Name:
Tutor Group:

IGCSE Psychology Paper 1 Exam Pack Mark Scheme

OXFORD AQA
INTERNATIONAL QUALIFICATIONS

INTERNATIONAL GCSE

PSYCHOLOGY

9218

Paper 1 Cognition and behaviour

Mark scheme

Additional specimen

Version: 1.0 Final

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Level of response marking instructions

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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.

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

Section A

Question	Answer	Total marks
01	**C** Putting information into a form that can be stored in memory	**1** AO1 = 1

Question	Marking guidance	Total marks
02	**Using your knowledge of serial position on memory, explain the results of this study.** **4** AO2 = 4

Level	Description	Marks
2	Some effective application of knowledge and understanding of the results obtained in the study. Relevant terminology is used. The answer is clear, coherent and focused.	3-4
1	Limited or muddled application of knowledge and understanding of the results obtained in the study. Relevant terminology may not be used at all or may be muddled. The answer as a whole lacks clarity, accuracy and organisation.	1-2
	No relevant content.	0

Possible content:

- These results (matching the serial positions curve study Murdock 1962) indicate that the position of a word in the list determines its likelihood of recall.
- Words at the beginning of the list are likely to be recalled as they have been rehearsed and are stored in LTM.
- Words at the end of the list are likely to be recalled as they are still available in STM.
- Words in the middle of the list are generally forgotten as they are not in either store.
- These results support the idea that there are separate stores in memory.

Credit other relevant material.

<table>
<tr><th>Question</th><th>Answer</th><th>Total marks</th></tr>
<tr><td>03.1</td><td>
What is meant by reconstructive memory?
<table>
<tr><th>Level</th><th>Description</th><th>Marks</th></tr>
<tr><td>2</td><td>A clear and accurate outline of reconstructive memory.</td><td>2</td></tr>
<tr><td>1</td><td>A limited or muddled outline of reconstructive memory.</td><td>1</td></tr>
<tr><td></td><td>No relevant content.</td><td>0</td></tr>
</table>
Possible content
• The idea that we change our memory of events so that they make sense to us.
• This is likely to happen if the event was unusual in some way.
• Our memories are not copies of what happened but are what we think happened.
</td><td>2
AO1 = 2</td></tr>
</table>

<table>
<tr><th>Question</th><th>Answer</th><th>Total marks</th></tr>
<tr><td>03.2</td><td>
What is meant by effort after meaning?
<table>
<tr><th>Level</th><th>Description</th><th>Marks</th></tr>
<tr><td>2</td><td>A clear and accurate outline of effort after meaning.</td><td>2</td></tr>
<tr><td>1</td><td>A limited or muddled outline of effort after meaning.</td><td>1</td></tr>
<tr><td></td><td>No relevant content.</td><td>0</td></tr>
</table>
Possible content
• The process of storing a memory is an active one
• We have to try to fit the event(s) with what we already know and understand about the world
• This means our memories of events often contain inaccuracies.
</td><td>2
AO1 = 2</td></tr>
</table>

<table>
<tr><th>Question</th><th>Marking guidance</th><th>Total marks</th></tr>
<tr><td>03.3</td><td>
Briefly evaluate the theory of reconstructive memory.
<table>
<tr><th>Level</th><th>Description</th><th>Marks</th></tr>
<tr><td>2</td><td>Evaluation of the theory of reconstructive memory is mostly effective. Any conclusions drawn are sound and fully expressed.

Relevant terminology is used. The answer is clear, coherent and focused.</td><td>3-4</td></tr>
<tr><td>1</td><td>Evaluation of the theory of reconstructive memory is of limited effectiveness or muddled. Any attempts to draw conclusions are not always successful.

Relevant terminology may not be used at all or may be muddled. The answer as a whole lacks clarity, accuracy and organisation.</td><td>1-2</td></tr>
<tr><td></td><td>No relevant content.</td><td>0</td></tr>
</table>
Possible content:
• Bartlett’s methods reflect the way our memories are formed in real life which is a more ecologically valid way of investigating memory than asking people to recall lists of words.
• The theory can explain some of the issues of accuracy identified in eyewitness accounts of events. The accounts are inaccurate because when storing the event people change what happened to fit with what they think happened.
• It explains why two people can have very different memories of the same event.
• The theory suggests that memories are likely to be inaccurate, but we should not conclude that all memories are inaccurate. The event in the War of the Ghosts study were very unusual/culturally different from the participants socialisation. This is why so much detail changed. In real life many events are recorded quite accurately.

Credit other relevant material
</td><td>4

AO3 = 4</td></tr>
</table>

Section D

Question	Marking guidance	Total marks
15	**Identify the independent variable in this study.** **Content:** The independent variable is whether the booklet contained pictures and diagrams or not. Accept other wording.	**1** AO2 = 1

<table>
<tr><th>Question</th><th>Marking guidance</th><th>Total marks</th></tr>
<tr><td>16</td><td>
Identify one extraneous variable the psychologist controlled in this study and explain why it was important to control this variable.

Award one mark for correct identification of one extraneous variable that has been controlled in the study from the list below:

Age of the participants (all 14 years old)
The writing in the booklets
The amount of learning time (7 days)
The test taken at the end of the learning time

Also award up to 3 marks for an explanation of why the chosen EV should be controlled.
<table>
<tr><th>Level</th><th>Description</th><th>Marks</th></tr>
<tr><td>3</td><td>Effective explanation of why the EV should be controlled in the study with appropriate use of specialist terminology.</td><td>3</td></tr>
<tr><td>2</td><td>There is some effective explanation of why the EV should be controlled in the study.</td><td>2</td></tr>
<tr><td>1</td><td>There is some explanation of why the EV should be controlled in the study.</td><td>1</td></tr>
<tr><td></td><td>No relevant content.</td><td>0</td></tr>
</table>
Possible content:

If the (chosen EV) was not the same for both groups of students but was different, then any difference in the test scores at the end of the learning period (results of the two conditions of the study,) would not necessarily have been caused by whether the booklet had pictures and diagrams or not (the IV of the study.)
This could mean that the results were not valid as the study was not testing the effect of the presence or absence of the pictures and diagrams, which was what it intended to investigate.

</td><td>4

AO2 = 4</td></tr>
</table>

<table>
<tr><th>Question</th><th>Marking guidance</th><th>Total marks</th></tr>
<tr><td>17</td><td>
Identify and explain the experimental design used in this study.

Award one mark for correct identification the experimental design used in the study.

Content:
Independent groups

Also award up to 2 marks for an explanation of independent groups design
<table>
<tr><th>Level</th><th>Description</th><th>Marks</th></tr>
<tr><td>2</td><td>A clear and detailed explanation of the independent groups in this study.</td><td>2</td></tr>
<tr><td>1</td><td>A limited or muddled explanation of the independent groups in this study.</td><td>1</td></tr>
<tr><td></td><td>No relevant content.</td><td>0</td></tr>
</table>
Possible content:
• The students who learned the information in the booklets with pictures and diagrams were different students to those who had the booklets without any pictures and diagrams and their intellectual and personality traits would be different. These things might affect the way they learn information..
</td><td>3

AO2 = 3</td></tr>
</table>

<table>
<tr><th>Question</th><th>Marking guidance</th><th>Total marks</th></tr>
<tr><td>19</td><td>
What conclusions might be drawn from the data in Table 2? Refer to both the mean scores and the ranges in your answer.
<table>
<tr><th>Level</th><th>Description</th><th>Marks</th></tr>
<tr><td>2</td><td>Conclusions drawn from both the mean scores and the ranges are mostly effective.

Relevant terminology is used appropriately. The answer is clear, coherent and focused.</td><td>3-4</td></tr>
<tr><td>1</td><td>Conclusion(s) drawn from the mean scores and/or the ranges are of limited effectiveness.

Relevant terminology may not be used at all or may be muddled. The answer as a whole lacks clarity, accuracy and organisation.</td><td>1-2</td></tr>
<tr><td></td><td>No relevant content.</td><td>0</td></tr>
</table>
Possible content:

The difference in the mean scores in the two conditions of over 12 marks suggests that having booklets with pictures and diagrams caused the learning of the students to be better than that of the students who just had the writing in their booklets.
The difference in the ranges suggests that the students who learned from booklets without pictures were of more similar ability to each other than the students who had the booklets with the writing and pictures and diagrams. This is because the range in Condition 1 is much lower than that in Condition 2.

Accept alternative wording.
</td><td>4

AO3 = 4</td></tr>
</table>

Question	Answer	Total marks
20.1	Every member of the target population has an equal chance of being selected (for the study/to be in the sample). Accept alternative wording.	**1** AO1 = 1

Question	Marking guidance	Total marks
20.2	**Explain why this is an appropriate sampling method for this study.** **Level 2** – A clear and detailed explanation for why random sampling is appropriate in this study. – 2 **Level 1** – A limited or muddled explanation for why random sampling is appropriate in this study. – 1 No relevant content. – 0 **Possible content:** • The psychologist would want to be sure that the students were selected in an unbiased way as they are selected by chance rather than choice. • Random sampling increases the likelihood that the sample of students will be representative of the target population so the reasons could be generalisable to the target population.	**2** AO2 = 2

<table>
<tr><th>Question</th><th>Marking guidance</th><th>Total marks</th></tr>
<tr><td>21</td><td>
Identify one other group of people who need to give their permission for this study and explain how the psychologist could have dealt with this issue.

Award one mark for correct identification another group that should give their permission.

Content:

The parents of the (selected) students OR the (selected) students themselves.

Also award up to 2 marks for an explanation of how the psychologist could have dealt with this issue.
<table>
<tr><th>Level</th><th>Description</th><th>Marks</th></tr>
<tr><td>2</td><td>A clear and detailed explanation of. how the psychologist could have dealt with this issue.</td><td>2</td></tr>
<tr><td>1</td><td>A limited or muddled explanation of how the psychologist could have dealt with this issue.</td><td>1</td></tr>
<tr><td></td><td>No relevant content.</td><td>0</td></tr>
</table>
Content:

• The psychologist should ensure that the parents understand exactly what their children will be doing for the 7 days of the study. Once the psychologist has given them full information of the booklets and the test, the parents can agree that their child can participate by signing a consent form. This means the psychologist has met the ethical guidelines required.

OR

• The psychologist should ensure that the students understand exactly what they will be doing for the 7 days of the study. Once the psychologist has given them full information of the booklets and the test, the students can agree to participate by signing a consent form. This means the psychologist has met the ethical guidelines required.
</td><td>3

AO2 = 3</td></tr>
</table>

<table>
<tr><th>Question</th><th>Marking guidance</th><th>Total marks</th></tr>
<tr><td>22</td><td>
Use your knowledge of research methods to explain:

why the psychologist might have chosen to use a questionnaire in the follow-up study
why the psychologist chose to use both open questions and closed questions in the questionnaire.

<table>
<tr><th>Level</th><th>Description</th><th>Marks</th></tr>
<tr><td>3</td><td>There is effective practical explanation of why the questionnaire method is suitable and why both types of questions should be used.

Relevant terminology is used appropriately. The answer is clear, coherent and focused.</td><td>5-6</td></tr>
<tr><td>2</td><td>There is some effective practical explanation of why the questionnaire method is suitable and/or why both types of questions should be used.

Some relevant terminology is used. The answer may lack some clarity, accuracy and organisation.</td><td>3-4</td></tr>
<tr><td>1</td><td>There is some (practical) explanation of why the questionnaire method is suitable and/or why both types of questions should be used.

Relevant terminology may not be used at all or may be muddled. The answer as a whole lacks clarity, accuracy and organisation.</td><td>1-2</td></tr>
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Possible content:

Questionnaires are quick way that the psychologist can collect lots of information from the students about their behaviour when they usually study for tests.
As the students will be able to complete their answers anonymously and without seeing the psychologist their answers to the questions are more likely to be honest. The students are also less likely to produce socially desirable responses than they would in an interview. This will increase the validity of their responses.
The responses to the questionnaire might suggest other areas of research the psychologist might like to investigate.
The psychologist might use open questions to give the students a chance to explain their answers. This will provide more detail (qualitative data) for the psychologist which could be related back to the first study.
Closed questions are a quick way of gathering information (quantitative data) that can be analysed easily and displayed in graphs.
Having both types of question means the psychologist should be able to gather all the data he requires for his analysis.

Credit other relevant material.
</td><td>6

AO2 = 6</td></tr>
</table>

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Section A – Memory

01	Which of the following factors best explains the problem Oscar is experiencing? Shade **one** box. **[1 mark]**

Marks for this question: AO2 - 1 mark

Answer: C (Interference)

2.1	Describe Bartlett's 'War of the Ghosts' study. **[4 marks]**

Marks for this question: AO1 - 4 marks

Level	Marks	Description
2	**3 - 4**	Relevant knowledge and understanding of Bartlett's study with some detail. Relevant terminology is used appropriately. The answer is clear, coherent and focused.
1	**1 - 2**	Limited or muddled knowledge and understanding of Bartlett's study is present. Relevant terminology may not be used at all or may be muddled. The answer as a whole lacks clarity, accuracy and organisation
	0	No relevant content.

Possible content:

- To investigate how memory for an unusual/unfamiliar story is affected by cultural expectations or to demonstrate that memory is reconstructed and changed over time.
- British participants were given a Native American Indian story called 'The War of the Ghosts'.
- After a short period of time, they were asked to retell the story to someone new. This took place several times.
- Bartlett found that each participant who passed on the story remembered some themes from the story. However, the story was shortened when it was retold and some parts were omitted and others were altered.
- Participants altered some details of the story to fit in with their own cultural experiences. For example; 'canoes' was sometimes changed to 'boats' and the name of the village was often changed from Egulac. Eventually, as the story became shorter it became more fixed but often very different from the original story.
- Bartlett concluded that what information is remembered will depend on the existing cultural knowledge or schemas of the listener.

Credit other relevant material.
Note: Description of procedures **and** findings must be present for full credit

2.2	Explain **one** strength and **one** weakness of the reconstructive theory of memory **[4 marks]**

Marks for this question: AO3 - 4 marks

Award up to 2 marks for a strength as follows:

2 marks: a clear and accurate explanation of a strength

1 mark: a limited or muddled explanation

PLUS

Award up to 2 marks for a weakness as follows:

2 marks: a clear and accurate explanation of a weakness

1 mark: a limited or muddled explanation

Possible strengths:

- Investigating memory by asking people to pass on information rather than learn word lists, is very realistic as it is the way in which people acquire much of their knowledge.
- The theory can explain why the testimony of eyewitnesses can be varied even though they all witnessed the same incident

Possible weaknesses:

- The theory does not explain situations when memories are accurate and are not altered, especially if they are very important to us personally or are very distinctive
- There is the problem that the story used to demonstrate the theory was deliberately confusing and so perhaps not a reflection of everyday remembering.

Credit other relevant material

Note: evaluation of relevant research can be credited if linked explicitly to the theory.

3	Briefly outline **two** components of the working memory model. **[4 marks]**

Marks for this question: AO1 - 4 marks

Award up to 2 marks each for any **two** of the following:

2 marks: a clear and accurate description of the component

1 mark: a limited or muddled description

Possible content:

- The components of the model are coordinated and allocated memory tasks by the central executive. The central executive has limited capacity but can process information from any sensory system.

- Verbal information is held in the form of speech by the phonological loop. It has a phonological store and an active articulatory loop where words can be rehearsed.
- Visual and spatial information is held in the visuo-spatial sketchpad. There is a passive visual store called the visual cache and an active visual rehearsal system too (inner scribe.)
- The episodic buffer is a storage facility that holds and combines information from the central executive, the phonological loop and the visuo-spatial sketchpad but also from long-term memory

Credit other relevant information.

Note: if only 2 (or more) components are named, award 1 mark.

4	Using your knowledge of procedural memory, episodic memory and semantic memory, explain Lin's behaviour. **[6 marks]**

Marks for this question: AO2 - 6 marks

Level	Marks	Description
3	**5 - 6**	There is effective application of procedural, episodic **and** semantic memory to the scenario. Relevant terminology is used appropriately. The answer is clear, coherent and focused.
2	**3 - 4**	There is some effective application of **at least two** of the 3 types of long-term memory to the scenario. Some relevant terminology is used. The answer may lack some clarity, accuracy and organisation
1	**1 - 2**	There is some application of **at least one** of the 3 types of long-term memory to the scenario. Relevant terminology may not be used at all or may be muddled. The answer as a whole lacks clarity, accuracy and organisation
	0	No relevant content.

Possible application:

- Lin doesn't need to think about what to do to start swimming when he gets in the pool. It is a kind of muscle memory/automatic memory of how to do something, (procedural memory.)
- Lin recalling which capital city matches which country is the type of memory that stores his knowledge of things that other people also know. It isn't unique to Lin but is shared with other people, (semantic memory.)
- When Lin recalls all the events that happened at his friend's graduation party, he is recalling specific memories that are unique to him. These memories are often 'time-stamped' and can include how Lin felt while he was at the party and who else was there and what everyone did, (episodic memory.)

Credit other relevant application.

5	Evaluate the multi-store model of memory. **[6 marks]**

Marks for this question: AO3 - 6 marks

Level	Marks	Description
3	**5 - 6**	Evaluation of the multi-store model of memory is mostly effective. Any conclusions drawn are sound and fully expressed. Relevant terminology is used appropriately. The answer is clear, coherent and focused.
2	**3 - 4**	There may be some effective evaluation of the multi-store model of memory. There may be an attempt to draw conclusions. Some relevant terminology is used. The answer may lack some clarity, accuracy and organisation
1	**1 - 2**	Evaluation of the multi-store model of memory is of limited effectiveness or muddled. Attempts to draw conclusions are not always successful or present. Relevant terminology may not be used at all or may be muddled. The answer as a whole lacks clarity, accuracy and organisation
	0	No relevant content.

Possible content:

- The multi-store model of memory does not explain how we can remember some information even though we 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 working memory model has shown the STM may not be a single store but instead have a number of components that work together to actively process information that is auditory or visual.

Credit other relevant material.

Section B - Perception

6	Which **two** of the following are binocular depth cues? Shade **two** boxes. **[2 marks]**

Marks for this question: AO1 - 2 marks

Answers: A and **E**

7	What type of illusion is the visual illusion known as the Kanizsa triangle? Explain how the Kanizsa triangle illusion works. **[4 marks]**

Marks for this question: AO1 - 1 mark and AO3 – 3 marks

Award 1 mark for:

AO1

- Fiction or an illusion that is created of something that is not really present.

AO3

Award 3 marks for explanation

3 marks: a clear and detailed explanation with appropriate use of specialist terminology

2 marks: a clear explanation with some detail

1 mark: a limited or muddled explanation

Possible content:

- The image suggests there is a triangle present but there is nothing there.
- The circles have parts cut out of them and these are lined up to make is seem as though there is a solid white triangle on top of the circles.
- The 'triangle' seems to be overlapping the circles.
- This overlapping effect is an example of occlusion and makes it appear as though there are circles that are behind a triangle.

Accept an explanation that starts in a different way such as with the idea of occlusion.

8	Use your knowledge of Gregory's constructivist theory of perception to explain the Ponzo illusion shown in **Figure 1**. **[4 marks]**

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

Level	Marks	Description
2	**3 - 4**	Relevant knowledge and understanding of Gregory's constructive theory of perception with some detail. Some effective application of knowledge and understanding of Gregory's constructive theory of perception to explain the Ponzo illusion. Relevant terminology is used appropriately. The answer is clear, coherent and focused.
1	**1 - 2**	Limited or muddled knowledge and understanding of Gregory's constructive theory of perception is present. Limited or muddled application of knowledge and understanding of Gregory's constructive theory of perception to explain the Ponzo illusion. Relevant terminology may not be used at all or may be muddled. The answer as a whole lacks clarity, accuracy and organisation
	0	No relevant content.

Possible content:

AO1

- According to Gregory, perception is an active process and involves drawing inferences/guesses about the best explanation for what is being experienced.
- Gregory views perception as being constructed using both sensations (nature) and stored knowledge (nurture).
- This means we interpret sensory information using what we already know.
- Stored knowledge and expectations come from past experiences which will be individual depending on the nurturing environment.

AO2

- We learn through experience that parallel lines appear to converge in the distance.
- We interpret the two outer lines as parallel lines converging in the distance.
- We misinterpret these depth cues and apply the idea of size constancy.
- We judge the top horizontal line to be further away than the bottom horizontal line so we expect it to be longer.

Credit other relevant material.

9	Use your knowledge of **one** factor that affects perception to explain the results shown in **Table 1**. **[3 marks]**

Marks for this question: AO1 – 1 mark and AO3 – 2 marks

Award 1 mark for:

AO1

- Knowledge of **Expectation/perceptual set**

AO3

2 marks: a clear and accurate explanation of the results

1 mark: a limited or muddled explanation

Possible content:

- Group A were shown pictures of rabbits before they were shown Figure 1, the ambiguous image. They were ready to perceive – expectation/perceptual set – another rabbit due to this recent experience (perceptual set). This is why 12 out of 15/most of the children saw Figure 1 as a rabbit.
- The effect of expectation for group B was the opposite effect as they were 'set' by the nine duck pictures with the expectation/perceptual set that the next picture would be another duck when the ambiguous figure was shown so, 13 out of 15 children saw a duck.

NOTE: The only relevant factor is expectation/perceptual set. It is likely that the factor will be embedded in the answer.

10	Describe and evaluate Gibson's direct theory of perception. **[12 marks]**

Marks for this question: AO1 - 6 marks and AO3 – 6 marks

Level	Marks	Description
4	**10 - 12**	Relevant knowledge and understanding of Gibson's theory is mostly accurate with detail. Evaluation of Gibson's theory is effective. Any conclusions drawn are sound and fully expressed. Relevant terminology is used appropriately throughout. The answer is clear, coherent and focused.
3	**7 - 9**	Relevant knowledge and understanding of Gibson's theory is present but there are occasional inaccuracies/omissions. There may be some effective evaluation of Gibson's theory. There may be an attempt to draw conclusions. Relevant terminology is mostly used appropriately. The answer occasionally lacks clarity, coherence, focus and logical structure.
2	**4 - 6**	Limited knowledge and understanding of Gibson's theory is present. Any evaluation is of limited effectiveness. Relevant terminology is occasionally used. The answer as a whole lacks clarity, coherence, focus and logical structure.
1	**1 - 3**	Knowledge and understanding of Gibson's theory is present but very limited. Evaluation of Gibson's theory 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. The answer as a whole lacks clarity, has many inaccuracies and is poorly organised.
	0	No relevant content.

Possible content:

- Perceptual abilities are innate and do not have to be learnt through experience.
- We perceive things by using sensory information and sensation and perception are the same thing.
- We have enough information to understand the world around us by just using sensory information.
- Visual information such as light, texture and detail helps us to make judgements about distance, movement and depth. Optic flow patterns occur when things in the distance appear stationary and everything else rushes past

- Motion parallax is a monocular depth cue which helps us understand movement. When we are moving things closer to us appear to move faster than things further away.
- Gibson's reference to affordances is his way of explaining why inferences are not needed in perception.
- It is a bottom-up theory.

Possible evaluation:

- Gibson's theory cannot explain why perception is sometimes inaccurate, for example when our brain is tricked by visual illusions.
- Gibson's theory provides a good explanation for how we are usually able to perceive quickly and accurately in everyday life using information from the optic array.
- Gibson's theory has helped us to understand the richness of the optical information our eyes receive, such as texture and colour gradient.
- Gibson developed his theory using evidence collected in real life settings such as using pilots rather than through laboratory experiments. This increases the validity of his theory.
- Evidence shows that factors such as expectation and culture affect perception. This challenges Gibson's theory and suggests that nurture (knowledge and past experience) also play an important role in perception.
- There is research evidence to support the idea that depth perception is innate. Gibson and Walk found that infants have abilities for perceiving depth even at a very young age. This supports the idea that perception may be due to nature.

Credit other relevant material.

Section C - Biopsychology

11	Complete the following sentence. Shade **one** box only. **[1 mark]**

Marks for this question: AO1 - 1 mark

Answer: C

12	Briefly outline the role of the endocrine system. **[2 marks]**

Marks for this question: AO1 - 2 marks

2 marks: a clear and accurate description of the role of the endocrine system

1 mark: a limited or muddled description

Possible content:

- The endocrine system is a network of glands that release hormones to regulate the physiological systems of the body.
- Hormones are chemicals that act on organs or cells in the body change their function/what they are doing before the hormones arrive.
- The glands in the endocrine system release their hormones directly into the blood stream so they can reach all parts of the body to affect physiological states/behaviour.

Credit only answers that focus on the role of the endocrine system rather than naming glands/hormones.

13	From the information, identify **two** examples of functions of the autonomic nervous system and **two** examples of functions of the somatic nervous system. Write your answers in the correct boxes. **[4 marks]**

Marks for this question: AO2 - 4 marks

1 mark for **each** correct identification of a function of the **autonomic nervous system** (MAX 2).
- breathing (faster)
- heart beating (faster)
- starting to sweat/sweating

1 mark for **each** correct identification of a function of the **somatic nervous system** (MAX 2).
- walking
- smiling
- standing up straight/changing posture

NOTE: Answers that just say ‘standing’ are not creditworthy.

14	Liana has had a stroke. She now finds she has difficulty moving one side of her body. Use your knowledge of psychology to name which lobe of Liana's brain a neuropsychologist should investigate. Explain your answer. **[2 marks]**

Marks for this question: AO1 - 1 mark and AO2 – 1 mark

AO1

1 mark for

- Frontal lobe

PLUS

AO2

1 mark for the explanation

- This is the part of the brain that controls movement/contains Liana's motor area.

15	Name an appropriate scanning technique that the neuropsychologist could use to investigate Liana's problems. Justify your answer. **[4 marks]**

Marks for this question: AO1 - 1 mark and AO3 – 3 marks

AO1

1 mark for any **one** of

- CT/CAT
- PET
- fMRI/MRI
- X-ray

PLUS

AO3

Up to **3 marks** for an appropriate justification

3 marks: a clear and detailed justification with appropriate use of specialist terminology

2 marks: a clear justification with some detail

1 mark: a limited or muddled justification

Possible content:

- A CT scan is useful for showing damaged/abnormal areas of the brain, such as tumours and blood clots (a common cause of strokes). The image quality is much better than on an x-ray. Less expensive than PET scan and fMRIs.
- PET scans can show the brain in action. It can be useful / effective at finding reasons for something like a stroke by using blood flow. It can show if there is a blockage or an area of the brain that is not functioning as it should be. However, there is a slight risk from radioactivity.
- An fMRI shows which area of the brain is active when a specific task is being performed. Produces a 3D image. fMRIs are safe and do not use radiation. They are quick to carry out and produce very clear and accurate images.

Credit other relevant content

16	Outline possible effects of damage to Broca's area. **[3 marks]**

Marks for this question: AO1 - 3 marks

Up to **3 marks** for an appropriate outline

3 marks: a clear and detailed outline with appropriate use of specialist terminology

2 marks: a clear outline with some detail

1 mark: a limited or muddled outline

Possible content:

- Unable to produce speech
- Broca's aphasia or expressive aphasia
- Speech may be slow and laboured
- Loss of usual grammatical structure eg, loss of linking words and/or prepositions
- May only produce specific words or may invent words.

Credit other relevant effects**.**

17	Describe and evaluate Hebb's theory of learning and neuronal growth. **[9 marks]**

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

Level	Marks	Description
3	**7 - 9**	Relevant knowledge and understanding of Hebb's theory is mostly accurate with detail. Evaluation of Hebb's theory is effective. Any conclusions drawn are sound and fully expressed. Relevant terminology is used throughout appropriately. The answer is clear, coherent and focused.
2	**4- 6**	Relevant knowledge and understanding of Hebb's theory is present but there are occasional inaccuracies/omissions. There may be some effective evaluation of Hebb's theory. There may be an attempt to draw conclusions. Relevant terminology is mostly used appropriately. The answer may lack clarity, coherence, focus and logical structure.
1	**1 - 3**	Knowledge and understanding of Hebb's theory is present but limited. Evaluation of Hebb's theory 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	No relevant content.

Possible content:

- Hebb's theory of learning and neuronal growth suggests that when we learn, new connections are created in our brains.
- Hebb suggested that if a neuron repeatedly excites another neuron, neuronal growth occurs and the synaptic knob becomes larger.
- During learning, groups of neurons (cell assemblies) fire/act together and if this happens frequently, neural pathways are developed.
- The more we do the task we have learnt, the stronger and more efficient these new neural pathways/synaptic connections become.

Possible evaluation

- Hebb's theory has a scientific basis and although it was developed in the 1950's, it has been supported by more recent research and advances in neuroscience.
- Hebb's theory is reductionist because it attempts to explain the complex area of learning by referring mainly to just the area of activity in the brain.

- Hebb's theory has a number of practical applications including use in education.

Credit other relevant material.

Section D - Research Methods

18	Which of the following is most likely to provide secondary data? **[1 mark]**

Marks for this question: AO2 - 1 mark

Answer B (Collecting information already published by different shops.

19	Which of the following sets of data is normally distributed? Shade **one** box only. **[1 mark]**

Marks for this question: AO1 - 1 mark

Answer B

20.1	Identify the independent variable in this study. **[1 mark]**

Marks for this question: AO2 - 1 mark

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

The timing of the school day – early/late.

20.2	Identify the dependent variable in this study. **[1 mark]**

Marks for this question: AO2 - 1 mark

The number of school days missed.

20.3	Write a null hypothesis that is suitable for this study. **[2 marks]**

Marks for this question: AO2 - 2 marks

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.)

20.4	Calculate the mean number of days missed by students in the late start condition. **[2 marks]**

Marks for this question: AO2 - 2 marks

2 marks for correct mean.

0.4

1 mark for correct workings if incorrect mean is given.

76/190

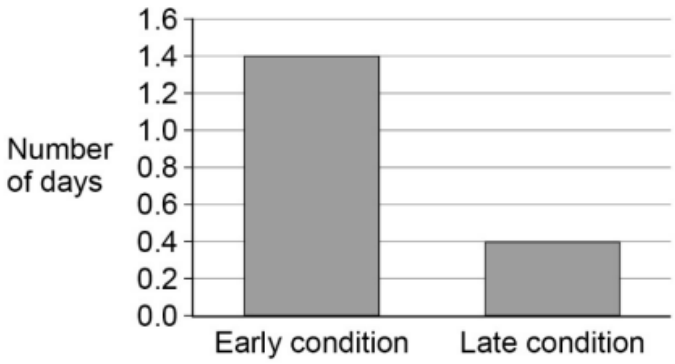
20.5	Use this mean and your calculated mean from question **20.4** to sketch an appropriate graph to show the mean number of days missed by each student in the early and late start conditions. Label the axes and provide a suitable title for your graph. **[5 marks]**

Marks for this question: AO2 - 5 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 X axis eg: timing of school start (early/late).
- Correct labelling of Y axis eg: '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 20.4 is incorrect, credit can still be given for correct plotting of the student's mean – as long as it is in line with the incorrect calculation.

NOTE: The command term 'sketch' only requires the graph to be 'roughly' drawn or plotted. The difference in heights of bars should be approximate**.**

20.6	What do the results of the study as shown in the graph you have drawn suggest? **[2 marks]**

Marks for this question: AO3 - 2 marks

2 marks: for an appropriate conclusion with some elaboration

1 mark: a conclusion that is not elaborated

Possible content:

- The time the school day starts has an impact on the absence levels of students. The average number of days missed per student is over 3 times higher on early start days than on later start days.
- When the start time is late student absence is lower suggesting students prefer to start their school day later or if they are late they do not bother to come to school and miss the whole day.

Note: consistent suggestions/conclusions based on a student's incorrect mean calculation can be awarded **1 mark**

Credit other relevant conclusions.

20.7	Explain the experimental design the researcher used in this study. **[2 marks]**

Marks for this question: AO2 - 2 marks

1 mark for each of the following:

- All the Year 9 students took part in both the conditions of the study (the early start and the late start)
- This is a repeated measures design (related samples design)

20.8	Explain **one** strength of using a field experiment to investigate student absence. **[2 marks]**

Marks for this question: AO2 - 2 marks

2 marks: for a clear and detailed strength of using a field experiment in this case

1 mark: a strength that lacks detail or is limited/muddled

Possible strengths:

- A strength of using a field experiment is that it was conducted in the natural settings of the students' own school. This means the students responded to the change in start times in a realistic way and the results would have high ecological validity.
- The students would not be aware that their absence rates were being investigated. This means that there should be fewer demand characteristics that might affect the results of the study.

21.1	Explain how the researcher could use systematic sampling to get his sample of students. **[3 marks]**

Marks for this question: AO2 - 3 marks

1 mark for each of the following:

- The researcher would choose an appropriate number given there are 190 Year 9 students in the school – eg: every 19th student of the Year 9 school roll/list
- They would then go through the list of names and select every 18th person on the list
- They would stop when they had the number they wanted to interview.

21.2	Identify **one** ethical issue the researcher should deal with before interviewing the year 9 students. Explain how he could deal with this issue. [3 marks]

Marks for this question: AO1 - 1 mark and AO2 – 2 marks

1 mark for:

Respect/consent(informed)/parental consent/confidentiality/protection from harm

PLUS

2 marks: for a clear and detailed practical way of dealing with the ethical issue chosen

1 mark: a way that lacks detail or practicality

Possible content:

- The researcher could send a letter home with all the students who were due to be interviewed, explaining the interview he would be conducting and asking the parents/guardians and the student to sign to say they agreed to the interview
- The researcher could show the interview questions to the head teacher to check that there would be nothing that could upset a student during the interview. He could change any questions if necessary

Credit other relevant material.

AQA

GCSE
PSYCHOLOGY
8182/1

Paper 1 Cognition and Behaviour

Mark scheme

June 2020

Version: 1.0 Final Mark Scheme

206g8182/1/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.

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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	Which is the **best** example of information that would be stored as procedural memory? Shade **one** box. A. How many millilitres there are in a litre B. How to play a piece of music on the piano C. The colours used in the Italian flag D. What happened on your first day at secondary school **[1 mark]**

Marks for this question: AO2 – 1 mark

Answer – B

02	Which of the following statements about short-term memory (STM) is true? Shade **one** box. A. STM can hold information for up to 30 seconds. B. STM can store approximately 15 pieces of information. C. STM transfers information to long-term memory through attention. D. STM usually encodes information semantically. **[1 mark]**

Marks for this question: AO1 – 1 mark

Answer – A

03	Evaluate the multi-store model of memory. **[5 marks]**

Marks for this question: AO3 – 5 marks

Level	Marks	Description
3 Detailed	**4–5**	Analysis and evaluation of the multi-store model of memory 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 multi-store model of memory. 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 multi-store model of memory 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:

- 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.

Accept other relevant content.

04	Describe Bartlett's 'War of the Ghosts' study. **[4 marks]**

Marks for this question: AO1 – 4 marks

Level	Marks	Description
2 Clear	**3–4**	Clear and accurate knowledge and understanding of Bartlett's War of the Ghosts study with some detail. Relevant terminology is used consistently throughout. The answer demonstrates a high level of substantiated reasoning is clear, coherent and focused.
1 Basic	**1–2**	Limited or muddled knowledge and understanding of Bartlett's War of the Ghosts study is 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 how memory for an unfamiliar story is affected by cultural expectations or to see how memory is reconstructed.
- British participants were given a Native American Indian story called 'The War of the Ghosts'.
- After a short period of time, they were asked to retell the story. This took place several times.
- Bartlett found that participants remembered the key themes in the story. However, the story was shortened when it was retold and some parts were omitted.
- Participants altered some details of the story to fit in with their own cultural experiences. For example, they changed 'canoes' to 'boats'.
- Bartlett concluded that how stories are remembered depends on existing cultural knowledge or schemas.

Credit other relevant content.

05	Use your knowledge of the theory of reconstructive memory to explain why each eyewitness gave different descriptions of the same robber. **[6 marks]**

Marks for this question: AO1 – 3 marks, AO2 – 3 marks

Level	Marks	Description
3 Detailed	**5–6**	AO1: Relevant knowledge and understanding of the theory of reconstructive memory is accurate with detail. AO2: Clear application of knowledge and understanding of reconstructive memory to explain why each eyewitness gave different descriptions of the same robber. 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 the theory of reconstructive memory is present but there are occasional inaccuracies/omissions. AO2: Reasonable application of knowledge and understanding of reconstructive memory to explain why each eyewitness gave different descriptions of the same robber. 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 the theory of reconstructive memory is present but limited. AO2: Limited application of knowledge and understanding of reconstructive memory to explain why each eyewitness gave different descriptions of the same robber. 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

- Memory is not like a video recording. This means that memories may not be an accurate version of events.
- Memory is an active process in which we try to make sense of events and information using our previous knowledge and experience (effort after meaning).
- We can alter our memories so that they fit in with our social and cultural expectations/schemas.

- The way we store and recall information can be influenced by stereotypes.

AO2

- The two eyewitnesses gave different descriptions of the same robber because they made sense of the events they saw in different ways.
- Their own experiences and expectations such as what they have heard in the news or seen in films will shape how they remember the robber.
- One eyewitness may have expected robbers to carry a weapon which explains why they remember him as carrying a knife.
- The other eyewitness may have a stereotype that people who commit crimes often wear hoodies which explains why they remember him as wearing a hoodie.

Accept other relevant content.

06	Explain **one weakness** of the reconstructive theory of memory.	**[2 marks]**

Marks for this question: AO3 – 2 marks

Up to **2 marks** for an explanation.
2 marks: a clear and accurate explanation.
1 mark: a limited or muddled explanation

Possible content:

- It does not help us to understand why some memories are not actively reconstructed and are remembered accurately.
- Some research has found that recall of familiar / personal and unambiguous stories can be accurate and detailed. This suggests that not all events are changed and reconstructed when they are recalled.

Credit other relevant weaknesses.

Note: Evaluation of the 'War of the Ghosts' study alone, without reference to how that impacts on the theory, can get a maximum of 1 mark.

07	You have been asked to investigate the effect of context on the accuracy of memory. Describe how you would design an experiment to do this. You need to include the following information in your answer: • what you would ask participants to do and what data you would collect • one extraneous variable that could affect your results and how you could control it • the results you would expect to find from your experiment. **[6 marks]**

Marks for this question: AO2 – 4 marks and AO3 – 2 marks

AO2

1 mark for description of suitable task.

PLUS

1 mark for description of data collected.

PLUS

Up to 2 marks for one relevant extraneous variable and how it would be controlled.

2 marks for a clear and accurate description.

1 mark for a limited or muddled description.

AO3

2 marks: a clear and accurate description of the expected results with both conditions of the IV.

1 mark: a limited or muddled description of the expected results.

NOTE: if a student only describes a known study rather than basing their design on a known study (max 1 mark).

NOTE: The extraneous variable and control may be creditworthy even if the study is not.

Total Section A – 25 marks

Section B

Perception

08	Which **two** of the following are binocular depth cues? Shade **two** boxes. A. Convergence B. Height in plane C. Linear perspective D. Relative size E. Retinal disparity **[2 marks]**

Marks for this question: AO1 – 2 marks

A, E

09	Which is the **best** explanation for the visual illusion known as the Ames room? Shade **one** box. A. Ambiguity B. Fiction C. Occlusion D. Size constancy **[1 mark]**

Marks for this question: AO1 – 1 mark

D

10	Briefly evaluate Gibson's direct theory of perception. **[4 marks]**

Marks for this question: AO3 – 4 marks

Level	Marks	Description
2 Clear	**3–4**	Analysis and evaluation of Gibson's direct theory of perception 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, is clear, coherent and focused.
1 Basic	**1–2**	Analysis and evaluation of Gibson's direct theory of perception is of limited effectiveness or muddled. Any attempts to draw conclusions are not always successful. 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:

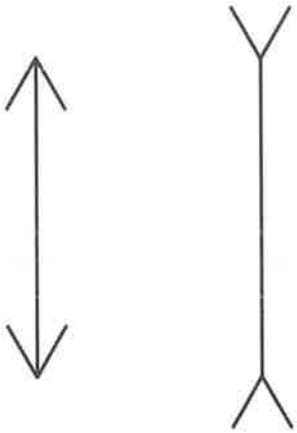
- Gibson's theory cannot explain why perception is sometimes inaccurate, for example when our brain is tricked by visual illusions.
- Gibson's theory provides a good explanation for how we are usually able to perceive quickly and accurately in everyday life using information from the optic array.
- Gibson's theory has helped us to understand the richness of the optical information our eyes receive, such as texture and colour gradient.
- Gibson developed his theory using evidence collected in real life settings such as using pilots rather than through laboratory experiments. This increases the validity of his theory.
- Evidence shows that factors such as expectation and culture affect perception. This challenges Gibson's theory and suggests that nurture (knowledge and past experience) also play an important role in perception.
- There is research evidence to support the idea that depth perception is innate. Gibson and Walk found that infants have abilities for perceiving depth even at a very young age. This supports the idea that perception may be due to nature.

Credit other relevant evaluation.

11.1	Sketch the Müller-Lyer illusion.	**[1 mark]**

Marks for this question: AO1 – 1 mark

1 mark for sketching the Müller-Lyer illusion.



NOTE: The two longer lines need to be similar in length, but not necessarily identical, to be creditworthy.

11.2	Outline how psychologists would explain the Müller-Lyer illusion.	**[3 marks]**

Marks for this question: AO1 - 3 marks

Up to **3 marks** for a relevant explanation of the Müller-Lyer illusion.

3 marks: a clear and detailed explanation.

2 marks: a limited explanation.

1 mark: a muddled explanation.

Possible content:

- The illusion occurs because of misinterpreted depth cues caused by the arrows at the end of each line.
- The arrow heads with outward fins make the line look like the near edge of a building/close to us.
- The arrow heads with inward fins make the line look like the far corner of a room/far away from us.
- We unconsciously scale up the line with inward fins thinking that as it is farther away than the line with outward fins it must be longer.

Accept other relevant content.

NOTE: 'Outward fins' and 'inward arrow heads' are seen to be the same.
'Inward fins' and 'outward arrow heads' are seen to be the same.

12.1	Calculate the percentage of students in Group B who saw **Figure 1** as a rabbit. State your answer using **two** significant figures **and** show your workings. **[3 marks]**

Marks for this question: AO2 – 3 marks

3 marks for correct percentage to two significant figures.

13

2 marks for the correct percentage but not rounded to two significant figures.

For example 13.33 or 13.0

1 mark for correct workings.

2/15 x 100

12.2	Which of the following is the correct fraction of Group A who saw **Figure 1** as a duck? Shade **one** box. **[1 mark]**

Marks for this question: AO2 – 1

C

12.3	Use your knowledge of **one** factor that affects perception to explain the results shown in **Table 1**. **[4 marks]**

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

Level	Marks	Description
2 Clear	**3–4**	AO1: Clear and accurate knowledge of the effect of expectation on perception with some detail. AO2: Clear and accurate application of knowledge and understanding to explain the results in **Table 1**. 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 effect of expectation on perception is present. AO2: Limited or muddled application of knowledge and understanding to explain the results in **Table 1**. 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 factor affecting perception is expectation. We often perceive what we expect or anticipate seeing.
- Our past experiences shape what we expect to see (create a perceptual set) so that we are more ready to perceive some objects than others.

AO2

- In this experiment, Group A were shown pictures of rabbits before they were shown **Figure 1**, which is an ambiguous image. They were ready to perceive another rabbit due to this recent experience (perceptual set). This is why 11 out of 15 participants in Group A saw **Figure 1** as a rabbit and only 3 out of 15 saw a duck.
- In this experiment, 13 out of 15 participants in Group B saw a duck compared with 3 out of 15 in Group A. This was because only Group B were shown pictures of ducks before they were shown **Figure 1**, which is an ambiguous image.

NOTE: The only relevant factor is expectation.

Accept other relevant content.

13	Outline how culture can affect perception. Refer to **both** Marc **and** José's comments in your answer. **[4 marks]**

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

Level	Marks	Description
2 Clear	**3–4**	AO1: Clear and accurate knowledge and understanding of how culture can affect perception with some detail. AO2: Clear and accurate application of knowledge and understanding of the influence of culture to Marc **and** José's perception. 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 and understanding of how culture can affect perception is present. AO2: Limited or muddled application of knowledge and understanding of the influence of culture to Marc **and/or** José's perception. **OR** Only application of knowledge and understanding of the influence of culture to Marc **or** José at Level 2. 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
- The culture in which we live influences our upbringing, experiences and how we make sense of the world around us.
- Gregory's constructivist theory of perception says we use our stored knowledge and experiences when we perceive things.
- This leads us to have cultural expectations which shape the way we perceive the world around us.

AO2
- Marc has grown up on a farm so is more likely to know what farm animals eat. This is why he thinks the cat is the odd one out as the sheep eats grass.
- José has grown up in a city so he is more likely to think of animals as pets. This is why he thinks the grass is the odd one out.

NOTE: The AO1 may be embedded in the body of the answer.
Accept other relevant content.

14	Explain **one** strength of using laboratory experiments in research. **[2 marks]**

Marks for this question: AO3 – 2

Up to **2 marks** for one relevant strength of using laboratory experiments in research.

2 marks: a clear and accurate explanation.

1 mark: a limited or muddled explanation.

Possible content:

- One strength is it gives researchers a high level of control over extraneous variables.
- This makes it easier to measure how the independent variable affects the dependent variable.
- One strength is it is easier to standardise procedures.
- This makes it easier for other researchers to replicate research using different samples.

Accept other relevant content.

Total Section B – 25 marks

Section C

Development

15	Sienna is planning her holiday. Which part of the brain plays a key role in this activity? Shade **one** box only. A. Brain stem B. Cerebellum C. Cortex D. Thalamus **[1 mark]**

Marks for this question: AO2 – 1 mark

C

16	Matt is looking at a drawing of how castles were designed. Which **one** of the following learning styles is he using? Shade **one** box only. A. Fixed B. Growth C. Verbaliser D. Visualiser **[1 mark]**

Marks for this question: AO2 – 1 mark

D

17	According to Piaget's theory of cognitive development, during which stage will a child first start to look for something that has been hidden from view? Shade **one** box only. A. Concrete operational B. Formal operational C. Pre-operational D. Sensorimotor **[1 mark]**

Marks for this question: AO1 – 1 mark

D

18.1	Outline **one** example of how Mr Taylor can use praise to improve Jana's learning. **[2 marks]**

Marks for this question: AO2 – 2 marks

Up to **2 marks** for an example.
2 marks: a clear and accurate example.
1 mark: a limited or muddled example.

Examples:

- he can send email home when she completes a good piece of work
- he can say well done when she puts good effort into a task
- he can give her a merit for answering a question in class.

Credit other relevant examples.

NOTE: Answers that give an example, and an explanation of how the example can increase learning can be considered fair and accurate.

NOTE: Reference to praising effort or ability can be creditworthy.

18.2	Outline **one** example of how Mr Taylor can increase Jana's self-efficacy. **[2 marks]**

Marks for this question: AO2 – 2 marks

Up to **2 marks** for example
2 marks: a clear and accurate example
1 mark: a limited or muddled example

Examples:

- he can set her easier questions so that she can complete them successfully
- he can break down tasks into steps and help her to complete one step at a time
- he can point out to Jana that other students get stuck then work to overcome problems
- he can praise Jana when she successfully completes tasks, plus an explanation of how this can increase Jana's self-efficacy.

Credit other relevant examples.

19	Use your knowledge of **both** negative schemas as an explanation for depression **and** Dweck's Mindset theory of learning to explain why these two students responded in different ways. Briefly evaluate **both** negative schemas as an explanation for depression **and** Dweck's Mindset theory. **[9 marks]**

Marks for this question: AO1 – 3, AO2 – 3, AO3 – 3

Level	Marks	Description
3 Detailed	**7–9**	AO1: Relevant knowledge and understanding of Dweck's Mindset theory of learning **and** negative schemas as an explanation for depression is accurate with detail. AO2: Clear application of knowledge and understanding of Dweck's Mindset theory of learning **and** negative schemas as an explanation for depression to the students' responses. AO3: Analysis and evaluation of Dweck's Mindset theory of learning **and** negative schemas as an explanation for depression 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, is clear, coherent and focused.
2 Clear	**4–6**	AO1: Relevant knowledge and understanding of Dweck's Mindset theory of learning **and/or** negative schemas as an explanation for depression is present but there are occasional inaccuracies/omissions. AO2: Reasonable application of knowledge and understanding of Dweck's Mindset theory of learning **and/or** negative schemas as an explanation for depression to the students' responses. AO3: There may be some effective analysis and evaluation of Dweck's Mindset theory of learning **and/or** negative schemas as an explanation for depression. 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 Dweck's Mindset theory of learning **and/or** negative schemas as an explanation for depression is present but limited. AO2: Limited application of knowledge and understanding of Dweck's Mindset theory of learning **and/or** negative schemas as an explanation for depression to the students' responses.

		AO3: Analysis and evaluation of Dweck's Mindset theory of learning **and/or** negative schemas as an explanation for depression 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
- People with a fixed mindset believe that success is due to innate factors like genes. This means there is nothing you can do to change your ability or talent
- People with a growth mindset believe that ability and success is due to hard work and perseverance.
- Negative schemas lead people to interpret events in a biased way. They tend to interpret things in pessimistic ways and often ignore more positive ways of viewing events.

AO2
- Mason's comments suggest he has a fixed mindset. He thinks there will always be other people more talented than him and that here is nothing he can do to change this.
- Kyle's comments suggest he has a growth mindset. He is using feedback from the coach to improve his fitness and increase the likelihood of being chosen in the future.
- Mason's comments suggest he may have negative schemas because he only sees the bad things about this situation. For example, he has decided the coach does not like him even though there is no evidence that this is the case.

AO3
- One strength of mindset theory is that people can change their mindset and this can be used to improve performance in different contexts such as at school, in sports or in the workplace.
- Knowledge and understanding of negative schemas has led to effective treatments for mental health disorders like depression through helping people to identify and challenge their negative patterns of thinking.

Accept other relevant content.

20	Hughes investigated egocentrism in his 'policeman doll study'. Describe this study. **[4 marks]**

Marks for this question: AO1 – 4 marks

Level	Marks	Description
2 Clear	**3–4**	Clear and accurate knowledge and understanding of Hughes' policeman doll study with some detail. Relevant terminology is used consistently throughout. The answer demonstrates a high level of substantiated reasoning, is clear, coherent and focused.
1 Basic	**1–2**	Limited or muddled knowledge and understanding of Hughes' policeman doll study is 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:

- Thirty children aged from 3.5 to 5 years old took part in the laboratory study.
- Hughes tested egocentrism using a model of two intersecting walls, a boy doll and two policeman dolls.
- To introduce the task, a policeman doll was placed on the model. Each child was asked to hide the boy doll from the policeman doll.
- The child was told if they made a mistake, and was allowed to try the task again.
- In the actual experiment, a second policeman doll was placed on the model and the child was asked to hide the boy doll so that neither of the policeman dolls could see him.
- Ninety percent of the children were able to hide the boy doll from the policeman dolls.
- Hughes concluded that most children between 3.5 and 5 years old can see things from another person's point of view so are not egocentric in their thinking.

21	Evaluate Hughes' 'policeman doll study'.	**[5 marks]**

Marks for this question: AO3 – 5

Level	Marks	Description
3 Detailed	**4–5**	Evaluation of Hughes' 'Policeman doll 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, is clear, coherent and focused.
2 Clear	**2–3**	There may be some effective evaluation of Hughes' 'Policeman doll 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**	Evaluation of Hughes' 'Policeman doll study' is of limited effectiveness. 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:

AO3

- One strength of the study is that asking children to hide a doll made the task engaging and meaningful to children. It can be argued that this meant children were better able to show their cognitive ability than in Piaget's original research.
- A limited sample of children was used as all of the participants came from Edinburgh. This means it may be problematic to generalise these findings to explain when children from other cultures can see things from another person's point of view.
- Other research studies support the findings that some children under seven-years-old can see things from other person's point of view.
- One strength of this study is that it challenged Piaget's conclusion that children are egocentric in their thinking until the age of about seven-years-old. It suggested that some children can see the world from different viewpoints at a significantly younger age than was previously thought.

Accept other relevant evaluation.

NOTE: Answers that only give generic evaluations are considered to be Basic.

Total Section C – 25 marks

Section D

Research Methods

22	Which **two** of the following are commonly understood to be advantages of case studies? Shade **two** boxes. A. The conclusions drawn are objective. B. The findings can be easily generalised to the behaviour of other people. C. They are easy for others to replicate. D. They can be used to study rare and unusual behaviours. E. They provide rich and detailed information. **[2 marks]**

Marks for this question: AO1 – 2 marks

D, E

23	Which **one** of the following statistics is calculated by finding the difference between the smallest and largest values in a set of data? Shade **one** box only. A. Mean B. Median C. Mode D. Range **[1 mark]**

Marks for this question: AO2 – 1 mark

D

24	Outline what is meant by independent groups **and** repeated measures. Discuss the strengths and weaknesses of **both** of these types of experimental design. **[9 marks]**

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

Level	Marks	Description
3 Detailed	**7–9**	AO1: Relevant knowledge and understanding of independent groups **and** repeated measures is accurate with detail. AO3: Analysis of the strengths and weaknesses of independent groups **and** repeated measures 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, is clear, coherent and focused.
2 Clear	**4–6**	AO1: Relevant knowledge and understanding of independent groups **and** repeated measures is present but there are occasional inaccuracies/omissions. AO3: There may be some effective analysis of the strengths and weaknesses of independent groups **and** repeated measures. 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 independent groups **and** repeated measures is present but limited. AO3: Analysis of the strengths and weaknesses of independent groups **and** repeated measures 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

- In an independent groups design, different participants are used for each condition of the independent variable.
- This usually means that one group of participants completes the control condition and a different group of participants completes the experimental condition.

- In a repeated measures design each participant completes all conditions in an experiment.
- This means that the same group of participants completes all the experimental and control conditions.

AO3

- With an independent groups design, participant variables such as intelligence may influence the results for each group. This means it can be problematic to compare the results of the experimental group to the control group.
- A repeated measures design has no participant variables as the same participants take parts in both conditions. This means the results for each participant for both conditions can be directly compared.
- More participants are needed with an independent groups design as you need a different group of participants for each condition.
- Less participants are needed in a repeated measures design as only one group of participants is used so this can be less expensive and quicker.
- With an independent groups design there are no order effects as participants only complete one condition.

Accept other relevant content.

25.1	Outline **one** strength of using a stratified sample when conducting research. **[2 marks]**

Marks for this question: AO3 – 2 marks

Up to **2 marks** for outlining one strength.

2 marks: a clear and accurate outline.

1 mark: a limited or muddled outline.

Possible content:

AO3

- Stratified samples are representative because they ensure each subgroup of the target population is included in the sample. This increases generalisability.
- Participants are selected randomly from subgroups, this decreases the possibility of investigator bias.

Accept other relevant content.

25.2	Give a definition of **both** qualitative **and** quantitative data. **[2 marks]**

Marks for this question: AO1 – 2 marks

1 mark for a clear definition of qualitative data:

Qualitative data is information that is descriptive and non-numerical.

PLUS

1 mark for a clear definition of quantitative data:

Quantitative data is information that is numerical.

25.3	When collecting information about mental well-being, explain why collecting qualitative data rather than quantitative data may increase the validity of the data collected by the researcher? **[2 marks]**

Marks for this question: AO2 – 2 marks

Up to **2 marks** for an explanation.
2 marks: a clear and accurate explanation.
1 mark: a limited or muddled explanation **OR** no link to the mental well-being data.

Possible content:

- When qualitative data is collected people are not limited by a list of fixed responses, because they express their mental well-being in their own words.
- This increases the validity of the data collected as these responses will better represent their actual mental well-being.

Accept other relevant content.

25.4	Identify the mode for the average daily exercise scores shown in **Table 3**. **[1 mark]**

Marks for this question: AO2 – 1 mark

Mode = 30

Accept 30 (minutes)

25.5	Calculate the median for the average mental well-being scores shown in **Table 3**. **[1 mark]**

Marks for this question: AO2 – 1 mark

Median = 11

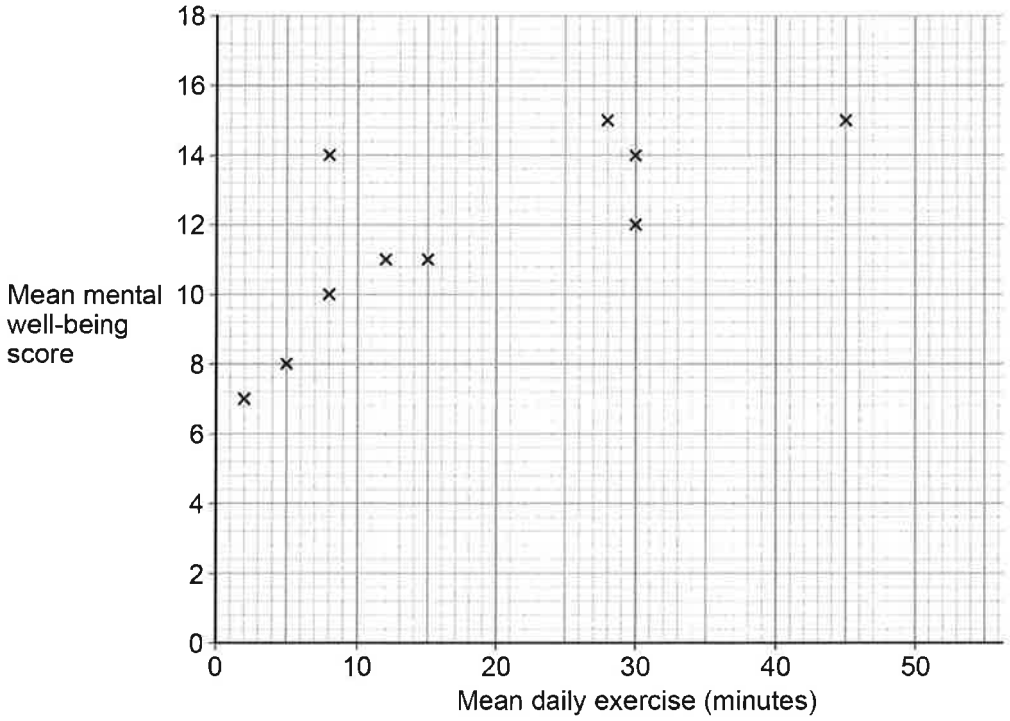
25.6	Use the graph paper to sketch a scatter diagram to show the results shown in **Table 3**. Provide a suitable title and labels for your diagram. **[4 marks]**

Marks for this question: AO2 – 4 marks

Up to **4 marks** for sketching and labelling a scatter diagram.

- Informative title (1 mark).
- Correct labelling of both axes (1 mark).
- Correct scaling of both axes (1 mark).
- Correct plotting of the results (1 mark).

A graph to show the relationship between mean mental well-being scores and mean daily exercise



25.7	Identify the type of correlation the researcher has found between exercise and mental well-being. Shade **one** box only. A. Negative correlation B. No correlation C. Perfect correlation D. Positive correlation **[1 mark]**

Marks for this question: AO2 – 1 mark

D

Total Section D – 25 marks

AQA

GCSE
PSYCHOLOGY
8182/1

Paper 1 Cognition and Behaviour

Mark scheme

June 2021

Version: 1.0 Final Mark Scheme

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.

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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

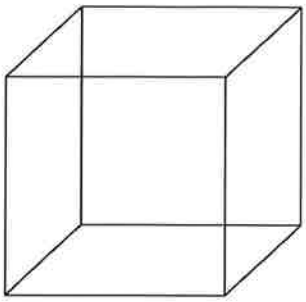
- Gregory's theory suggests that perception is influenced by nurture/learning and past experiences.
- Environmental experiences did appear to influence how people perceived the Müller-Lyer illusion. When the participants' environment meant that they were more used to using depth cues (city environment), 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.
$\frac{76}{190}$

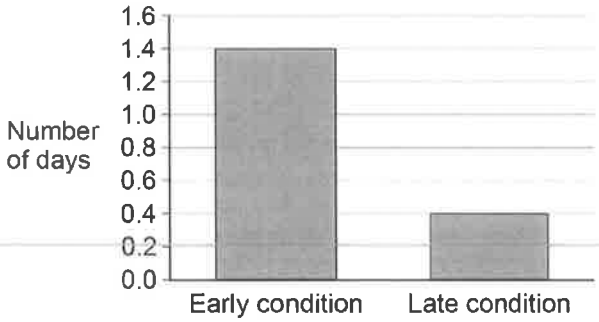
22.5	The mean for the early start condition was 1.4 Use this mean and your calculated mean from question **22.4** to sketch a suitable graph to show the mean number of days missed by each student in the early and late start conditions. Label the axes and provide a suitable title for your graph. **[4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

AQA

GCSE
PSYCHOLOGY
8182/1

Paper 1 Cognition and Behaviour

Mark scheme

June 2022

Version: 1.0 Final Mark Scheme

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.

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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, i.e. 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.

Possible 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 possible 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	Which **two** of the following statements about the reconstructive theory of memory are correct? Shade **two** boxes. **[2 marks]**

Marks for this question: AO1 – 2 marks

Answers

C (Memory involves effort after meaning)
E (The way we store and recall information is an active process)

02	Briefly evaluate the reconstructive theory of memory. **[2 marks]**

Marks for this question: AO3 – 2 marks

Up to **2 marks** for evaluation of the reconstructive theory of memory.

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

Possible content:

AO3

- There is research evidence to support the idea that people add effort after meaning when recalling events. For example, in Bartlett's 'War of the Ghosts' study, participants changed parts of the story when they retold it, showing that memories are reconstructed.
- Not all memories are reconstructed. Research evidence shows that important personal events, such as our first day at school, are often accurately remembered.
- The theory can be applied to everyday situations. It helps us understand why two different people, such as eyewitnesses, can give very different versions of the same events. Both have reconstructed the events in different ways.
- The theory is based on evidence that has higher ecological validity than memory research in which participants have to learn word lists. This is because retelling a story is a more familiar use of memory in everyday life than learning word lists.
- The theory is still very popular despite being developed in the early 1900s.

Credit other relevant evaluation.

NOTE: No credit for evaluation of the 'War of the Ghosts' study alone, without reference to how it impacts on the theory.

03.1	Use the article to identify **two** examples of procedural memory, **two** examples of semantic memory and **two** examples of episodic memory. Write your answers in the correct boxes. **[6 marks]**

Marks for this question: AO2 – 6 marks

1 mark for each correct response for procedural memory (MAX 2)
1 mark for each correct response for semantic memory (MAX 2)
1 mark for each correct response for episodic memory (MAX 2)

	Procedural memory	**Semantic Memory**	**Episodic memory**
Example 1	How to play the piano	London is the capital of England	What he ate (the day before)
Example 2	How to ride a bike	The Eiffel Tower is in Paris	What he was wearing (the day before)

Credit other appropriate wording.

03.2	Psychologists sometimes study unique individuals like TJ using a case study. Briefly evaluate the use of case studies in psychological research. **[3 marks]**

Marks for this question: AO3 – 3 marks

Up to **3 marks** for evaluation of the use of case studies in psychological research.

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

Possible content:

AO3
- The information provided by a case study is very detailed.
- The information gathered from a case study cannot be applied to a wider population because it is very specific to the participants involved.
- There are various ethical issues to consider when carrying out a case study. For example, because the participants are so unique, it may be possible to identify them from any reports of the results. This may prevent data about participants remaining confidential.
- Case studies are a good way of studying unusual behaviours/phenomena that cannot be studied using other methods. In doing so, they often help our understanding of what is 'normal'.
- Case studies record behaviour over time. This allows changes in behaviour to be seen.

Accept other relevant content.

04	You have been asked to investigate the effect of interference on the accuracy of memory. Describe how you would design an experiment to do this. You need to include: • what participants would be asked to do • a suitable hypothesis for your experiment • the results that you expect to find. **[6 marks]**

Marks for this question: AO2 – 4 marks and AO3 – 2 marks

AO2
Up to **2 marks** for describing a method that would investigate the effect of interference on the accuracy of memory.

2 marks: a clear and accurate description where participants do a similar thing with similar material.
1 mark: a limited or muddled description.

PLUS

Up to **2 marks** for a suitable hypothesis for the experiment that has been described.

2 marks: there must be both conditions of the independent variable and a clear dependent variable which makes the statement operational.
1 mark: the hypothesis lacks some clarity.

PLUS

AO3
Up to **2 marks** for the results you expect to find.

2 marks: a clear and accurate description of the expected results with both conditions of the independent variable.
1 mark: a limited or muddled description of the expected results.

NOTE: The 'description' **and** the 'results' marks can only be awarded if the described experiment investigates the effect of interference on the accuracy of memory.

NOTE: Distraction is a distinct process (preventing encoding) and not the same as interference (a failure to retrieve). An experiment that focuses on distraction is therefore not likely to be creditworthy.

NOTE: If a student only describes a known study rather than basing their design on a known study (max 1 mark).

05	Murdock investigated the effects of serial position on recall. Describe **and** evaluate this study. **[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 Murdock's serial position curve study is accurate with detail.~~ AO3: Analysis and evaluation of Murdock's serial position curve 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 Murdock's serial position curve study is present but there are occasional inaccuracies/omissions. AO3: There may be some effective analysis and evaluation of Murdock's serial position curve 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 Murdock's serial position curve study is present but limited. AO3: Analysis and evaluation of Murdock's serial position curve 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 there are separate short-term and long-term memory stores or to see if the likelihood of recalling a word depends on its position in the list.
- Participants heard lists of words. The word lists had between 10 and 40 words on them. The participants were asked to recall as many as possible.
- Participants recalled more words from the start of the list (primacy effect) and the end of the list (recency effect) than those in the middle of the list.
- These results have been taken to show that the words at the end of the list were recalled best as they were still in the short-term memory. The ones at the start of the list were recalled well because they had been transferred to the long-term memory. The words in the middle of the list were not remembered well and this suggests that they were not in either the short- or long-term store.
- These results indicate the likelihood of recalling a word depends on its position in a list.

AO3

- This provides evidence for the existence of short- and long-term memory stores.
- This is a laboratory-based study, so participants were using their memory under highly controlled conditions. This allowed the researcher to eliminate many extraneous variables so they can be sure the position of a word in a list affected the likelihood of it being recalled.
- Participants were asked to listen to word lists. This was an artificial task because people do not normally have to do this. This means the results may lack validity because they may not predict how serial position affects memory recall in everyday memory.
- The effects of serial position were tested in a laboratory setting in this study. This may have increased the artificiality of the performance of the participants. This means it is difficult to generalise research findings to predict the effects of serial position in a more normal setting.
- A limited sample of participants was used in this study. They were all psychology students and so may have been of a similar age. This means it is difficult to generalise the findings to predict the effects of serial position to people of different ages or who have not studied psychology.

Accept other relevant content.

NOTE: Reference to 'serial position' is not enough for 'relevant content' because it is part of the question stem.

Section B

Perception

06	Gilchrist and Nesberg investigated the effect of motivation on perception. Which **two** of the following statements about their study are correct? Shade **two** boxes. **[2 marks]**

Marks for this question: AO1 – 2 marks

Answers

B (The independent variable was whether participants were deprived of food or not)
C (The participants were shown slides of four different meals)

07	Which **one** of the following is a description of occlusion? Shade **one** box. **[1 mark]**

Marks for this question: AO1 – 1 mark

Answer

C (Where an object covers part of another object in the visual field, it appears to be closer)

08.1	The range of estimated lengths for the spider for participants in Group B was 43 mm. Use the information in **Table 1** to calculate the range of estimates for participants in Group A. Show your workings. **[2 marks]**

Marks for this question: AO2 – 2 marks

2 marks for correct range.
102 or 103

1 mark for correct workings ONLY.
161–59

08.2	The mean estimated length of the spider in Group A was 93 mm. Use the information in **Table 1** to calculate the mean estimated length of the spider in Group B. State your answer using **two** significant figures **and** show your workings. **[3 marks]**

Marks for this question: AO2 – 3 marks

3 marks for correct mean to two significant figures.
81

2 marks for the correct mean but not rounded to two significant figures.
80.6

1 mark for correct workings ONLY.
806/10

NOTE: Credit may be given for correct answers written in the workings box – not just on the answer line.

09	Outline **one** binocular depth cue that affects how people judge distance. Refer to Ava's experience 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 **one** binocular depth cue with some detail. AO2: Clear and accurate application of knowledge and understanding of **one** binocular depth cue to Ava's experience. 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 **one** binocular depth cue. AO2: Limited or muddled application of knowledge and understanding of **one** binocular depth cue to Ava's experience. 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
- Convergence is a depth perception that uses the extent to which eye muscles have to work, in order to focus on images/objects. The closer an image/object is, the more the eye muscles have to work.
- Retinal disparity is the difference between the sensory information received through each eye as they view the world from a different angle. The more disparity, the further away an image/object is.

AO2
- Ava cannot use convergence/retinal disparity when one eye is covered so she is struggling with depth perception.
- This means Ava finds it difficult to judge how far away things are when she is moving around her house. This is why she is clumsy and bumps into furniture when she wears the eye patch.

Accept other relevant content.

NOTE: If the candidate has written about more than one binocular depth cue, award marks to the one that is clearest and most effective.

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

NOTE: Monocular depth cues are not creditworthy.

10	Describe Gregory's constructivist theory of perception.	**[4 marks]**

Marks for this question: AO1 – 4 marks

Level	Marks	Description
2 Clear	**3–4**	Clear and accurate knowledge of Gregory's constructivist theory of perception. 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**	Limited or muddled knowledge of Gregory's constructivist theory of perception. 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

- Perception is an active process because it involves drawing inferences.
- Perception is constructed using both sensations and stored knowledge.
- We learn how to perceive (nurture) because we interpret sensory information using what we already know (a top-down theory of perception).
- Stored knowledge and expectations come from past experiences.
- Perception becomes more sophisticated as we get older.
- We use visual cues to help us perceive distance and depth.
- Mistakes in perception, such as being tricked by visual illusions, are the result of misinterpreting visual cues.

Accept other relevant content.

11	Bruner and Minturn investigated the effect of expectation on perception. Describe this study. Evaluate the research method used in this study. **[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 Bruner and Minturn's study is accurate with detail. AO3: Analysis and evaluation of laboratory-based studies is effective. Research 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 Bruner and Minturn's study is present but there are occasional inaccuracies/omissions. AO3: There may be some effective analysis and evaluation of laboratory-based studies. 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 Bruner and Minturn's study is present but limited. AO3: Analysis and evaluation of the laboratory-based studies 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

- 24 participants took part in an experiment on recognising numbers and letters using an independent groups design.
- Half of the participants were shown a series of letters with an ambiguous figure in the middle. The other half were shown a series of numbers with the same ambiguous figure in the middle.
- The ambiguous figure was a broken 'B' that could be seen as either the letter B or the number 13.
- Most of the participants who had been shown numbers drew a '13'. Most of the participants who were shown letters drew a 'B'.
- The researchers concluded that the participants' expectations had directly affected how they interpreted the ambiguous figure.
- This shows that expectation affects perception.

AO3

- This is a laboratory-based study, so people were perceiving figures 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 are often carried out in artificial settings. This means there is a lack of ecological validity.
- Laboratory-based study often use artificial tasks (such as interpreting ambiguous images). Because people do not normally have to do these, 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.

NOTE: Where a description is not given, or is not creditworthy, AO3 marks for accurate evaluation of laboratory-based studies can still be awarded.

NOTE: Reference to the effect of expectation on perception is not enough for 'relevant content' because it is part of the question stem.

NOTE: Evaluation of Bruner and Minturn's study with no link to the research method used (MAX 1 AO3 mark).

Section C

Development

12	Which **one** of the following is an example of a visualiser learning style? Shade **one** box. **[1 mark]**

Marks for this question: AO2 – 1 mark

Answer

A (Drawing a diagram)

13	What is meant by 'praise' in the context of learning? **[2 marks]**

Marks for this question: AO1 – 2 marks

Up to **2 marks** for a definition of praise in the context of learning.
2 marks: a clear and accurate definition.
1 mark: a limited or muddled definition.

Possible content:

- Expressing approval for the effort put into a piece of work.
- Expressing admiration for the standard of a piece of work.

Accept other relevant definitions.

NOTE: A definition should be considered as limited unless there is direct reference to praise in the context of learning.

NOTE: An example may be used to add clarity to a definition (eg by providing a learning context) but is not by itself creditworthy.

NOTE: Where the words 'praise', 'praising' or 'praised' are used as part of the answer and are not defined/explained, this will reduce the clarity of the answer.

14	50 teachers were asked whether they were more likely to praise student effort or student performance. 37 of these teachers said they were more likely to praise student effort. Calculate the fraction of teachers who were more likely to praise student performance. **[1 mark]**

Marks for this question: AO2 – 1 mark

13/50

15	Explain the role of nature **and** nurture on the brain development of a baby before it is born. Refer to Doctor Kumar's **and** Doctor Andersson's comments in your answer. **[6 marks]**

Marks for this question: AO1 – 4 marks and AO2 – 2 marks

Level	Marks	Description
3 Detailed	**5–6**	AO1: Relevant knowledge and understanding of the role of nature **and** nurture on early brain development is accurate with detail. AO2: Clear and accurate application of knowledge and understanding of the role of nature **and** nurture on early brain development to Doctor Kumar's **and** Doctor Andersson's comments. 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 the role of nature **and** nurture on early brain development is present but there are occasional inaccuracies/omissions **OR** level 3 knowledge of **either** nature or nurture. AO2: Reasonable application of knowledge and understanding of the role of nature **and/or** nurture on early brain development to Doctor Kumar's **and/or** Doctor Andersson's comments. 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 the role of nature **and/or** nurture on early brain development is present but limited. AO2: Limited application of knowledge and understanding of the role of nature **and/or** nurture on early brain development to Doctor Kumar's **and/or** Doctor Andersson's comments. 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

- Nature refers to the argument that characteristics and behaviours are genetically influenced.
- This suggests that how a baby's brain develops before it is born is influenced by the genes inherited from its parents.
- Nurture refers to the argument that characteristics and behaviours are influenced by upbringing, environment and experiences.
- Nurture suggests that how a baby's brain develops before it is born is influenced by the mother's environment, lifestyle and experiences during pregnancy.
- Most brain development before birth is due to nature but nurture also plays a role.
- Both nature and nurture can affect early brain development (interaction between nature and nurture).

AO2

- Doctor Kumar is talking about nature when highlighting the influence of a mother's genes on early brain development.
- Both Doctor Kumar and Doctor Andersson state that nature plays a key role in early brain development because they agree that a mother's genes are important in early brain development.
- Doctor Andersson is talking about nurture when highlighting the importance of the mother's diet during pregnancy.
- Doctor Andersson is talking about nurture when saying that a mother's lifestyle and experiences will influence brain development.

Accept other relevant content.

16	Describe **and** evaluate the 'policeman doll study' carried out by Hughes. **[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 Hughes' 'policeman doll study' is accurate with detail. AO3: Analysis and evaluation of Hughes' 'policeman doll 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, is clear, coherent and focused.
2 Clear	**3–4**	AO1: Relevant knowledge and understanding of Hughes' 'policeman doll study' is present but there are occasional inaccuracies/omissions. AO3: There may be some effective analysis and evaluation of Hughes' 'policeman doll 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 Hughes' 'policeman doll study' is present but limited. AO3: Analysis and evaluation of Hughes' 'policeman doll 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

- Thirty children aged from 3.5 to 5 years old took part in the laboratory study.
- Hughes tested egocentrism using a model of two intersecting walls, a boy doll and two policeman dolls.
- To introduce the task, a policeman doll was placed on the model. Each child was asked to hide the boy doll from the policeman doll.
- A child was told if they made a mistake. Then they were allowed to try the task again.
- In the actual experiment, a second policeman doll was placed on the model and the child was asked to hide the boy doll so that neither of the policeman dolls could see him.
- Ninety percent of the children were able to hide the boy doll from the policeman dolls.
- In following trials, where more than two walls were used, the younger children were only correct 60 percent of the time.
- Hughes concluded that most children between 3.5 and 5 years old can see things from another person's point of view so are not egocentric in their thinking.

AO3

- One strength of the study was that asking children to hide a doll made the task engaging and meaningful because hiding games were likely to be familiar to them. It can be argued that this meant children were better able to show their cognitive ability than in Piaget's original research.
- A limited sample of children was used as all of the participants came from Edinburgh. This means it may be problematic to generalise these findings to explain when children from other cultures can see things from another person's point of view.
- One limitation of the study was the possibility that hidden cues from the researcher, such as looking at the place where the doll might be positioned, may have influenced the children's behaviour.
- Other research studies support the findings that some children under seven years old can see things from another person's point of view.
- One strength of this study is that it challenged Piaget's conclusion that children show egocentric thinking until the age of about seven years old. It suggested that some children can see the world from different viewpoints at a significantly younger age than was previously thought.

Accept other relevant content.

NOTE: Reference to policeman dolls is not enough for 'relevant content' because it is part of the question stem.

17	Describe **and** evaluate Dweck's mindset theory of learning. In your answer, refer to the mindset encouraged by **both** restaurant businesses in this information. **[9 marks]**

Marks for this question: AO1 – 3 marks, AO2 – 3 marks, AO3 – 3 marks

Level	Marks	Description
3 Detailed	**7–9**	AO1: Relevant knowledge and understanding of Dweck's mindset theory of learning is accurate with detail. AO2: Clear application of knowledge and understanding of Dweck's mindset theory of learning to both restaurant businesses. AO3: Analysis and evaluation of Dweck's mindset theory of learning 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, is clear, coherent and focused.
2 Clear	**4–6**	AO1: Relevant knowledge and understanding of Dweck's mindset theory of learning is present but there are occasional inaccuracies/omissions. AO2: Reasonable application of knowledge and understanding of Dweck's mindset theory of learning to either/both restaurant businesses. AO3: There may be some effective analysis and evaluation of Dweck's mindset theory of learning. 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 Dweck's mindset theory of learning is present but limited. AO2: Limited application of knowledge and understanding of Dweck's mindset theory of learning to either/both restaurant businesses. AO3: Analysis and evaluation of Dweck's mindset theory of learning 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
- People with a fixed mindset believe that success is due to innate factors like genes. This means there is nothing you can do to change your ability or talent.
- People with a fixed mindset view failure as a lack of talent.
- People with a growth mindset believe that ability and success is due to hard work and perseverance.
- People with a growth mindset view failure as an opportunity to grow.
- Mindset is affected by the form of praise (i.e. person praise or process praise) a student is given.

AO2
- Employees in Zuppa are more likely to have a fixed mindset. People are recruited according to their talents and this business values results over hard work.
- Employees in Zuppa dislike challenges because if they fail on a task it will be seen as due to a lack of talent.
- Employees in Bravas are more likely to have a growth mindset. People are recruited according to their work ethic and this business values hard work over natural talent.
- Employees at Bravas enjoy challenges because they know they can learn from experiences, even if they fail.

AO3
- One strength of mindset theory is that people can change their mindset and this can be used to improve performance in different contexts such as at school, in sports or in the workplace.
- There is evidence to support the idea that a growth mindset can improve performance.
- Dweck's research showed that teaching children to develop a growth mindset in schools increased their motivation and grades.

Accept other relevant content.

NOTE: The AO2 may be separate or embedded elsewhere; both are equally acceptable.

Section D

Research Methods

18	Which **one** of the following is a feature of an interview? Shade **one** box. **[1 mark]**

Marks for this question: AO1 – 1 mark

Answer

B (Directly asking people questions)

19	Which **one** of the following is most likely to achieve a representative sample? Shade **one** box. **[1 mark]**

Marks for this question: AO1 – 1 mark

Answer

C (Stratified)

20	Name the descriptive statistic that is calculated by ordering the values in a set of data then selecting the middle value. **[1 mark]**

Marks for this question: AO1 – 1 mark

Median

21	Define what is meant by 'secondary data'. **[2 marks]**

Marks for this question: AO1 – 2 marks

Up to **2 marks** for a definition of secondary data.

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

Possible content:

- It is second-hand information / not gathered personally by researcher.
- It was gathered / published before the current research took place.
- It comes from sources/ places such as public records or studies by other researchers.

Credit other relevant content.

NOTE: An example may be used for clarification but is not required for an answer to be considered clear.

NOTE: Where the word 'secondary' is used as part of the answer and is **not** defined/explained, (e.g. 'Data is collected from a secondary source'), this will reduce the clarity of the answer.

22.1	Identify the dependent variable **and** both conditions of the independent variable in this experiment. Write your answers in the correct spaces provided. **[3 marks]**

Marks for this question: AO2 – 3 marks

1 mark for identifying the dependent variable.

Example:

- Whether the participant cleaned their desk. (1 mark)
- The number of participants who cleaned their desk. (1 mark)

PLUS

Up to **2 marks** for identifying the independent variable.

2 marks: a clear and accurate outline with **both** conditions of the independent variable.
1 mark: a limited or muddled outline.

Example:

- Whether the smell of cleaning product was present in a room or not. (2 marks)
- The smell of a room. (1 mark)

22.2	The results of this experiment are shown in **Figure 1**. Use this information to complete the table below. **[2 marks]**

Marks for this question: AO2 – 2 marks

1 mark for **each correct value** (MAX 2 marks):

	Smell group	**No smell group**
Number of participants who cleaned their desk	18	**10**
Number of participants who did not clean their desk	12	**20**

22.3	33.3% of participants cleaned their desk in the no smell group. Calculate the percentage of participants who cleaned their desk in the smell group. Use the information from **Question 22.2**. Show your workings. **[2 marks]**

Marks for this question: AO2 – 2 marks

2 marks for the correct percentage.
60

1 mark for correct workings ONLY
18/30 × 100

22.4	State whether the environmental cue of smell did or did not influence participant behaviour in this experiment. Use the data in **Figure 1** to explain your answer. **[3 marks]**

Marks for this question: AO2 – 2 marks and AO3 – 1 mark

AO2 and AO3

Up to **3 marks** for stating that smell **did influence** behaviour **and** using Figure 1 to explain this.

3 marks: a clear and accurate explanation explicitly using accurate data taken from Figure 1 **PLUS** correctly stating that smell **did influence** behaviour.

2 marks: a limited or muddled explanation **PLUS** correctly stating that smell **did influence** participant behaviour **OR only** a clear and detailed explanation explicitly using accurate data taken from Figure 1.

1 mark: a limited or muddled explanation **OR only** correctly stating that smell **did influence** participant behaviour.

0 marks: incorrectly stating that the smell **did not** influence participant behaviour.

Possible content:

- The smell **did influence** behaviour. There were the same number of participants in each group/condition and a higher number of participants in the smell group/condition (18) cleaned their desk compared to the no smell group/condition (10).
- The smell **did influence** behaviour. A higher proportion of participants cleaned their desk in the smell group/condition (60%) compared to the no smell group/condition (33.3%).

Credit other relevant content.

22.5	Name the experimental design used by the psychologist in this study. Explain your answer. **[2 marks]**

Marks for this question: AO2 – 2 marks

1 mark for correctly naming **independent groups/measures** as the experimental design used

PLUS

1 mark for explanation

Possible content:

- Separate groups of participants were used in each condition.
- One group of participants completed the smell group/condition, and a different group of participants completed the no smell group/condition.
- Each participant only took part in one of the conditions.
- Each participant completed either the experimental or the control group/condition.

Accept other relevant content

NOTE: Where **no** experimental design is named, an explanation for independent groups/measures can still be creditworthy.

22.6	Explain **one** weakness of using the experimental design you named in **Question 22.5**. **[2 marks]**

Marks for this question: AO3 – 2 marks

Up to **2 marks** for explaining **one** relevant weakness.

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

Possible content:

- With an independent groups design, participant variables (such as how much they like cleaning or how much they care about cleanliness), may influence the results for each group. This means it can be problematic to compare the results of the experimental group to the control group.
- More participants are needed (than with the repeated measures design), as you need a different group of participants for each condition.

NOTE: If an INCORRECT experimental design has been named in **Question 22.5**, credit can be awarded for explaining one relevant weakness of the experimental design named.

Example:

- **Repeated measures:** order effects may occur because participants complete both conditions/tasks in an experiment. For example, practice may improve performance in the second condition/task.
- **Matched pairs:** it is time consuming and difficult for researchers to collect the data required to match participants.

Accept other relevant weaknesses.

23	Evaluate the use of correlations in psychological research. **[6 marks]**

Marks for this question: AO3 – 6 marks

Level	Marks	Description
3 Detailed	**5–6**	Analysis and evaluation of the use of correlations in psychological research 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, is clear, coherent and focused.
2 Clear	**3–4**	There may be some effective analysis and evaluation of the use of correlations in psychological research. 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**	Analysis and evaluation of the use of correlations in psychological research 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:

- Correlations can be used to investigate relationships without the researcher manipulating variables. This means that correlations can be used when other research methods are not suitable due to ethical or practical reasons – for example, to investigate whether social media use is linked to mental health problems.
- Correlations can provide a useful starting point for research because they allow a researcher to see whether two co-variables are connected. If a pattern is established between variables, a researcher can then use an experiment to further investigate this relationship.
- Correlations cannot be used to establish cause and effect relationships between two co-variables. For example, we might find a positive correlation between playing violent computer games and aggressive behaviour. However, we cannot show that one causes the other as there may be a third variable that could explain this relationship.
- Correlations can be used to identify and investigate non-linear (curvilinear) relationships between two variables, for example, stress level and task performance.
- Large amounts of information are required for correlational research to be useful. This is because establishing relationships from small samples may not be reliable.
- Collecting a large enough data set for correlations to be considered reliable can be time consuming and expensive for researchers.

Credit other relevant evaluation.

NOTE: Full credit can be awarded without reference to examples, but answers can receive credit for using examples to illustrate evaluations.

AQA

GCSE
PSYCHOLOGY
8182/1

Paper 1 Cognition and Behaviour

Mark scheme

June 2023

Version: 1.0 Final

236G8182/1/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

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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.

Possible 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 possible 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	Which of the following describes semantic memory? Shade **one** box. **[1 mark]**

Marks for this question: AO1 – 1 mark

Answer – D (It stores facts about general knowledge and meanings)

02	Which of the following is the correct definition of a 'false memory'? Shade **one** box. **[1 mark]**

Marks for this question: AO1 – 1 mark

Answer – B (A memory for something that didn't happen but feels true)

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

Marks for this question: AO1 – 2 marks

Up to **2 marks** for a definition of encoding as a process of memory.

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

Possible content

- Changing information into a form that can be stored in the brain.

Credit other relevant content.

NOTE: To be considered clear and accurate, answers should make reference to 'changing information' and 'storing in the brain'.

04.1	A researcher wanted to investigate the effect of context on the accuracy of memory. Describe how she could design a laboratory experiment to do this. You need to include the following information in your answer: • a task that she could ask participants to carry out **and** a description of the data she would collect • what the conditions of the independent variable would be • one extraneous variable that could affect the results **and** how the researcher could control this variable. **[6 marks]**

Marks for this question: AO2 – 6 marks

Up to **2 marks** for a description of an appropriate task **and** a description of the data that would be collected.

2 marks for a clear and accurate description.
1 mark for a limited or muddled description.

PLUS

Up to **2 marks** for an outline of the conditions of the independent variable.

2 marks: a clear and accurate outline with both conditions of the independent variable.
1 mark: a limited or muddled outline.

Example

- Whether the students recalled the words in the same or different environment to where the learning took place. (2 marks)
- Environment. (1 mark)

NOTE: To be considered clear and accurate, reference must be made to more than one condition of the independent variable.

PLUS

Up to **2 marks** for a description of one relevant extraneous variable and how the researcher could control this variable.

2 marks for a clear and accurate description.
1 mark for a limited or muddled description.

Credit other relevant content.

NOTE: If the candidate has written about more than one extraneous variable, award marks to the **one** that is clearest and most effective.

04.2	The researcher considered different experimental designs when planning her experiment. Identify **and** explain **one** strength and **one** weakness of an independent groups design. Write your answers in the correct spaces provided. **[4 marks]**

Marks for this question AO3 – 4 marks

Up to **2 marks** for an outline of a strength of independent groups.

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

Possible content

Strengths
- There are no order effects (e.g. practice effects). This is because participants only do the task once.
- Participants are less likely to work out the aim of the study. This is because they only take part in one condition.
- The same task can be carried out by both groups. This often allows the same materials to be used which saves the researcher time.

PLUS

Up to **2 marks** for an outline of a weakness of independent groups.

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

Possible content

Weaknesses
- There may be participant variables. This means that any difference in the results may be due to there being different people in each condition.
- More people are needed to take part. If we want 10 people in each condition, we need 20 people altogether.

Credit other relevant content.

NOTE: If the candidate has written about more than one strength or more than one weakness, award marks to the one that is clearest and most effective.

05	Evaluate the multi-store model of memory. **[4 marks]**

Marks for this question: AO3 – 4 marks

Level	Marks	Description
2 Clear	**3–4**	Analysis and evaluation of the multi-store model of memory 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, is clear, coherent and focused.
1 Basic	**1–2**	Analysis and evaluation of the multi-store model of memory is of limited effectiveness or muddled. Any attempts to draw conclusions are not always successful. 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 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.
- Supportive evidence for the MSM often comes from studies involving lists of words which are not reflective of real-life memory.

Accept other relevant content.

06	Describe the method used by Bartlett in his 'War of the Ghosts' study. **[3 marks]**

Marks for this question: AO1 – 3 marks

Up to **3 marks** for a description of Bartlett's method.

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

Possible content

- British participants were asked to read/listen to a Native American story called the 'War of the Ghosts'.
- Bartlett then used different techniques to measure the accuracy of recall.
- In one method, participants were asked to retell the story to another person. This person then retold the story to another person, and so on.
- Bartlett made a record of the version of the story that each person told.
- In another method, participants were asked to recall the story after a 15-minute delay. They were then asked to recall the story again on several occasions over different time periods.
- Bartlett made a record of the version that was told each time.

Credit other relevant content.

NOTE: To be considered clear and detailed, reference to a record being made of each version of the story after each retelling must be made.

07	Use your knowledge of interference to explain why Uncle Bill cannot accurately remember what day of the week Dan was born on. **[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 interference as a factor affecting the accuracy of memory with some detail. AO2: Clear and accurate application of knowledge and understanding of interference as a factor affecting the accuracy of memory to Uncle Bill's confusion. 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 interference as a factor affecting the accuracy of memory is present. AO2: Limited or muddled application of knowledge and understanding of interference as a factor affecting the accuracy of memory to Uncle Bill's confusion. 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
- Interference is when we have difficulty recalling information due to other information getting in the way.
- It is more likely to happen when the two memories are similar.
- This competing of information results in reduced accuracy of what we remember.
- Interference can be proactive (old information disrupts the recall of new information), or retroactive (new information disrupts the recall of old information).

AO2
- Uncle Bill cannot remember the day of the week that Dan was born because that information is being confused with the day of the week Dan's sister was born.
- The two pieces of information that Uncle Bill is trying to remember are very similar – they are both days of the week and birthdays.
- This may be explained by proactive interference. Dan's sister was born first, so this earlier information is disrupting the more recent information of Dan's birthday.

Credit other relevant content.

Section B

Perception

08	'Fiction' is one explanation for why people see visual illusions. Which of the following visual illusions is an example of fiction? Shade **one** box. **[1 mark]**

Marks for this question: AO1 – 1 mark

Answer – B (The Kanizsa triangle)

09	Kishan is studying Food Preparation and Nutrition at school. During one of his lessons, he is asked to close his eyes and taste different foods. He then has to guess what the foods are. He thinks that one of them is very familiar and correctly recognises it as strawberry yogurt. State whether Kishan is experiencing sensation **or** perception when he correctly recognises the strawberry yoghurt. Explain your answer. **[2 marks]**

Marks for this question: AO2 – 2 marks

1 mark for correctly stating that Kishan is experiencing **perception**.

PLUS

1 mark for an explanation.

Example

His brain interpreted the taste of the food using his past experiences of strawberry yoghurt.

Credit other relevant content.

NOTE: To be considered correct, answers should make reference to 'interpreted' and 'past experience'.

NOTE: Answers that incorrectly state 'sensation' can still receive the explanation mark for an **accurate** explanation of sensation.

10.1	Name the type of data that is shown in **Table 1**. **[1 mark]**

Marks for this question: AO2 – 1 mark

1 mark for any of the following (MAX 1):

- quantitative
- primary.

Accept other creditworthy answers such as numerical data, ordinal data, grouped discrete data, discrete data.

NOTE: The command term 'name' requires answers to 'identify using a recognised technical term'.

10.2	Calculate the number of participants who reported a temperature score between 6 and 10. Show your workings. **[2 marks]**

Marks for this question: AO2 – 2 marks

2 marks for the correct number of participants.

11

1 mark for correct workings but incorrect/no answer.

40 – (6 + 16 + 1 + 2 + 2 + 1 + 1)

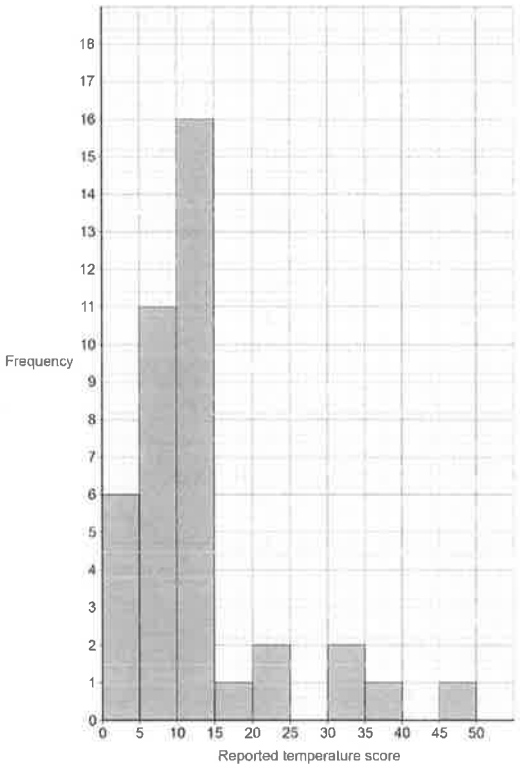
10.3	Sketch a histogram to show the results in **Table 1**. Include the number of participants you wrote in answer to Question **10.2**. Provide a suitable title and labels for your histogram. **[4 marks]**

Marks for this question: AO2 – 4 marks

1 mark for each of the following:

- Suitable graph (i.e. a histogram).
- An informative title with an element of both variables, for example 'A histogram to show the reported temperature scores of 40 participants who listened to a Christmas song'.
- Correct labelling of **both** axes, for example Y axis labelled 'Frequency' or 'Number of participants', **and** X axis labelled 'Reported temperature score' PLUS suitable scale/numbers for **both** axes.
- Correct plotting of the results from **Table 1**.

Title: A histogram to show the reported temperature scores of 40 participants who listened to a Christmas song



NOTE: If bars are not touching then no credit can be given for 'suitable graph'.

NOTE: If an incorrect score from Question **10.2** has been plotted accurately on the histogram (i.e. the second bar), a mark can be given for correct plotting.

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.

10.4	The researcher found that participants in **Condition B** reported the water felt warmer than participants in **Condition A**. Using your knowledge of 'perceptual set', outline **one** conclusion that the researcher could make from these findings. **[2 marks]**

Marks for this question: AO3 – 2 marks

Up to **2 marks** for an outline of one conclusion.

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

Examples

Participants' expectation about the temperature of the water was affected by which song they had heard.

Participants were predisposed to perceive that the water was warmer when they heard a song about summer.

Participants were 'ready' to feel that the water was colder when they heard a song about winter.

Credit other relevant content.

NOTE: To be considered as clear and accurate, an outline needs to clearly be referring to perceptual set (i.e. 'readiness', expectation, tendency or predisposition to perceive something in a certain way).

NOTE: If the candidate has written about more than one conclusion, award marks to the **one** that is clearest and most effective.

11	Bruner and Minturn investigated the effect of expectation on perception. Describe Bruner and Minturn's study. **[4 marks]**

Marks for this question: AO1 – 4 marks

Level	Marks	Description
2 Clear	**3–4**	Clear and accurate knowledge of Bruner and Minturn's study with some detail. Relevant terminology is used consistently throughout. The answer demonstrates a high level of substantiated reasoning, is clear, coherent and focused.
1 Basic	**1–2**	Limited or muddled knowledge of Bruner and Minturn's study is 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

- The aim was to see whether expectation is an important factor in how an ambiguous figure is perceived.
- 24 participants took part in an experiment on recognising numbers and letters using an independent groups design.
- Half of the participants were shown a sequence of letters with an ambiguous figure in the middle. The other half were shown a sequence of numbers with the same ambiguous figure in the middle.
- The ambiguous figure was a broken 'B' that could be seen as either the letter B or the number 13.
- Participants who saw a sequence of letters were more likely to report the ambiguous figure as a letter B.
- Participants who saw a sequence of numbers were more likely to report the ambiguous figure as a number 13.
- The researchers concluded that the participants' expectations had directly affected how they interpreted the ambiguous figure.
- This shows that expectation affects perception.

Credit other relevant content.

12	Describe **and** evaluate Gibson's direct theory of perception. **[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 Gibson's direct theory is accurate with detail. AO3: Analysis and evaluation of Gibson's direct theory 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, is clear, coherent and focused.
2 Clear	**4–6**	AO1: Relevant knowledge and understanding of Gibson's direct theory is present but there are occasional inaccuracies/omissions. AO3: There may be some effective analysis and evaluation of Gibson's direct theory. 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 Gibson's direct theory is present but limited. AO3: Analysis and evaluation of Gibson's direct theory 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

- Perceptual abilities are innate and do not have to be learnt through experience.
- Gibson claimed that sensation and perception are the same thing.
- We perceive things by using sensory information.
- We have enough information to understand the world around us by just using sensory information.
- Visual information such as light, texture and detail helps us to make judgements about distance, movement and depth.
- Motion parallax is a monocular depth cue which helps us understand movement. Things closer to us appear to move faster than things further away.
- Gibson's reference to affordances is his way of explaining why inferences are not needed in perception.
- It is a bottom-up theory.

AO3

- Gibson's theory cannot explain why perception is sometimes inaccurate, for example when our brain is tricked by visual illusions.
- Despite Gibson's claim that sensation and perception are the same, we know from our experience of visual illusions that they are separate processes.
- Gibson's theory provides a good explanation for how we are usually able to perceive quickly and accurately in everyday life using information from the optic array.
- Gibson's theory has helped us to understand the richness of the optical information our eyes receive, such as texture and colour gradient.
- Gibson developed his theory using evidence collected in real-life settings such as using pilots rather than through laboratory experiments. This increases the validity of his theory.
- Evidence shows that factors such as expectation and culture affect perception. This challenges Gibson's theory and suggests that nurture (knowledge and past experience) also play an important role in perception.
- There is research evidence to support the idea that depth perception is innate. Gibson and Walk found that infants have abilities for perceiving depth even at a very young age. This supports the idea that perception may be due to nature.

Credit other relevant content.

Section C

Development

13	Which of the following is a small structure at the base of the brain that coordinates movement and balance? Shade **one** box. **[1 mark]**

Marks for this question: AO1 – 1 mark

Answer – B (Cerebellum)

14	Which of the following is a true statement about people who have a growth mindset? Shade **one** box. **[1 mark]**

Marks for this question: AO1 – 1 mark

Answer – B (They believe ability will improve with practice)

15.1	Identify what the independent variable and dependent variable would be in your experiment. Write your answers in the correct spaces provided. **[2 marks]**

Marks for this question: AO2 – 2 marks

Up to **2 marks** for identification of appropriate conditions of the independent variable and an appropriate dependent variable.

2 marks: clear and accurate identification of the IV and DV.
1 mark: limited or muddled identification.

Possible content

- IV is fixed or growth mindset.
- IV is whether or not they have a growth mindset.
- IV is whether or not they have a fixed mindset.
- DV is grades/score/marks in end of year exams.

Credit other relevant content.

NOTE: Only identifying the IV from one condition (e.g. 'fixed mindset') or just stating 'mindset' is not creditworthy.

NOTE: Only identifying the DV as 'performance' (in end of year exams) is not creditworthy as it is not measurable.

15.2	The target population for your experiment is Year 8 students at a local school. There are 100 Year 8 students at this school. Describe how you could select 20 participants for your experiment using random sampling. **[3 marks]**

Marks for this question: AO2 – 3 marks

Up to **3 marks** for a description of how 20 participants could be selected using random sampling.

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

Possible content

- Get a list of all the Year 8 students (attending a local school).
- Split the list into individual names.
- Use a method of random selection, e.g. assigning a number to each student on the list, and then selecting students using a random number generator OR putting all the students' names into a hat, and then selecting students' names from the hat.
- Stop when 20 names have been selected.

Credit other relevant content.

NOTE: Generic answers that do not refer in any way to the described study (i.e. no mention of words such as 'school', 'students', '100' or '20') are to be considered very limited.

16	Piaget's stage theory describes cognitive development. Briefly outline the sensorimotor stage **and** the formal operational stage. **[4 marks]**

Marks for this question: AO1 – 4 marks

Level	Marks	Description
2 Clear	**3–4**	Clear and accurate knowledge and understanding of the sensorimotor stage **and** the formal operational stage with some detail. Relevant terminology is used consistently throughout. The answer demonstrates a high level of substantiated reasoning, is clear, coherent and focused.
1 Basic	**1–2**	Limited or muddled knowledge and understanding of the sensorimotor stage **and/or** the formal operational stage is 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

Sensorimotor stage
- The sensorimotor stage takes place between 0–2 years.
- In this stage children learn through using their senses and motor skills.
- Learning occurs through the information received through the senses and by engaging in physical activities.
- Object permanence (understanding that objects still exist when out of sight) develops from the age of 8 months.
- Object permanence occurs when a child develops a mental representation (schema) of an object.

Formal operational stage
- The formal operational stage is the final stage and takes place from 11 years of age.
- In this stage, children can reason/solve problems using abstract and hypothetical thought.
- This means they can manipulate ideas in their head without concrete objects.
- In this stage children think logically and systematically.

Credit other relevant content.

17	Evaluate Piaget's stage theory of cognitive development. **[5 marks]**

Marks for this question: AO3 – 5 marks

Level	Marks	Description
3 Detailed	**4–5**	Analysis and evaluation of Piaget's stage theory of cognitive development is effective. Conclusions drawn are sound and fully expressed. Relevant terminology is used consistently throughout. The answer demonstrates a high level of substantiated reasoning, is clear, coherent and focused.
2 Clear	**2–3**	There may be some effective analysis and evaluation of Piaget's stage theory of cognitive development. 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**	Analysis and evaluation of Piaget's stage theory of cognitive development 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

- Piaget underestimated children's abilities in his first three stages of development.
- Critical research such as Hughes' policeman doll study shows that children can think in more developed ways than Piaget suggested when they are tested in different ways.
- Piaget assumed that all children develop the ability to think in abstract and logical ways in the formal operational stage but research shows that this is not the case for all people.
- Piaget's theory has been very influential in education. Child-centred learning with a focus on readiness and discovery learning has had a great impact on how children learn, particularly in early years and primary education.
- Piaget's theory is not representative of all children because he developed his theory using a small sample of children who were middle-class and from Switzerland. This means his findings may not tell us about the cognitive development of children from different social classes or cultures.
- Piaget's theory may be based on flawed data. A lot of his research was carried out on his own children and many of the questions he asked were not standardised because they were different for every child.

Credit other relevant content.

NOTE: Evaluation of one of Piaget's studies with no link to his stage theory (MAX 1 mark).

18	McGarrigle and Donaldson investigated the development of conservation in the 'naughty teddy study'. Describe this study. Evaluate the research method used in McGarrigle and Donaldson's study. **[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 McGarrigle and Donaldson's 'naughty teddy study' is accurate with detail. AO3: Analysis and evaluation of the research method used in 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	**4–6**	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 the research method used in 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	**1–3**	AO1: Knowledge and understanding of McGarrigle and Donaldson's 'naughty teddy study' is present but limited. AO3: Analysis and evaluation of the research method used in 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.
- '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 was a laboratory-based study 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. This means the reliability of the findings can be investigated with different groups of participants.
- Laboratory-based studies often use artificial tasks/materials (such as adults moving counters and asking children questions about this). Because this is not similar to using real-life tasks/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.

NOTE: Evaluation of the study with no link to the research method used (MAX 1 AO3 mark).

Section D

Research Methods

19.1	Identify the type of experiment used in this study. Shade **one** box only. **[1 mark]**

Marks for this question: AO2 – 1 mark

Answer – A (Field)

19.2	Identify the experimental design used in this study. Shade **one** box only. **[1 mark]**

Marks for this question: AO2 – 1 mark

Answer – E (Repeated measures)

20	Explain **one** difference between primary and secondary data. **[3 marks]**

Marks for this question: AO1 – 3 marks

Up to **3 marks** for an explanation of one difference between primary **and** secondary data.

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

Possible content

- Primary data is first-hand responses/information that researchers have collected directly from the participants in an investigation/that has been specifically collected for that investigation.
- Secondary data is second-hand information that researchers have collected from places such as public records or investigations published by other researchers.
- The difference is that primary data has been collected directly from participants by the researcher whereas secondary data has been collected by another person.
- The difference is that primary data has been collected for a specific investigation whereas secondary data has not.

Credit other relevant content.

NOTE: To be considered clear and detailed, the difference between primary and secondary data must be explicitly stated.
NOTE: If the candidate has written about more than one difference, award marks to the **one** that is clearest and most effective.

21.1	Explain **one** weakness of using a stratified sample when conducting research. **[2 marks]**

Marks for this question: AO3 – 2 marks

Up to **2 marks** for an explanation of **one** weakness of using a stratified sample when conducting research.

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

Possible content

- Stratified sampling is a difficult and time-consuming method for a researcher because they need to identify relevant subgroups in the target population and then calculate the proportion of each subgroup in the target population.
- There may be bias when the researcher decides which subgroups in the target population are relevant which may reduce the representativeness of the sample.
- Not all of the participants who are selected will agree to take part in research which may reduce the representativeness of the sample.

Credit other relevant content.

NOTE: If the candidate has written about more than one weakness, award marks to the one that is clearest and most effective.

21.2	Calculate the percentage of participants who responded YES. State your answer using **two** significant figures and show your workings. **[3 marks]**

Marks for this question: AO2 – 3 marks

3 marks for the correct percentage to two significant figures.

63

2 marks for the correct percentage but not rounded to two significant figures.

For example, 63.33 or 63.0

1 mark for correct workings but incorrect/no answer.

19/30 × 100

Accept other creditworthy workings such as 3.333 ×19 or 100/30 ×19

21.3	What is the ratio of time spent **working** compared to time spent **chatting to friends**? 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.

6:1

1 mark for the correct ratio but not in its simplest form.

For example, 60:10, 30:5, 12:2.

Credit other relevant content.

21.4	Identify **two** ethical issues that researchers should consider in observation studies. **[2 marks]**

Marks for this question: AO1 – 2 marks

Up to **2 marks** for identifying **two** relevant ethical issues.

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

Possible content

- Respect
- Responsibility
- Integrity
- Confidentiality/anonymity/privacy
- Informed consent
- Parental consent
- Deception
- Right to withdraw
- Protection from harm
- Debrief

Credit other relevant content.

NOTE: If the candidate has written more than **two** ethical issues, **only** mark the **first two**.

21.5	Sketch a **frequency table** the researcher and their assistant can use to collect information about the types of learning activity participants do during study lessons. Include **two** categories of behaviour about **types of learning activity** in your frequency table. **Do not** include 'chatting to friends' and 'completing work' as categories of behaviour. **[4 marks]**

Marks for this question: AO2 – 4 marks

Possible content

- A sketch of a (frequency) table with rows and columns. (1 mark)
- Row or column headings for 'frequency' or 'tally'. (1 mark)
- Identification of **two** categories of behaviour for types of learning activity. (MAX 2 marks)

Example of frequency table:

Type of learning activity	**Tally/frequency**
Reading	
Taking notes	

Credit other relevant content.

NOTE: Do not credit 'chatting to friends' and 'completing work' as categories of behaviour.

21.6	The psychologist and their assistant had high interobserver reliability in their observation study. Define what is meant by 'interobserver reliability' in observational research. **[2 marks]**

Marks for this question: AO1 – 2 marks

Up to **2 marks** for a definition of interobserver reliability.

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

Possible content

- The extent to which the record sheets of two or more people carrying out an observation match one another.

Credit other relevant content.

NOTE: To be considered clear and accurate, answers must make reference to both two or more observers/people **and** matching/similar record sheets/results.

21.7	From the results of the observation, the researcher realised that students spent more time chatting to friends during study lessons than they had estimated on the questionnaire. Briefly evaluate the use of questionnaires in psychological research. In your answer, refer to the questionnaires about the use of study lessons that the sixth form students had filled in. **[5 marks]**

Marks for this question: AO2 – 2 marks and AO3 – 3 marks

Level	Marks	Description
3 Detailed	**4–5**	AO2: Clear application of knowledge and understanding of evaluation of questionnaires to the investigation into the use of study lessons. AO3: Analysis and evaluation of the use of questionnaires in psychological research 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, is clear, coherent and focused.
2 Clear	**2–3**	AO2: Reasonable application of knowledge and understanding of evaluation of questionnaires to the investigation into the use of study lessons. AO3: There may be some effective analysis and evaluation of the use of questionnaires in psychological research. 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**	AO2: Limited application of knowledge and understanding of evaluation of questionnaires to the investigation into the use of study lessons. AO3: Analysis and evaluation of the use of questionnaires in psychological research 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

AO2

- Students may have reported less time chatting to friends/more time working than they actually did to present themselves in a positive way.
- Students may have been unsure about how to answer a specific question. For example, should chatting about work have been recorded as time spent chatting or working?
- It may have been only the students who spent most of their study lessons working who completed and returned the questionnaire.

AO3

- People may provide socially desirable responses to the questions rather than truthful ones to try to gain social approval.
- Questionnaires are a quick and easy way to collect lots of information so they are reasonably cheap for a researcher to use.
- As questionnaires are often completed anonymously, the researcher is more likely to gain truthful responses than might be possible using more public self-report methods like interviews.
- There is no way to check that the data provided by participants in questionnaires is accurate. This means the data may not be valid.
- When filling in a questionnaire, respondents may be unable to ask the researcher for clarification of the questions. For example, if they do not understand a specific question the respondent may not give a valid response to it.
- Only a certain type of person may agree to fill in a questionnaire, such as a person with strong opinions about the issue the questionnaire is investigating. Therefore, the results may not be generalisable to everyone.

Credit other relevant evaluation.

NOTE: Credit relevant AO2 embedded within AO3 statements.