some logic.
1 Basic	**1–3**	AO1: Knowledge and understanding of the multi-store model of memory is present but limited. AO3: Analysis and evaluation of the multi-store model of memory is of limited effectiveness or may be absent. Any attempts to draw conclusions are very limited or muddled. Relevant terminology is occasionally used. The answer occasionally demonstrates substantiated reasoning, but may lack clarity, coherence, focus and logical structure.
0	**0**	No relevant content.

Possible content:

AO1

- Information flows through the sensory, short-term and long-term memory stores.
- Information is transferred from the sensory to short-term memory if we pay attention to it.
- Information is transferred from the short-term to long-term memory store if it is rehearsed.
- Each store has different characteristics, for example the short-term store has a capacity of about 7 items whilst the capacity of long-term memory is unlimited.
- Each store has different characteristics, for example coding in the short-term store is usually acoustic whilst coding in long-term store is usually semantic.
- Each store has different characteristics, for example duration of the sensory store is less than one second, duration of the short-term store is up to thirty seconds whilst duration of long-term store is unlimited/up to a lifetime.

AO3

- The multi-store model of memory does not explain how you can remember some information even though you have not rehearsed it and also struggles to explain why we can forget information that we have practised and rehearsed.
- There is research evidence to support the idea that there are distinct sensory, short-term and long-term memory stores. Research shows that sensory, short-term and long-term memory are usually encoded in different forms and also differ in their duration and capacity.
- It can provide practical ideas for how to remember things more effectively. For example, we need to pay attention when our teacher is talking to us because information is only passed from sensory to short-term memory if we pay attention to it.
- The multi-store model has been criticised for being oversimplified. For example, it states we have one single long-term memory store. However, other research evidence has shown that there are several types of long-term memory; procedural, episodic and semantic.
- The multi-store model has been criticised for being oversimplified. For example, it does not distinguish between elaborative and maintenance rehearsal or explain why the former leads to greater recall.

Accept other relevant content.

05	Evaluate Bartlett's 'War of the Ghosts' study. **[5 marks]**	

Marks for this question: AO3 – 5 marks

Level	Marks	Description
3 Detailed	**4–5**	Analysis and evaluation of Bartlett's War of the Ghosts study is effective. Conclusions drawn are sound and fully expressed. Relevant terminology is used consistently throughout. The answer demonstrates a high level of substantiated reasoning, and is clear, coherent and focused.
2 Clear	**2–3**	There may be some effective analysis and evaluation of Bartlett's War of the Ghosts study. Any attempt to draw conclusions may be limited. Relevant terminology is usually used. The answer frequently demonstrates substantiated reasoning and is clear, generally coherent and focused although structure may lack some logic.
1 Basic	**1**	Analysis and evaluation of Bartlett's War of the Ghosts study is of limited effectiveness. Any attempts to draw conclusions are very limited or muddled. Relevant terminology is occasionally used. The answer occasionally demonstrates substantiated reasoning, but may lack clarity, coherence, focus and logical structure.
0	**0**	No relevant content.

Possible content:

- The 'War of the Ghosts' was an unfamiliar and confusing story which may have caused participants to recall it inaccurately. Other research studies have shown that people often retell familiar events accurately.
- Bartlett's method in which he asked participants to retell a story is a more meaningful way of testing memory than asking participants to learn word lists. This is because retelling stories is something we do in everyday life. This increases the validity of his findings.
- Bartlett's results have helped us to understand that memories are reconstructed because people try to add meaning when they recall events. This explains why eye witnesses' accounts may be inaccurate because recall can be affected by beliefs and expectations.
- Bartlett analysed the recalled stories so the findings of the study may have been affected by researcher bias.
- The sample was limited to students of English at Cambridge University so it may not be appropriate to generalise the findings to a wider group of people.

Accept other relevant content.

06.1	Calculate what fraction of the photos shown to each participant were fake. **[1 mark]**

Marks for this question: AO2 – 1 mark

1 mark for the correct fraction.

$\frac{1}{5}$

Accept other equivalent fractions.

06.2	The researcher had to choose the order in which to show a set of five photos. Describe how the researcher could have used randomisation to decide the order. **[3 marks]**

Marks for this question: AO2 – 3 marks

Up to **3 marks** for a relevant description.
3 marks: a clear and detailed description.
2 marks: a limited description.
1 mark: a very limited and/or muddled description.

Possible content:

- Each of the five photos could have been numbered from one to five.
- A random number generator could have been used to select one number between one and five.
- The number selected would be the first photo shown.
- This process would be repeated for all five photos to decide the order in which the photos were shown to a participant.

OR

- Each of the five photos could have been numbered from one to five.
- The numbers one to five could be written down on separate pieces of paper and placed in a bag.
- The first number pulled out of the bag would select the first photo shown.
- This process would be repeated for all five numbers to decide the order in which the photos were shown to a participant.

Accept other relevant content.

Total Section A – 25 marks

Section B

Perception

07	Objects that are closer in your visual field appear larger than those that are further away. Which **one** of the following causes this? Shade **one** box. A. Convergence B. Height in plane C. Linear perspective D. Occlusion E. Relative size **[1 mark]**

Marks for this question: AO1 – 1 mark

Answer – E (Relative size)

08	Objects that are closer in your visual field can cover part of another object that is further away. Which **one** of the following causes this? Shade **one** box. A. Convergence B. Height in plane C. Linear perspective D. Occlusion E. Relative size **[1 mark]**

Marks for this question: AO1 – 1 mark

Answer – D (Occlusion)

09	What is meant by perception? **[2 marks]**

Marks for this question: AO1 – 2

Up to **2 marks** for a definition.

2 marks: a clear and accurate definition.
1 mark: a limited or muddled definition.

Possible content:

- How we organise, interpret and make sense of the sensory information (that we receive from the world around us).

Accept other relevant content.

NOTE: Where the word 'perceive' is used as part of the answer and not explained, this will reduce the clarity of the answer.

10.1	Calculate the percentage of participants in **Group 2** who incorrectly perceived the Müller-Lyer illusion. State your answer rounded to **one** significant figure. Show your workings. **[3 marks]**

Marks for this question: AO2 – 3

3 marks for the correct number to one significant figure.
40

2 marks for the correct number but not rounded to one significant figure.
36

1 mark for correct workings but incorrect/no answer.
$\frac{18}{50}$ x 100

10.2	What is the ratio of participants who incorrectly perceived the Müller-Lyer illusion in Group 1 compared to Group 2? Write this ratio in its simplest form. **[2 marks]**

Marks for this question: AO2 – 2 marks

2 marks for the correct ratio in simplest form.
3:2

1 mark for the correct ratio but not in simplest form.
27:18 or equivalent

10.3	Outline **one** conclusion about the participants' perception of the Müller-Lyer illusion that the researcher could draw from his results. How can this conclusion be explained using Gregory's constructivist theory of perception? **[4 marks]**

Marks for his question: AO3 – 4

1 mark for identifying an appropriate conclusion about the participants' perception of the Müller-Lyer illusion.

Example:

- The researcher could conclude that the environment in which people live affects how they perceive the Müller-Lyer illusion.

PLUS

Up to **3 marks** for an explanation of the conclusion using Gregory's constructivist theory of perception.

3 marks: a clear and detailed explanation.
2 marks: a limited explanation.
1 mark: a very limited and/or muddled explanation.

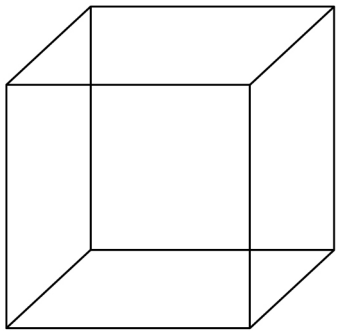
AO3
- Gregory's theory suggests that perception is influenced by nurture/learning and past experiences.
- Environmental experiences did appear to influence how people perceived the Müller-Lyer illusion. When the participants' environment meant that they were more used to using depth cues (city environment), they were more likely to perceive the Müller-Lyer illusion incorrectly.
- If perception does not depend on nurture/learning and past experiences, it is unlikely that there would be such a big difference in the results.

Accept other relevant content.

NOTE: The conclusion may be embedded in the explanation or separate. Both are equally acceptable.

NOTE: Marks can be awarded even if the conclusion is not creditworthy BUT generic answers about Gregory's constructivist theory of perception are considered to be very limited.

Figure 2: The Necker cube illusion



11	Outline how psychologists would explain the Necker cube illusion. **[3 marks]**

Marks for this question: AO1 – 3

Up to **3 marks** for a relevant explanation of the Necker cube illusion.

3 marks: a clear and detailed explanation.
2 marks: a limited explanation.
1 mark: a very limited and/or muddled explanation.

Possible content:

- The illusion occurs because the Necker cube is an ambiguous figure.
- The absence of depth cues in the illusion means that it can be interpreted in different ways.
- There are two equally likely hypotheses and the brain flips between them.
- Both the lower-left square and the upper-right square in **Figure 2** can be perceived as the front face of the cube.

Accept other relevant content.

NOTE: A description of the image is NOT an explanation of the illusion, and therefore is not creditworthy.

NOTE: For an explanation to be considered clear and detailed, it must include some reference to the illusion being seen in different ways (e.g. 'the brain flips between them').

12	Describe Gilchrist and Nesberg's study into how motivation affects perception. Evaluate the research method used in this study. **[9 marks]**

Marks for this question: AO1 – 4, AO3 – 5

Level	Marks	Description
3 Detailed	**7–9**	AO1: Relevant knowledge and understanding of Gilchrist and Nesberg's study into how motivation affects perception is accurate with detail and includes the method used, the results obtained and the conclusion drawn. AO3: Analysis and evaluation of the research method used in Gilchrist and Nesberg's study is effective. Any conclusions drawn are sound and fully expressed. Relevant terminology is used consistently throughout. The answer demonstrates a high level of substantiated reasoning, and is clear, coherent and focused.
2 Clear	**4–6**	AO1: Relevant knowledge and understanding of Gilchrist and Nesberg's study into how motivation affects perception is present but there are occasional inaccuracies/omissions. AO3: There may be some effective analysis and evaluation of the research method used in Gilchrist and Nesberg's study. There may be an attempt to draw conclusions. Relevant terminology is usually used. The answer frequently demonstrates substantiated reasoning, and is clear, generally coherent and focused although structure may lack some logic.
1 Basic	**1–3**	AO1: Knowledge and understanding of Gilchrist and Nesberg's study into how motivation affects perception is present but limited. AO3: Analysis and evaluation of the research method used in Gilchrist and Nesberg's study is of limited effectiveness or may be absent. Any attempts to draw conclusions are not always successful or present. Relevant terminology is occasionally used. The answer occasionally demonstrates substantiated reasoning, but may lack clarity, coherence, focus and logical structure.
0	**0**	No relevant content.

Possible content:

AO1

- One group of participants was deprived of food for 20 hours whilst the other group ate normal meals during this time.
- Each participant was shown four projected images of food. Each image was displayed for 15 seconds.
- Each image was projected a second time. This time the researchers had altered the brightness of each slide.
- Participants were asked to adjust the brightness of each slide back to its original setting.
- Participants in the group that had been deprived of food adjusted the images to be brighter than the participants in the group that had eaten normally.
- These results indicated that how images of food were perceived depended on how hungry participants were.
- This showed that the motivation of hunger affected how participants perceived food.

AO3

- This was a laboratory-based study so people perceived images of food under highly controlled conditions.
- This is useful for the researcher who has eliminated many extraneous variables so can be sure the IV has affected the DV if the results show an effect.
- Procedures are standardised so the study can be replicated.
- Laboratory-based studies often use artificial materials (such as images of food rather than actual food). Because this is not similar to using real objects, this can reduce the validity of the results.
- High control can decrease the validity of the results because it increases the artificiality of the performance of the participants. This means it is difficult to generalise research findings to predict behaviour in a more normal setting.

Credit other relevant content.

Total Section B – 25 marks

Section C

Development

13	Research suggests that nature plays a role in early brain development. Which of the following is a way that nature can affect brain development? Shade **one** box only. A. Experiences with other people B. Genes C. Getting an infection D. Neglect **[1 mark]**

Marks for this question: AO2 – 1 mark

Answer – B (Genes)

14	Which of the following **best** describes the function of the cortex? Shade **one** box only. A. Controls basic autonomic functions B. Controls cognitive processes C. Coordinates movement and balance D. Passes on information from the sense organs **[1 mark]**

Marks for this question: AO1 – 1 mark

Answer – B (Controls cognitive processes)

15	Briefly describe Piaget's concept of accommodation. According to this concept, how will her dad's explanation affect Megan's understanding of horses? **[4 marks]**

Marks for this question: AO1 – 2 and AO2 – 2

Level	Marks	Description
2 Clear	**3–4**	AO1: Relevant knowledge and understanding of Piaget's concept of accommodation is accurate with detail. AO2: Clear application of knowledge and understanding of accommodation to Megan. Relevant terminology is used consistently throughout. The answer demonstrates a high level of substantiated reasoning, and is clear, coherent and focused.
1 Basic	**1–2**	AO1: Knowledge and understanding of Piaget's concept of accommodation is limited. AO2: Limited application of knowledge and understanding of accommodation to Megan. Relevant terminology is occasionally used. The answer occasionally demonstrates substantiated reasoning, but may lack clarity, coherence, focus and logical structure.
0	**0**	No relevant content.

Possible content:

AO1
- Accommodation is a way in which mental blocks of knowledge develop through experience.
- Accommodation is when existing schemas are changed/new schemas are created to help us make sense of the world around us.

AO2
- Megan needs to create a new schema for a donkey or adapt her existing schema for a horse.
- For example, she would add that a donkey looks similar to a small horse but has a thicker coat and longer ears than a horse to her current schema to cope with this new information.

Accept other relevant content.

NOTE: The AO2 may be embedded in the AO1 or separate. Both are equally acceptable.

16	Briefly describe Piaget's concept of conservation. Refer to Ibrahim in your answer. **[4 marks]**

Marks for this question: AO1 – 2 and AO2 – 2

Level	Marks	Description
2 Clear	**3–4**	AO1: Relevant knowledge and understanding of conservation is accurate with detail. AO2: Clear application of knowledge and understanding of conservation to information given about Ibrahim. Relevant terminology is used consistently throughout. The answer demonstrates a high level of substantiated reasoning, and is clear, coherent and focused.
1 Basic	**1–2**	AO1: Knowledge and understanding of conservation is limited. AO2: Limited application of knowledge and understanding of conservation to information given about Ibrahim. Relevant terminology is occasionally used. The answer occasionally demonstrates substantiated reasoning, but may lack clarity, coherence, focus and logical structure.
0	**0**	No relevant content.

Possible content:

AO1
- Conservation describes the ability to know that, when the appearance of something changes, the quantity remains the same.
- Piaget says that children develop the ability to conserve when they are approximately seven years old so cannot conserve for most of the pre-operational stage.

AO2
- Ibrahim is fooled when the appearance of the identical cartons of juice changes because of being poured into different types of glasses. He thinks he has more in his tall thin glass than his auntie's short, wide glass. This shows he is not yet able to conserve.
- Ibrahim is four years old so is too young to be able to conserve as he is still in the pre-operational stage.

Accept other relevant content.

NOTE: The AO2 may be embedded in the AO1 or separate. Both are equally acceptable.

17	McGarrigle and Donaldson investigated conservation in the 'naughty teddy study'. Describe and evaluate this study. **[6 marks]**

Marks for this question: AO1 – 3 and AO3 – 3

Level	Marks	Description
3 Detailed	**5–6**	AO1: Relevant knowledge and understanding of McGarrigle and Donaldson's 'naughty teddy study' is accurate with detail. AO3: Analysis and evaluation of McGarrigle and Donaldson's 'naughty teddy study' is effective. Any conclusions drawn are sound and fully expressed. Relevant terminology is used consistently throughout. The answer demonstrates a high level of substantiated reasoning, and is clear, coherent and focused.
2 Clear	**3–4**	AO1: Relevant knowledge and understanding of McGarrigle and Donaldson's 'naughty teddy study' is present but there are occasional inaccuracies/omissions. AO3: There may be some effective analysis and evaluation of McGarrigle and Donaldson's 'naughty teddy study'. There may be an attempt to draw conclusions. Relevant terminology is usually used. The answer frequently demonstrates substantiated reasoning, and is clear, generally coherent and focused although structure may lack some logic.
1 Basic	**1–2**	AO1: Knowledge and understanding of McGarrigle and Donaldson's 'naughty teddy study' is present but limited. AO3: Analysis and evaluation of McGarrigle and Donaldson's 'naughty teddy study' is of limited effectiveness or may be absent. Any attempts to draw conclusions are not always successful or present. Relevant terminology is occasionally used. The answer occasionally demonstrates substantiated reasoning, but may lack clarity, coherence, focus and logical structure.
0	**0**	No relevant content.

Possible content:

AO1

- To investigate whether young children can conserve when accidental changes are made to the appearance of objects.
- Eighty children aged from four to six years were shown two identical rows of counters and were asked whether there were the same number of counters in each row.
- The 'naughty teddy' then accidentally moved one row of counters so they were more spaced out. Again the children were asked whether there were the same number of counters in each row.
- Over 60% of the children gave the correct answer that there were the same number of counters in each row. A higher proportion of the older children gave the correct answer compared to the younger children.
- This suggests that children under the age of seven years old can conserve, and that the ability to conserve number increases with age.

AO3

- This study was important because it challenged Piaget's theory that children did not develop the ability to conserve until the age of seven years old. McGarrigle and Donaldson's naughty teddy study showed that many children younger than the age of seven could conserve.
- The study was replicated by another psychologist who found that although more children could conserve when 'naughty teddy" was used, the results were not as high as McGarrigle and Donaldson had found.
- Over 30% of the children still failed to conserve when 'naughty teddy' made the change. This shows that even when the change to the counters is made accidentally, a significant percentage of children are still unable to conserve until the age of seven.
- The older participants all came from the same primary school, whereas the younger children came from different nursery schools. There may be extraneous variables related to the ways in which the children were educated that may affect the validity of the findings.
- Some children may not have noticed the change to the row of counters as they were focused on naughty teddy. So, they may have said the two rows had the same number of counters just because they hadn't noticed any changes.
- The study involved a strange environment and an unfamiliar adult researcher. The results might be different if the children were in familiar settings with people that they know.

Credit other relevant content.

NOTE: Methodological issues are creditworthy as long as they are not generic.

18	You have been asked to compare the effects of using different learning styles to revise the structure of the brain. Describe how you would design an experiment to do this. You need to include: • the tasks participants would be asked to do to revise the structure of the brain using a verbaliser **and** a visualiser learning style • one example of a standardised procedure that you would use **and** a justification for why this should be used • one ethical consideration you would need to address **and** how you would deal with this. **[6 marks]**

Marks for this question: AO2 – 6 marks

Possible content:

1 mark for how participants would use a verbaliser learning style.

Example:

- Participants would be asked to revise this information by listening to a podcast in which brain structure is discussed.

Credit description of other relevant techniques.

PLUS

1 mark for how participants would use a visualiser learning style.

Example:

- Participants could be asked to revise this information by looking at a diagram/chart which shows the structure of the brain.

Credit description of other relevant techniques.

PLUS

1 mark for an appropriate example of a standardised procedure.

PLUS

1 mark for an appropriate justification for why this should be used.

PLUS

Up to **2 marks** for **one** appropriate ethical consideration, **and** how to deal with it.

2 marks: clear and detailed answer.
1 mark: limited or muddled answer.

19	Willingham has criticised the use of learning styles. Briefly outline his criticism of learning styles. **[3 marks]**

Marks for this question: AO1 – 3

3 marks: a clear and detailed outline.
2 marks: a limited outline.
1 mark: a very limited and/or muddled outline.

Possible content:

- Willingham criticised the learning style approach to teaching and says it does not improve learning.
- Willingham believed that students should be taught using the best method based on the content being taught rather than to their preferred learning style.
- For example, when learning about maps, visual learning style should be used whereas for learning a new language, auditory/verbal styles may be preferable.
- Willingham states there is no evidence of improved exam results from using the learning styles approach.
- Willingham differentiates between ability and style. He says "ability is *that* you can do something, style is *how* you do it." He agrees there can be differences in abilities but does not see this as evidence for the existence of learning styles.

Accept other relevant content.

Total Section C – 25 marks

Section D

Research Methods

20	Which of the following is **most likely** to give secondary data? Shade **one** box. A. Asking participants to complete a questionnaire about their favourite shops. B. Collecting information already published by high street retailers. C. The researcher interviewing shoppers in a supermarket. D. The researcher observing participants in a shopping centre. **[1 mark]**

Marks for this question: AO2 – 1 mark

Answer – B (Collecting information already published by high street retailers.)

21	Which of the following sets of data is normally distributed? Shade **one** box only. **A** mean = 24 median = 26 mode = 29 **B** mean = 26 median = 26 mode = 26 **C** mean = 29 median = 20 mode = 25 **D** mean = 29 median = 26 mode = 24 **[1 mark]**

Marks for this question: AO2 – 1 mark

Answer – B (mean = 26 median = 26 mode = 26)

22.1	Identify the independent variable in this experiment. **[1 mark]**

Marks for this question: AO2 – 1

The time at which students start school (early or late start).

The timing of the school day.

22.2	Identify the dependent variable in this experiment. **[1 mark]**

Marks for this question: AO2 – 1 mark

The number of school days missed.

22.3	Write a null hypothesis that the researcher can use in this experiment. **[2 marks]**

Marks for this question: AO2 – 2

2 marks: there must be both conditions of the IV and a clear DV which makes the statement operational.

1 mark: the hypothesis lacks some clarity.

Examples:

- The timing of the school day will not affect the number of days of absence. (2 marks)
- There will be no difference in the number days of absence when the school day starts at an earlier or later time. (2 marks)
- The time that school starts will not affect student absence. (1 mark)
- There will no difference in absence when a school day starts early or late. (1 mark)

Credit other relevant null hypotheses.

NOTE: Do not accept alternative hypotheses, aims, questions, correlational statements or statements of the results (e.g. was/did/used.)

Table 2: Total number of days missed by 190 Year 9 students in the early and late start conditions.

	Early start condition	**Late start condition**
Total number of days missed	266	76

22.4	**Table 2** shows the total number of days missed by 190 Year 9 students in the early and late start conditions. Calculate the **mean** number of days missed by students in the late start condition. Show your workings. **[2 marks]**

Marks for this question: AO2 – 2

2 marks for correct mean.
0.4

1 mark for correct workings if incorrect answer is given.
$\frac{76}{190}$

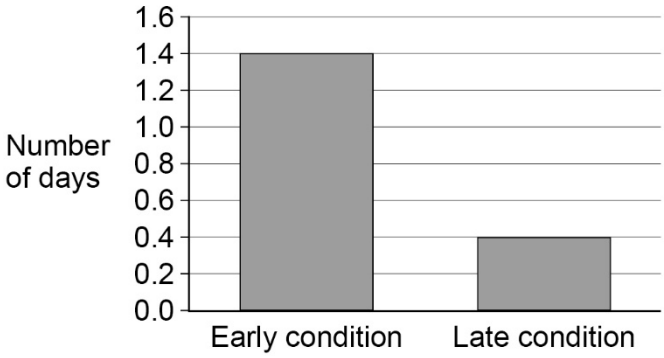
22.5	The mean for the early start condition was 1.4 Use this mean and your calculated mean from question **22.4** to sketch a suitable graph to show the mean number of days missed by each student in the early and late start conditions. Label the axes and provide a suitable title for your graph. **[4 marks]**

Marks for this question: AO2 – 4 marks

1 mark for each of the following:

- Suitable graph i.e. bar chart.
- Informative title, for example, a bar chart to show the mean/average number of days missed by each student in the early and late start conditions.
- Correct labelling of both axes, for example Y axis labelled ‘mean/average number of days’ or ‘number of days’.
- Correct plotting of the results – average number of days missed by each student in early condition = 1.4, average number of days missed by each student in the late start condition = 0.4

A graph to show the mean number of days missed by each student in the early and late start conditions.



NOTE: If bars are touching then no credit can be given for correct plotting.

NOTE: If the mean calculated in 22.4 is incorrect, credit can still be given for correct plotting of the mean – as long as it matches the incorrect calculation.

NOTE: The command term 'sketch' only requires the graph to be 'roughly' drawn or plotted. Therefore, 100% accuracy is **not** required for the 'correct plotting' mark.

22.6	The researcher used a repeated measures experimental design. He also used counterbalancing. Explain why researchers often use counterbalancing with a repeated measures experimental design. **[2 marks]**

Marks for this question: AO1 – 2

Up to **2 marks** for an explanation.

2 marks: a clear and accurate explanation.
1 mark: a limited or muddled explanation.

Possible content:

- With a repeated measures design there can be order effects as participants complete all conditions in an experiment.
- Counterbalancing can be used to avoid order effects so that half the participants complete the conditions in one order and the other half in the opposite order.
- This increases validity as a researcher can be confident that the data collected is caused by the independent variable rather than order effects.

Accept other relevant content.

22.7	This study is an example of a field experiment. Evaluate the use of field experiments in psychological research. **[5 marks]**

Marks for this question: AO3 – 5 marks

Level	Marks	Description
3 Detailed	**4–5**	Analysis and evaluation of the use of field experiments is effective. Any conclusions drawn are sound and fully expressed. Relevant terminology is used consistently throughout. The answer demonstrates a high level of substantiated reasoning, and is clear, coherent and focused.
2 Clear	**2–3**	There may be some effective analysis and evaluation of the use of field experiments. There may be an attempt to draw conclusions. Relevant terminology is used. The answer frequently demonstrates substantiated reasoning, and is clear, generally coherent and focused although structure may lack some logic.
1 Basic	**1**	Analysis and evaluation of the use of field experiments is of limited effectiveness or muddled. Any attempts to draw conclusions are not always successful or present. Relevant terminology is occasionally used. The answer lacks clarity, coherence, focus and logical structure.
0	**0**	No relevant content.

Possible content:

- A strength of using field experiments is that they are conducted in natural settings and usually use realistic tasks. This means participants behave as they normally would so results can have higher ecological validity than other methods.
- A strength of field experiments is that participants are often unaware that they are taking part in an experiment. This means that they do not show demand characteristics and so behave as they normally would.
- A weakness of field experiments is that they can raise ethical issues. Participants may not be aware that they are taking part in an experiment. This means they may not have given consent and are unaware that they have a right to withdraw.
- A weakness with field experiments is that the researcher has a lower level of control over variables compared to a laboratory setting. This means that extraneous variables may affect how participants behave. This makes it difficult for the researcher to establish how the independent variable affects the dependent variable.
- This lower level of control might also mean that it can be difficult to standardise procedures/replicate field experiments.

Accept other relevant content.

NOTE: Evaluation does not need to include both strengths and weaknesses to achieve full marks.

22.8	The psychologist wanted to interview a sample of the students in his experiment to find out how they felt about starting school earlier and later in the day. He thought about using either opportunity or systematic sampling to get his sample of students. Outline **both** opportunity **and** systematic sampling. Compare the use of these sampling methods using your knowledge of their strengths **and/or** weaknesses. **[6 marks]**

Marks for this question: AO1 – 3 marks and AO3 – 3 marks

Level	Marks	Description
3 Detailed	**5–6**	AO1: Relevant knowledge and understanding of opportunity sampling **and** systematic sampling is accurate with detail. AO3: Analysis of the strengths and/or weaknesses of opportunity sampling and systematic sampling is effective. Any conclusions drawn are sound and fully expressed. Relevant terminology is used consistently throughout. The answer demonstrates a high level of substantiated reasoning, and is clear, coherent and focused.
2 Clear	**3–4**	AO1: Relevant knowledge and understanding of opportunity sampling **and/or** systematic sampling is present but there are occasional inaccuracies/omissions. AO3: There may be some effective analysis of the strengths and/or weaknesses of opportunity sampling and systematic sampling. There may be an attempt to draw conclusions. Relevant terminology is occasionally used. The answer occasionally demonstrates substantiated reasoning, but may lack clarity, coherence, focus and logical structure.
1 Basic	**1–2**	AO1: Knowledge and understanding of opportunity sampling **and/or** systematic sampling is present but limited. AO3: Analysis of the strengths and/or weaknesses of opportunity sampling and systematic sampling is of limited effectiveness or may be absent. Any attempts to draw conclusions are not always successful or present. Relevant terminology may not be used at all or may be muddled.
0	**0**	No relevant content.

Possible content:

AO1

- Opportunity sampling is when the researcher asks members of the target population who are willing and available to act as participants. For example, asking members of the public who are walking along a street or people who work in the same institution like a school or workplace to take part in a study.
- Systematic sampling is when every n^{th} member of the target population is selected. For example, selecting every 10^{th} person from a list of employees or every 5^{th} person who enters a supermarket.

AO3

- Researcher bias is likely to occur with opportunity sampling but not systematic sampling. This is because with opportunity sampling the researcher has influence over who is selected so might use participants they know, whilst with systematic sampling the researcher has no influence over who is selected. This means the opportunity method is more likely to produce a biased sample than the systematic method.
- Opportunity sampling is quicker and easier than systematic sampling because anyone who is readily available is selected, whereas ordering the target population in such a way that the n^{th} person can be selected is more time consuming. However, both are simpler and quicker methods than some others such as stratified sampling.
- Whilst systematic sampling is more likely to produce a sample that is representative than an opportunity sample, neither method is likely to produce a sample that fully represents the target population. This is because it is unlikely that all subgroups present in the target population will be represented in the same proportion as they appear in the target population when these methods are used.

Credit other relevant content.

NOTE: Only answers that give an explicit comparison can be considered to be Level 3/detailed.

NOTE: The AO3 may be embedded in the AO1 or separate. Both are equally acceptable.

Total Section D – 25 marks