

1

Complete the following statement about long-term memory. Shade **one** box only.

Information stored with reference to time and place refers to:

- A Episodic memory
- B Procedural memory
- C Semantic memory

(Total 1 mark)

2

Complete the following statement about long-term memory. Shade **one** box only.

Information not available for conscious inspection refers to:

- A Episodic memory
- B Procedural memory
- C Semantic memory

(Total 1 mark)

3

Identify **and** outline **two** techniques that may be used in a cognitive interview.

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(Total 4 marks)

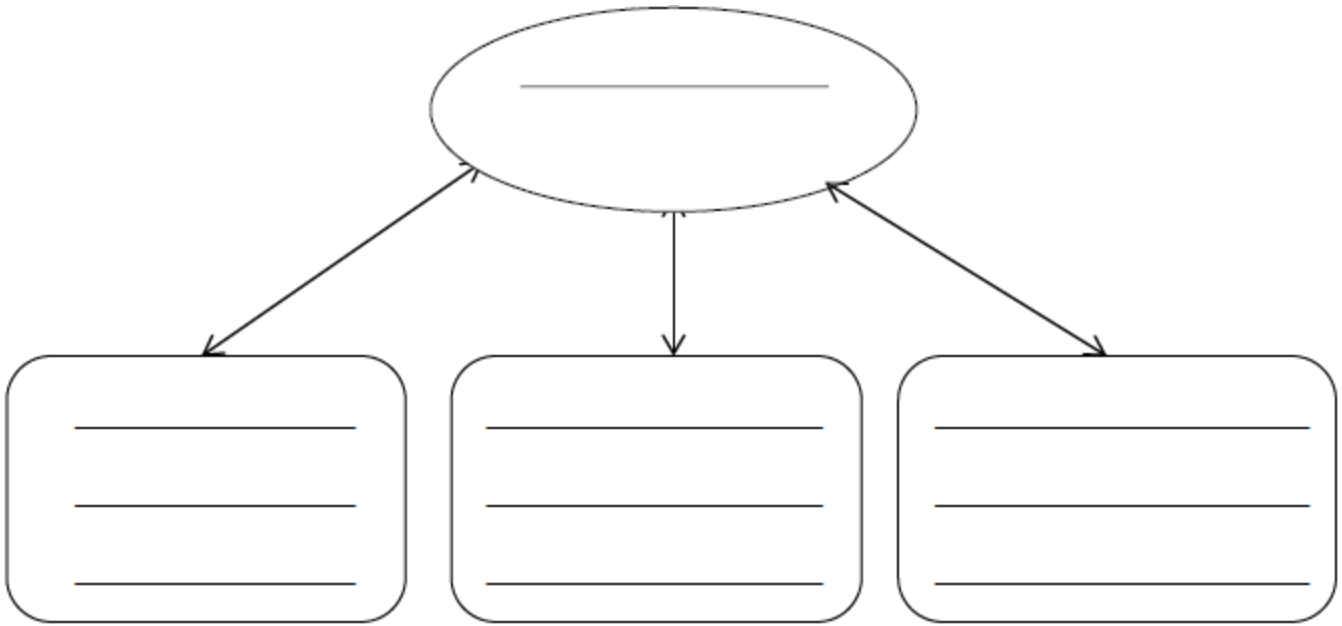
4

Outline **and** evaluate research into the effects of leading questions on the accuracy of eyewitness testimony.

(Total 8 marks)

5

Below is a diagram of the working memory model. Write the name of **each** of the **four** components of working memory in the space provided.



(Total 4 marks)

6

(a) Read the item and then answer the questions that follow.

A researcher investigating the multi-store model of memory tested short-term memory by reading out loud sequences of numbers that participants then had to repeat aloud immediately after presentation. The first sequence was made up of three numbers: for example, 8, 5, 2. Each participant was tested several times, and each time the length of the sequence was increased by adding another number.

Use your knowledge of the multi-store model of memory to explain the purpose of this research and the likely outcome.

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**(4)**

- (b) After the study was completed, the researcher decided to modify the study by using sequences of letters rather than numbers.

Suggest **one** 4-letter sequence **and one** 5-letter sequence that the researcher could use. In the case of **each** sequence, give a justification for your choice. Use a different justification for each sequence.

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**(4)**  
**(Total 8 marks)**

7

Read the item and then answer the question that follows.

Martin is studying for his modern language exams. He revises French followed by Spanish on the same night and then gets confused between the two: for example, he remembers the French word for 'chair' instead of the Spanish word for 'chair'. Sometimes, his mum helps to test Martin's vocabulary. When he is unable to remember a word, his mum tells him the first letter, then he can often recall it correctly.

Discuss **two** explanations for forgetting. Refer to Martin's experiences in your answer.

(Total 12 marks)

8

Read the item and then answer the questions that follow.

An experiment was carried out to test the effects of learning similar and dissimilar information on participants' ability to remember.

In **Stage 1** of the experiment, 10 participants in **Group A**, the 'similar' condition, were given a list of 20 place names in the UK. They were given two minutes to learn the list. 10 different participants in **Group B**, the 'dissimilar' condition, were given the same list of 20 place names in the UK. They were also given two minutes to learn the list.

In **Stage 2** of the experiment, participants in **Group A** were given a different list of 20 more place names in the UK, and were given a further two minutes to learn it. Participants in **Group B** were given a list of 20 boys' names, and were given a further two minutes to learn it.

In **Stage 3** of the experiment, all participants were given five minutes to recall as many of the 20 place names in the UK, from the list in **Stage 1**, as they could. The raw data from the two groups is below.

Number of place names recalled from the list in Stage 1

Group A	Group B
5	11
6	10
4	11
7	13
8	12
4	14
5	15
4	11
6	14
7	14

- (a) What is the most appropriate measure of central tendency for calculating the average of the scores, from the table, in each of the **two** groups? Justify your answer.

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(2)

(b) Calculate the measure of central tendency you have identified in your answer to **part (a)** for **Group A** and **Group B**. Show your calculations for each group.

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(4)

(c) In **Stage 3** of the experiment, several participants in **Group A**, the 'similar' condition, recalled words from the **Stage 2** list rather than the **Stage 1** list.

Use your knowledge of forgetting to explain why this may have occurred.

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(2)

(Total 8 marks)

9

Describe **and** evaluate the working memory model of memory.

(Total 16 marks)

10

Complete the missing parts of the table, **A**, **B**, **C** and **D**, in relation to features of the multi-store model of memory.

	Capacity	Duration	Coding
Sensory register	A	250 milliseconds	Modality specific
Short-term memory	7 +/-2	B	C
Long-term memory	Unlimited	Potentially forever	D

(Total 4 marks)

11

Bryan has been driving for five years. Whilst driving, Bryan can hold conversations or listen to music with little difficulty.

Bob has had four driving lessons. Driving requires so much of Bob's concentration that, during lessons, he often misses what his driving instructor is telling him.

With reference to features of the working memory model, explain the different experiences of Bryan and Bob.

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(Total 4 marks)

12

A woman is being questioned by a police officer about a heated argument she witnessed on an evening out with friends. The argument took place in a bar and ended with a violent assault. A knife was discovered later by police in the car park of the bar.

‘Did you see the knife the attacker was holding?’, asked the police officer.

‘I’m not sure there was a knife – yes, there probably was,’ replied the woman. ‘I was so scared at the time that it’s hard to remember, and my friends and I have talked about what happened so many times since that I’m almost not sure what I did see.’

Discuss research into **two or more** factors that affect the reliability of eyewitness testimony. Refer to the information above in your answer.

(Total 16 marks)

13

According to the multi-store model of memory, there are several ways in which short-term memory and long-term memory differ.

Explain how the findings of **one or more** studies demonstrate that short-term memory and long-term memory are different.

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(Total 4 marks)



14

Briefly describe the working memory model.

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**(Total 4 marks)**

15

Outline how a cognitive interview can be used to improve the accuracy of eyewitness testimony (EWT).

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*Extra space* .....

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(Total 4 marks)

16

Psychologists have identified differences between episodic memory, procedural memory and semantic memory.

Define **two** of these types of memory. Briefly explain **one** difference between the two types of memory that you have defined.

(Total 3 marks)

17

Claire can search through family photos on her laptop and listen to music at the same time. However, she finds it difficult to read her e-mails when talking to a friend on the phone.

Use your knowledge of the working memory model to explain why Claire is able to perform the first two tasks at the same time, but finds it difficult to perform the second two tasks at the same time.

(Total 4 marks)

18

Research has suggested that the encoding and capacity of short-term memory are different from the encoding and capacity of long-term memory.

Explain what is meant by coding.

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**(Total 2 marks)**

19

Outline the difference between the capacity of short-term memory and the capacity of long-term memory.

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**(Total 2 marks)**

20

Three components of the working memory model are the central executive, the phonological loop and the visuo-spatial sketchpad.

Briefly outline **each** of these components.

**Central executive** .....  
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**Phonological loop** .....  
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**Visuo-spatial sketchpad** .....  
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**(Total 6 marks)**

21

An experiment was carried out to investigate the working memory model.

One group of participants was asked to carry out two visual tasks at the same time. A different group of participants was asked to carry out a visual task and a verbal task at the same time.

The results showed that the participants who carried out two visual tasks at the same time performed less well on the tasks than participants who carried out a visual task and a verbal task at the same time.

Use your knowledge of the working memory model to explain this finding.

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**(Total 3 marks)**

22

- (a) One technique used in cognitive interviews is 'report everything'. When using this technique, the police officer in this investigation read the following instructions to the participants:

"Please tell me everything you can remember about what you saw in the film. Do not leave anything out, even the small details you think may be unimportant."

Identify **one other** technique which could have been used by the police officer in this cognitive interview. Write down the instructions that he could have read out to the participants.

**Technique** .....

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**Instructions to participants** .....

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(3)

- (b) The psychologist also recorded the number of correct items recalled and the number of incorrect items recalled in each type of interview. The following results were obtained:

	<b>Cognitive Interview</b>	<b>Standard Interview</b>
<b>Mean number of correct items recalled</b>	45	32
<b>Mean number of incorrect items recalled</b>	8	8

From these results, what might the psychologist conclude about the effectiveness of cognitive interviews?

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(2)  
(Total 5 marks)

23

Outline **and** evaluate research into the effects of misleading information on eyewitness testimony. **(Total 8 marks)**

24

A researcher studied the effect of context on memory. He used an independent groups design. He tested participants in one of two conditions.

In **Condition 1**, a group of 20 schoolchildren learned a list of 40 words in a classroom. This group then recalled the words in the same classroom.

In **Condition 2**, a different group of 20 schoolchildren learned the same list of 40 words in a classroom. This group then recalled the words in the school hall.

The researcher recorded the results and compared the mean number of words recalled in each condition.

- (a) Identify the independent variable in this study. (1)
- (b) Use your knowledge of retrieval failure to explain the likely outcome of this study. (3)
- (c) In this study, participants were randomly allocated to one of the two conditions. Explain how this might have been carried out. (2)
- (d) In this study, the researcher used an independent groups design. The researcher decided to repeat the study with different participants and to use a matched pairs design.

Explain how these participants could be matched and then allocated to the conditions.

**(2)**  
**(Total 8 marks)**

25

The multi-store model of memory proposes that there are separate short-term and long-term stores.

Explain **two** differences between short-term memory and long-term memory in this mode

**Difference 1**.....

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*Extra space*.....

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**(2)**

Difference 2.....

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Extra space.....

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(2)  
(Total 4 Marks)

26

Outline the main features of the working memory model.

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Extra space.....

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(Total 4 marks)

27

Outline **one** strength and **one** limitation of the working memory model.

**Strength**.....  
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*Extra space*.....  
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(2)

**Limitation**.....  
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*Extra space*.....  
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(2)  
(Total 4 marks)





32

Some psychologists argue that there is always more information about an event in a person's memory than can be recalled at any one time. This means that eye-witness recall can be improved by using certain techniques and methods.

Describe and evaluate **at least one** way of improving eye-witness recall. Refer to evidence in your answer.

(Total 16 marks)

33

Some psychologists argue that there is always more information about an event in a person's memory than can be recalled at any one time. This means that eye-witness recall can be improved by using certain techniques and methods.

Describe and evaluate **at least one** way of improving eye-witness recall. Refer to evidence in your answer.

(Total 12 marks)

34

A researcher carried out an experiment to investigate misleading information. Participants were shown a photograph in which a man and a woman were talking. The photograph was then taken away and the participants were asked questions about it. Participants were randomly allocated to condition one or condition two.

Participants in condition one were asked:

**Question A** "How old was the youth in the photograph?"

Participants in condition two were asked:

**Question B** "How old was the man in the photograph?"

(a) Why is **Question A** an example of misleading information?

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(2)

- (b) Name an appropriate experimental design which could be used in this experiment.  
Explain why a repeated measures design would be unsuitable to use in this experiment.

**Experimental design** .....

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**Explanation** .....

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**(4)**

- (c) Explain why it would be appropriate to use a pilot study as part of this experiment.

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*Extra space* .....

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**(4)**

(d) In this experiment, participants were asked to look at a photograph rather than watch a live conversation. Explain **one** strength and **one** limitation of carrying out the experiment in this way.

**Strength** .....

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*Extra space* .....

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**Limitation** .....

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*Extra space* .....

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**(4)**

(e) Describe **at least one** other research study into misleading information. In your answer you should include details of what participants were asked to do and what results were found.

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**(6)**  
**(Total 20 marks)**

35

Jenny was standing at a bus stop talking on her mobile phone. The weather was wet and cold. Two men in the bus queue started arguing. One of the men was stabbed and badly injured. Later that day the police questioned Jenny, using a cognitive interview. They asked her to report everything she could remember about the incident even if it seemed unimportant.

Apart from 'report everything', explain how the police could use a cognitive interview to investigate what Jenny could remember.

In your answer you must refer to details from the passage above.

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(Total 4 marks)

36

Describe **and** evaluate the multi-store model of memory.

(Total 16 marks)

37

Describe **and** evaluate the multi-store model of memory.

(Total 12 marks)

38

Distinguish between *procedural* memory and *semantic* memory.

(Total 3 marks)

**39** Outline **two** features of the working memory model. (Total 2 marks)

**40** Choose **one** study of the working memory model. Briefly outline what the participants were asked to do in this study. (Total 2 marks)

**41** Explain **one** strength of the working memory model. (Total 3 marks)

**42** **A**, **B** and **C** relate to memory. Write the appropriate letter in the box below. The first one has been done for you.

**A**  $7 \pm 2$

**B** Up to 30 seconds without rehearsal  
Write letter **B** in the appropriate box below.

**C** Mainly acoustic  
Write letter **C** in the appropriate box below.

	Short-term memory	Long-term memory
Encoding		
Capacity	A	
Duration		

(Total 2 marks)

43

Outline the working memory model.

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*Extra space* .....

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**(Total 4 marks)**

44

Explain **one** limitation of the working memory model.

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**(Total 2 marks)**



A psychologist carried out an experiment using an independent groups design. The psychologist wished to investigate the effectiveness of a strategy for memory improvement. In one condition, participants were taught a memory improvement strategy. In the other condition, participants were not taught this memory improvement strategy. All participants were asked to memorise 10 pictures of familiar objects. For example, the first was a doll, the second was an apple. All participants were then given 50 pictures each, and asked to select the original 10.

The psychologist did a pilot study before carrying out the experiment. The results of the experiment are shown in the table below.

(a) Write a directional hypothesis for this experiment.

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(2)

(b) Explain what is meant by an independent groups design.

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(1)

(c) Explain **one** strength and **one** limitation of using an independent groups design.

**Strength** .....

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**Limitation** .....

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(4)

(d) Explain why the psychologist did a pilot study.

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(3)

**The mean number of pictures correctly identified and standard deviations for participants with the memory improvement strategy and without the memory improvement strategy**

	With memory improvement strategy	Without memory improvement strategy
Mean	8	7
Standard Deviation	2.80	0.29

(e) What do the standard deviations in the table above tell us about the performance of the two groups?

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(2)  
(Total 12 marks)

46

Jamie wanted to contact his doctor. He looked up the number in his telephone directory. Before he dialled the number, he had a short conversation with his friend. Jamie was about to phone his doctor, but he had forgotten the number.

Use your knowledge of the multi-store model to explain why Jamie would not remember the doctor's number.

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(Total 4 marks)

47

Outline and evaluate the working memory model.

(Total 16 marks)

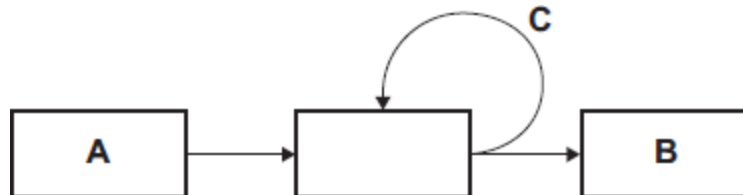
48

Outline and evaluate the working memory model.

(Total 12 marks)

49

This is a diagram of Atkinson and Shiffrin's multi-store model of memory.



From the following list, select the appropriate labels for **A**, **B** and **C**. Write **A**, **B** or **C** in the **three** correct boxes.

Secondary memory

Long-term memory

Recognition

Rehearsal loop

Central executive

Sensory memory

Short-term memory

**(Total 3 marks)**

**50**

A researcher carried out an experiment to investigate how many numbers could be held in short-term memory. The participants were 15 children and 15 adults. Participants were asked to repeat lists of random numbers, in the correct order, as soon as they were read out by the researcher. For example, when the researcher said, “3, 4, 2, 8” the participant immediately repeated “3, 4, 2, 8”. When the researcher then said, “7, 5, 9, 6, 4” the participant immediately repeated “7, 5, 9, 6, 4”. One number was added to the list each time until participants were unable to recall the list correctly. Each participant’s maximum digit span was recorded.

(a) Write an appropriate non-directional hypothesis for this experiment.

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(b) Explain why the researcher used an independent groups design for this experiment.

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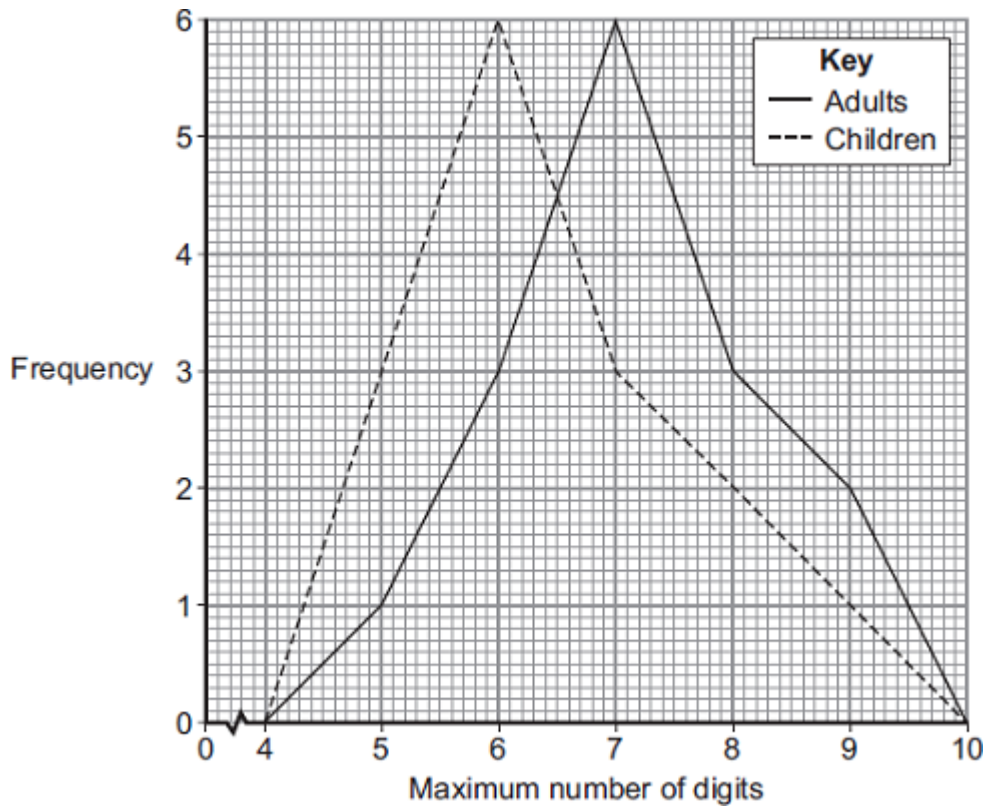
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(2)

(c) **Frequency distribution of the maximum number of digits correctly recalled by children and adults**



Write the mode for each group in the table below.

Age group	Mode
Children	
Adults	

(2)

(d) What does the frequency distribution show about the results?

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**(3)**

(e) Do the results of this experiment support the findings of other research into the capacity of short-term memory? Explain your answer.

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**(2)**

**(Total 11 marks)**

51

Describe **one** way in which psychologists have investigated the duration of short-term memory. In your answer, you should include details of stimulus materials used, what participants were asked to do and how duration was measured.

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**(Total 4 marks)**

52

An American space shuttle exploded soon after it was launched. All of the astronauts on board were killed. Crowds of people were watching, including friends and relatives of the astronauts. Six months after the explosion, a student decided to investigate the accuracy of some of the eyewitnesses' memory of this event.

- (a) Outline how the student could have used a cognitive interview to investigate this event. Include **at least one** example of what the participants would be asked to do.

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(4)





53

Explain why it might be better to carry out research into eyewitness testimony in the real world, rather than in a laboratory.

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(Total 3 marks)

54

Tick **two** of the boxes below to indicate which of the following are features of the working memory model.

- A     Serial position curve
- B     Incidental learning store
- C     Central executive
- D     Phonological loop

(Total 2 marks)

55

Explain **one** strength **and one** weakness of the working memory model.

**Strength** .....

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**Weakness** .....

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**(Total 4 marks)**

**56**

A case study was carried out on Peter whose brain was damaged in a motorcycle accident. Psychologists tested how many numbers he could hold in his short-term memory. They did this by reading him lists of numbers and asking him to recall the numbers immediately in the right order. He could recall a maximum of two items. The psychologists found that his long-term memory was normal.

(a) How was Peter's short-term memory after the accident different from most adults' short-term memory?

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**(2)**

(b) Does this case study support the multi-store model of memory? Explain your answer.

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**(4)**

- (c) Identify **one** ethical issue associated with this case study of Peter. Suggest how psychologists could deal with this ethical issue.

**Ethical issue** .....

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**How psychologists could deal with this ethical issue** .....

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(4)  
(Total 10 marks)

57

A psychologist carried out a field experiment to investigate the accuracy of eyewitness testimony. The participants were pupils and parents attending a school concert. Just before the concert began, two professional actors had an argument on the stage. During the argument, one actor pushed the other actor. Both actors then left the stage. Some of the audience were approached as they left the concert and were asked to take part in an experiment. Those who agreed were taken to a quiet room and were asked some questions about the argument. For some participants, the questions included, "Did you see the man in glasses push the other man?" In fact, neither man was wearing glasses.

The participants were then asked to describe the argument in their own words.

- (a) What is a field experiment?

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(2)

- (b) Other than ethical issues, outline **one** weakness of using a field experiment in this investigation.

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(2)

(c) Suggest why the psychologist included the question about the man in glasses.

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(2)  
(Total 6 marks)

**58**

Cognitive interviews have been developed to improve witness recall. Identify and explain **two** techniques used in the cognitive interview.

**Technique 1** .....

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**Technique 2** .....

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(Total 6 marks)

**59**

A brain scan shows that one area of the brain is more active when a person is doing a verbal task. However, when this person is doing a visual task, a different area of the brain is more active.

(a) Explain how this could relate to the working memory model. Refer to different parts of the working memory model in your answer.

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(4)

(b) Give an example of an appropriate verbal task and an appropriate visual task which could be used during the brain scan.

**Verbal task** .....  
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**Visual task** .....  
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(2)  
(Total 6 marks)

60

Outline and evaluate research into the effects of anxiety on the accuracy of eyewitness testimony.

(Total 12 marks)

## Mark schemes

1

[AO1 = 1]

A

2

[AO1 = 1]

B

3

[AO1 = 4]

Level	Marks	Description
2	3 – 4	Two techniques are clearly identified and outlined. Minor detail of outline is sometimes lacking or there is slight inaccuracy. The answer as a whole is clear with use of specialist terminology.
1	1 – 2	Two techniques are identified. The outline lacks detail / accuracy. The answer as a whole lacks clarity. Specialist terminology is either absent or inappropriately used. <b>OR</b> one technique at Level 2.
	0	No relevant content.

### Possible content:

- reinstating the context – interviewee mentally reinstates the environmental and personal context of the incident, eg sights, sounds, weather etc
- report everything – interviewer encourages the reporting of every single detail of the event, even though it may seem irrelevant
- changing order – interviewer tries alternative ways through the timeline of the incident
- changing perspective – interviewee recalls from different perspectives, eg how it would have appeared to other witnesses.

Credit other relevant cognitive interview techniques.

Level	Marks	Description
4	7 – 8	Knowledge of research into effects of leading questions is accurate and generally well detailed. Evaluation is effective. The answer is clear, coherent and focused on the accuracy of eyewitness testimony. Specialist terminology is used effectively. Minor detail and / or expansion of argument sometimes lacking.
3	5 – 6	Knowledge of research into effects of leading questions is evident and there is some focus on accuracy of eyewitness testimony. There are occasional inaccuracies. There is some effective evaluation. The answer is mostly clear and organised. Specialist terminology mostly used effectively.
2	3 – 4	Knowledge of research into effects of leading questions is present although links to accuracy of eyewitness testimony are limited. Focus is mainly on description. Any evaluation is of limited effectiveness. The answer lacks clarity, accuracy and organisation in places. Specialist terminology used inappropriately on occasions.
1	1 – 2	Knowledge of research into effects of leading questions is limited. Evaluation is limited, poorly focused or absent. The answer as a whole lacks clarity, has many inaccuracies and is poorly organised. Specialist terminology either absent or inappropriately used.
	0	No relevant content.

**Possible content:**

- Loftus and Palmer's (1974) study changing verb in critical question was changed (smashed, collided, bumped, hit or contacted)
- Loftus and Palmer "Did you see any broken glass?"
- Loftus et al's (1978) study using a red Datsun and Stop or Yield signs
- research into anxiety and EWT is not relevant without reference to leading questions, eg Yuille and Cutshall study of a real-life shooting and resistance to leading questions
- research into age of witness and misleading information may be relevant, eg Warren et al (2005) found children more likely to be influenced by leading questions than adults
- credit any other relevant research, studies and / or theories, eg post-event contamination; confabulation; reconstructive memory.



**Possible evaluation points:**

Will depend on research chosen but might include:

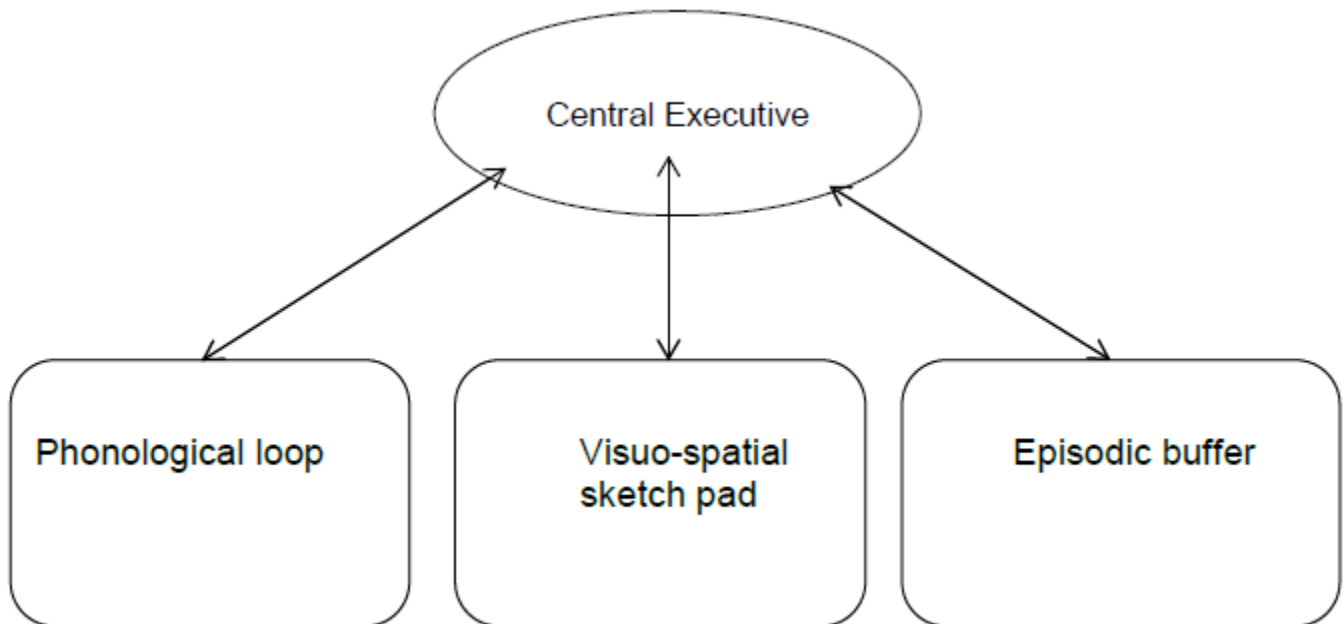
- question of validity in laboratory studies or lack of control in real-life situations
- methodological issues including sampling, replication and corroboration with other studies
- ethical issues
- practical applications / implications of the research.

Credit other relevant evaluation points.

**5**

**A01 = 4**

**1 mark** for naming each component correctly. The central executive will need to be in the correct position (top box) but the other three components can appear in any of the remaining boxes.



Accept also 'phonological store' and 'visuo-spatial scratchpad' as alternatives.

**6**

(a) **A02 = 4**

**1 mark** for each valid point as follows:

- **purpose** is to test the capacity of short-term memory.
- short-term memories are coded verbally / acoustically / task requires verbal rehearsal.
- **outcome** – most of the people tested would be able to repeat correctly a sequence of between 5 and 9 items.
- because according to the multi-store model, short-term memory has a limited capacity of 7 + or - 2.

(b) **AO3 = 4**

**1 mark** for an appropriate 4-letter sequence (to be creditworthy, this sequence should not make up a word or a recognisable abbreviation of a word, be a recognisable acronym or include multiple repetitions, eg 'p,p,p,p').

Plus

**1 mark** for appropriate 5-letter sequence (to be creditworthy this sequence should not make up a word or a recognisable abbreviation of a word, be a recognisable acronym or include multiple repetitions eg 'p,p,p,p,p', have any similarity to / connection with the 4-letter sequence (eg partial repetition, rhyme with).

Plus

**1 mark each** for any **two** valid justification points: eg

- words – have meaning – can be recalled as wholes.
- recognisable abbreviations – have meaning – can be recalled as wholes.
- acronyms – have meaning – can be recalled as whole.
- multiple repetitions – reduce cognitive demand.
- rhyming letters – reduce cognitive demand.

Do not accept the statement 'letters must be random' without further elaboration because random selection could, by chance, result in a word, acronym etc.

Level	Marks	Description
4	10 – 12	Knowledge of two explanations for forgetting is accurate and generally well detailed. Discussion is mostly effective. Application to the stem is appropriate, with clear links between the explanations and the stem content. The answer is clear, coherent and focused. Specialist terminology is used effectively. Minor detail and / or expansion sometimes lacking.
3	7 – 9	Knowledge of two explanations for forgetting is evident. Discussion is apparent and mostly effective. There are occasional inaccuracies. Application to the stem is appropriate although links to explanations are limited / absent. The answer is mostly clear and organised. Specialist terminology is mostly used appropriately. Lacks focus in places.
2	4 – 6	Knowledge of two explanations is present. Focus is mainly on description. Any discussion is of limited effectiveness. Any application to the stem is partial. The answer lacks clarity, accuracy and organisation in places. Specialist terminology is used inappropriately on occasions. <b>OR</b> one explanation answered at Level 3 or 4.
1	1 – 3	Knowledge of explanation(s) is (are) limited. Discussion / application is very limited, poorly focused or absent. The answer as a whole lacks clarity, has many inaccuracies and is poorly organised. Specialist terminology is either absent or inappropriately used. <b>OR</b> one explanation answered at Level 2.
	0	No relevant content.

**Possible content:**

- Interference is an explanation for forgetting – two sets of information become confused.
- Proactive interference is where old learning prevents recall of more recent information.
- Retroactive interference is where new learning prevents recall of previously learned information.
- Retrieval failure is where information is available but cannot be recalled because of the absence of appropriate cues.
- Types of cues that have been studied by psychologists include context, state and organisation.
- Cues improve recall if recall is in same context as learning, if the person is in same bodily state as when material was learned, if the organisation gives a structure which provides triggers, eg categories.

**Application:**

- French and Spanish are similar types of material which makes interference more likely.
- Recalling French word for 'chair' is proactive interference.
- Martin's mum gives him cues (first letter) which can then be used for him to access the material he has failed to retrieve.

**Possible discussion:**

- Use of evidence to support or contradict explanations.
- Credit evaluation of evidence where used to discuss explanations.
- Question of whether interference involves over-writing of other information.
- Role of similarity in interference and response competition.
- Issue of accessibility versus availability.
- Semantic memory more resistant to interference than other types of memory.
- General implications for revision and other situations.
- Relevant links to memory theory: eg stage at which interference might occur in the multi-store model.

Credit other relevant information.

**8**

(a) **[AO2 = 2]**

**1 mark** for naming the mean.

**Plus**

**1 mark** for justification: the mean is the most sensitive method as it takes all the scores in each data set into account OR there are no anomalous results / outliers / freak scores in either set of scores, so the mean will not be distorted.

(b) [AO2 = 4]

Full credit can be awarded for answers based on the mean or the median.  
A maximum of **2 marks** can be awarded for answers based on the mode.

#### Using the Mean

- **For 4 marks**, the **mean** is accurately calculated for both conditions (Group A = 5.6, Group B = 12.5) and calculations are included for both groups, ie totals in both conditions divided by 10 (number of scores).
- **For 3 marks**, there are two correct means and one set of calculations or vice versa.
- **For 2 marks**, there are two correct means and no calculations, **OR** one correct mean with calculations **OR** two sets of calculations but no correct mean.
- **For 1 mark**, there is one correct mean or one set of calculations.

#### Using the Median

- **For 4 marks**, answers for each condition are correct (Group A = 5.5, Group B = 12.5) and for each condition scores are arranged in ascending order with middle values indicated.
- **For 3 marks**, there is one correct median and two sets of scores correctly arranged as calculations, or vice versa.
- **For 2 marks**, there are two correct medians and no calculations, or one correct median and one set of scores correctly arranged as calculations.
- **For 1 mark**, there is one correct median or one set of scores correctly arranged as calculations.

#### Using the Mode

- **For 2 marks**, there are correct modes for each group (Group A = 4, Group B = 11 and 14).
- **For 1 mark**, there is one correct mode.

(c) [AO2 = 2]

**1 mark** for stating that this is due to retroactive interference.

#### Plus

**1 mark** for either of the following explanation / elaboration points:

- because the material is similar in both conditions
- new / recently learnt / acquired information has disrupted / interfered with / affected the recall of old / previously learnt / acquired information
- response competition has occurred.

Level	Marks	Description
4	13 – 16	Knowledge of components and functioning of model is accurate and generally well detailed. Evaluation is thorough and effective. The answer is clear, coherent and focused. Specialist terminology is used effectively. Minor detail and / or expansion of argument sometimes lacking.
3	9 – 12	Knowledge of components of model is evident and there is some reference to function of model. There are occasional inaccuracies. Evaluation is apparent and mostly effective. The answer is mostly clear and organised. Specialist terminology mostly used effectively. Lacks focus in places.
2	5 – 8	Knowledge of some components of model is present. Focus is mainly on description. Any evaluation is only partly effective. The answer lacks clarity, accuracy and organisation in places. Specialist terminology used inappropriately on occasions.
1	1 – 4	Knowledge of model is limited. Evaluation is limited, poorly focused or absent. The answer as a whole lacks clarity, has many inaccuracies and is poorly organised. Specialist terminology either absent or inappropriately used.
	0	No relevant content.

**AO1 Content:**

- version of STM which sees this store as an active processor
- description of central executive and 'slave systems' – visuo-spatial scratch / sketch pad; phonological store / loop; articulatory loop / control process; primary acoustic store; episodic buffer (versions vary – not all of slave systems need to be present for full marks)
- information concerning capacity and coding of each store
- allocation of resources / divided attention / dual-task performance.

**AO3 Possible evaluation points:**

- strengths include: explains how cognitive processes interact; memory is active rather than passive; provides explanation / treatments for processing deficits; highlights different memory tasks that STM can deal with by identifying separate components; explains results of dual task studies
- limitations include: vague, untestable nature of the central executive; supported by highly controlled lab studies which may undermine the validity of the model
- use of evidence to support or refute the model
- credit other relevant evaluative points.

Only credit evaluation of the methodology used in studies when made relevant to discussion of the model.

**10****AO1 = 4****A** = Unlimited**B** = 18–30 seconds**C** = Acoustic/phonetic/sound-based**D** = Semantic**11****AO2 = 4**

Level	Marks	Description
2	3 – 4	Knowledge of relevant features of the working memory model is clear and accurate. The application of these to the scenario is effective. At the top of the band there must be reference to both characters in the stem. Specialist terminology is used effectively.
1	1 – 2	Knowledge of relevant features of the working memory model lacks clarity/accuracy/detail. Application may be limited or absent. Specialist terminology is not always used effectively.
	0	No relevant content.

**Possible content:**

- Reference to attentional capacity/capacity of the central executive – because driving is an ‘automated’ task for Bryan, it makes fewer attentional demands on his central executive so he is free to perform other tasks (such as talking or listening to music); this is not the case for Bob who requires all of his attentional capacity for driving.
- Credit reference to Bob’s inability to dual-task and to divide resources effectively between components of working memory.
- Credit the idea that Bryan is able to divide resources between his visuo-spatial scratch / sketch pad (driving) and articulatory control process / articulatory / phonological loop / primary acoustic store (talking and listening to music) and thus to dual-task.

Accept other valid applications of the model.

Level	Marks	Description
4	13 – 16	Knowledge of research into two or more factors is accurate and generally well detailed. Discussion is thorough and effective. Application to the stem is appropriate and links between factors and stem content are explained. The answer is clear, coherent and focused. Specialist terminology is used effectively. Minor detail and/or expansion of argument sometimes lacking.
3	9 – 12	Knowledge of research into two or more factors is evident. Discussion is apparent and mostly effective. There are occasional inaccuracies. Application to the stem is appropriate although links to the factors are not always well explained. The answer is mostly clear and organised. Specialist terminology mostly used effectively. Lacks focus in places.
2	5 – 8	Knowledge of research into at least two factors is present but is vague/inaccurate <b>or</b> research into one factor only is present. Focus is mainly on description. Any discussion is only partly effective. Application to the stem is partial. The answer lacks clarity, accuracy and organisation in places. Specialist terminology used inappropriately on occasions.
1	1 – 4	Knowledge of research into factor(s) is limited. Discussion is limited, poorly focused or absent. Application is limited or absent. The answer as a whole lacks clarity, has many inaccuracies and is poorly organised. Specialist terminology either absent or inappropriately used.
	0	No relevant content.

### AO1 Content

Knowledge of research into two or more factors affecting the accuracy of eyewitness testimony (usually those named in the specification and implied in the stem)

Misleading information, including leading questions:

- Loftus and Palmer's (1974) experiment where the verb in the critical question was changed (smashed, collided, bumped, hit or contacted).
- Loftus and Palmer: "Did you see any broken glass?"
- Loftus et al (1978) study using a red Datsun and Stop or Yield signs.
- Research relating to age in relation to misleading information could also be relevant: e.g. Warren et al (2005) found adults less likely to be influenced by leading questions than children.
- Credit other relevant research/theory: e.g. post-event contamination; confabulation; reconstructive memory/the formation of schemas; confabulation.



### Anxiety:

- Loftus's (1979) weapon focus experiment found that more participants correctly identified a person holding a pen (49%) than a person holding a knife covered in blood.
- Loftus and Burns (1982) found that participants who saw a violent version of a crime where a boy was shot in the face had impaired recall for events leading up to the accident.
- Peters (1988) found that participants who visited a healthcare centre were better able to recognise a researcher than a nurse who gave an injection.
- Yuille and Cutshall (1986) found that witnesses who had been most distressed at the time of a shooting gave the most accurate account five months later.
- Christianson and Hubinette (1993) found that victims of genuine bank robberies were more accurate in their recall than bystanders.
- Credit other relevant research/theory: e.g. the Yerkes-Dodson law of arousal.

### Post-event discussion:

- Source monitoring theory; effects of conformity; Bodner et al (2009) – the effects of post-event discussion can be reduced if witnesses are warned of its effects.

### AO2 Application points

- Links to leading questions – 'Did you see the knife?' (as opposed to a knife); question from officer is leading the witness who was not sure that there was a knife in the first place.
- Links to anxiety – witness claims that she was 'so scared' when the incident took place; this may inhibit or enhance her memory depending upon how severe the fear was.
- Links to post-event discussion – 'my friends and I have talked about what happened so many times since that I'm almost not sure what I did see'.

### AO3 Discussion points

Will depend on research chosen but might include:

- Issue of validity in laboratory studies or lack of control in real-life situations.
- Methodological issues, including sampling, replication and corroboration with other studies.
- Ethical issues.
- Practical applications/implications of the research: e.g. development of cognitive interview.

Credit other relevant evaluation points.

13

Please note that the AOs for the new AQA Specification (Sept 2015 onwards) have changed. Under the new Specification the following system of AOs applies:

- AO1 knowledge and understanding
- AO2 application (of psychological knowledge)
- AO3 evaluation, analysis, interpretation.

Although the essential content for this mark scheme remains the same, mark schemes for the new AQA Specification (Sept 2015 onwards) take a different format as follows:

- A single set of numbered levels (formerly bands) to cover all skills
- Content appears as a bulleted list
- No IDA expectation in A Level essays, however, credit for references to issues, debates and approaches where relevant.

**AO2 = 4**

The focus of this answer must be on explaining difference. Candidates may base their explanation on the findings of one experiment such as Murdock (1962) which showed a primacy effect (LTM) and a recency effect (STM), or on a case study such as KF which showed impaired STM but unaffected LTM. Reference to evidence from brain scans would also be relevant, eg Squire (1992) found the hippocampus is active in LTM tasks and areas in the pre-frontal cortex are active during STM tasks.

Alternatively the explanation may relate to a specific feature of STM / LTM e.g. Peterson and Peterson supported the idea of limited duration in STM while Bahrick supported that of relatively permanent LTM. Other relevant features are capacity, encoding and forgetting. STM encoded acoustically and LTM encoded semantically. Baddeley found that lists of similar sounding words confused STM term memory and lists of semantically similar words confused long term memory.

Candidates who describe the findings of one study relating to the capacity of STM can access full marks by simply stating that the capacity of LTM is considered to be unlimited.

<b>AO2 Application of knowledge and understanding</b>
<p><b>4 marks Effective explanation</b>                  Explanation is accurate, reasonably detailed and demonstrates sound knowledge and understanding of how research findings support a difference. e.g. 1 or more detailed differences + evidence illustrating both parts. (The evidence can be from 1 study)</p>
<p><b>3 marks Reasonable explanation</b>                  Explanation is generally accurate but less detailed and demonstrates reasonable knowledge and understanding of how research findings support a difference. e.g. 2 detailed differences (e.g. duration and capacity) or 1 detailed difference + evidence illustrating one part of the difference.</p>
<p><b>2 marks Basic explanation</b>                  Explanation demonstrates basic knowledge of how research findings support a difference. e.g. Duration is 20 seconds in STM and unlimited in LTM.</p>
<p><b>1 marks Rudimentary explanation</b>                  Explanation demonstrates rudimentary knowledge of how research findings support a difference. e.g. Capacity is smaller in STM than LTM.</p>
<p><b>0 marks</b>                  No creditworthy material relating to an explanation of how research findings support a difference.</p>

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#### **AO1 = 4**

Candidates may describe the original 1974 version of the model or include later additions such as the episodic buffer which was added in 2000.

The working memory model replaced the idea of a unitary STM. It suggests a system involving active processing and short-term storage of information.

Key features include the central executive, the phonological loop (consisting of two components, the phonological store and the articulatory control process), and the visuo-spatial sketch pad.

For 4 marks candidates should refer to components and processes.

Candidates may include a diagram. If this is accurately labelled and sufficiently detailed, this can potentially receive the full 4 marks.

<b>AO1 Knowledge of the working memory model</b>
<b>4 marks Accurate and reasonably detailed</b> Accurate and reasonably detailed answer that demonstrates sound knowledge of the model.
<b>3 marks Less detailed but generally accurate</b> Less detailed but generally accurate answer that demonstrates relevant knowledge of the model.
<b>2 marks Basic</b> Basic answer that demonstrates some relevant knowledge of the model, but lacks detail and may be muddled.
<b>1 mark Very brief / flawed</b> Very brief (e.g. only naming 2 or more components), or flawed answer demonstrating very little knowledge of the model.
<b>0 marks</b> No creditworthy material.

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- AO1 knowledge and understanding
- AO2 application (of psychological knowledge)
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- Content appears as a bulleted list
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**AO1 = 4**

Note – There is a breadth / depth trade off here. Accurate answers which describe 1 technique in detail can be awarded full marks, as can answers which outline 4 techniques.

The main techniques used in a cognitive interview are:–

Context reinstatement – trying to mentally recreate an image of the situation, including details of the environment, such as the weather conditions, and the individual’s emotional state including their feelings at the time of the incident.

Recall from a changed perspective – trying to mentally recreate the situation from different points of view e.g. describing what another witness present at the scene would have seen.

Recall in reverse order – the witness is asked to describe the scene in a different chronological order e.g. from the end to the beginning.

Report everything – the interviewer encourages the witness to report all details about the event, even though these details may seem unimportant.

The main additional features of the enhanced cognitive interview are:–

Encourage the witness to relax and speak slowly.

Offer comments to help clarify witness statements.

Adapt questions to suit the understanding of individual witnesses.

<b>AO1 Knowledge of the cognitive interview</b>
<b>4 marks Accurate and reasonably detailed</b> Accurate and reasonably detailed answer that demonstrates sound knowledge of the cognitive interview.
<b>3 marks Less detailed but generally accurate</b> Less detailed but generally accurate answer that demonstrates relevant knowledge of the cognitive interview.
<b>2 marks Basic</b> Basic answer that demonstrates some relevant knowledge of the cognitive interview, but lacks detail and may be muddled.
<b>1 mark Very brief / flawed</b> Very brief or flawed answer demonstrating very little knowledge of the cognitive interview.
<b>0 marks</b> No creditworthy material.

**16**

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[AO1 = 2, AO2 = 1]

### AO1

AO1 Award up to two marks for a definition of any two of the following:

- semantic – memory for facts / general knowledge;
- episodic – memory for (life) events / experiences;
- procedural – memory for (motor) skills / actions / knowing how to do things.

No credit for stand-alone examples.

### AO2

Award one mark for a valid difference / distinction between the types of long- term memory chosen.

Possible answers: semantic / episodic – ‘knowing that’ / declarative memory; available for conscious inspection – procedural – ‘knowing how’ / non-declarative memory; often unavailable for conscious inspection.

Semantic – may not recall when we learned / encoded these memories  
– episodic – stored with reference to time and place.

Credit distinctions based on the durability / resistance to forgetting of different types of memory; the fact that evidence suggests that these types of memory reside in different areas of the brain.

Credit other valid distinction points.

Note that the explanation of the difference must make reference to **both** types of memory.

17

[AO1 = 2, AO2= 2]

### AO1

Award up to two marks for relevant knowledge of the working memory model. Credit knowledge / identification of each store / sub-systems (not episodic buffer); the idea that two tasks using separate stores can be performed simultaneously; performing two tasks that involve the same store impairs performance.

Credit reference to limited capacity.

Credit reference to the allocation of tasks by the central executive.

Students may gain both marks by referring to specific stores or more general, relevant features of the model.

## AO2

Up to two marks for application to the scenario.

For full credit answers must refer to both sets of tasks.

Possible answer: Claire is able to search for photos and listen to music as these tasks involve different sub-systems in working memory (1) – the visuo-spatial sketch / scratch pad and the articulatory / phonological loop / store / primary acoustic store (1). Claire finds it difficult to read her e-mails and talk on the phone as these tasks involve the same store (1) – the articulatory / phonological loop / store / primary acoustic store (1).

**18**

**AO1 = 2**

Coding is the way in which information is stored / put into / processed into memory, eg acoustic, visual, semantic.

1 mark for a very brief explanation (eg how it's stored, or changing its form) or an example (eg acoustic coding).

2 marks for a brief explanation and an example as above, or for accurate elaboration, eg when information is changed into a form which can be stored.

**19**

**AO2 = 2**

The capacity of LTM is much larger than STM. (1 mark)

Unlimited capacity in LTM, 7 + / - 2 items in STM. (2 marks)

For full marks there must be accurate reference to the capacity of STM, but this may refer to chunks.

**20**

**AO1 = 6**

The central executive has a supervisory function and controls the slave systems. It has limited capacity but can process information from any sensory modality.

The phonological loop is a limited capacity, temporary storage system for holding verbal information in a speech based form.

The visuo-spatial sketchpad is a limited capacity, temporary memory system for holding visual and spatial information.

In each case 1 mark for a brief answer eg the visuo-spatial sketchpad holds visual and spatial information. 2nd mark for accurate elaboration or an example of how it might be used.

Within each component award a maximum of 1 mark for simply naming 1 or more parts eg phonological store (inner ear), articulatory process (inner voice) in the phonological loop, or inner scribe, visual cache in the visuo-spatial sketchpad.

21

**AO2 = 3**

Participants would find it hard to do two visual tasks at the same time because they would be competing for the same limited resources of the visuo-spatial sketchpad. However, a visual task and a verbal task would use different components.

1 mark for a very brief or slightly muddled explanation eg both visual tasks use the visuo-spatial sketchpad. Further marks for accurate elaboration. For full marks students must refer to both conditions.

22

(a) **AO2 = 3**

The answer must clearly relate to one or more of the main techniques used in a cognitive interview (other than report everything):-

Context reinstatement  
Recall from a changed perspective  
Recall in reverse order

Some of the main additional features of the enhanced cognitive interview could be relevant, as long as it could be explained to the participant: – eg Encourage to relax

1 mark for identification of a relevant cognitive technique.

1 mark for very brief statement eg “tell me what you saw in reverse order”.

Second mark for appropriate elaboration eg “Tell me what you saw on the film in a different order to how it actually happened.” If instructions are not suitable to be read out maximum 1 mark for this part.

For 3 marks technique and instructions must match.

(b) **AO3 = 2**

The researcher might conclude that the cognitive interview was effective because more correct items were recalled, but it did not affect the number of incorrect items recalled.

0 mark - the cognitive interview was effective with no explanation.

1 mark - it was effective because there were more correct items recalled or it was not effective because the number of incorrect items stayed the same.

2 marks - it was effective because there were more correct items recalled **and** the number of incorrect items stayed the same / didn't increase.

1 mark for stating there were more correct items recalled with the cognitive interview than with the standard interview **and** the number of incorrect items recalled was the same. (There is no reference to effectiveness).

23

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- Content appears as a bulleted list
- No IDA expectation in A Level essays, however, credit for references to issues, debates and approaches where relevant.

**AO1 = 4**

**AO2 = 4**

Students must select research which relates to misleading information, so research into weapon focus should not be credited.

Students are likely to refer to Loftus and Palmer's (1974) experiment where the verb in the critical question was changed (smashed, collided, bumped, hit or contacted.) Other relevant research would be Loftus and Palmer asking participants "Did you see any broken glass?" and Loftus et al's (1978) study using a red Datsun and Stop or Yield signs.

Research into anxiety and EWT is not relevant unless the student refers to leading questions such as Yuille and Cutshall where the witnesses to a real-life shooting appeared resistant to leading questions.

Research relating to age in relation to misleading information could also be relevant. Eg Warren et al (2005) found children were more likely to be influenced by leading questions than adults.

Credit any relevant research, studies and / or theories.

Evaluation might refer to lack of ecological validity in laboratory studies or lack of control in real life situations. Other methodological issues including sampling, possible replication and corroboration with other studies could be included. Ethical issues could be relevant as could practical applications of the research.

Examiners are reminded this is an 8 mark question. Students can focus on one study in reasonable detail or more than one study in less detail.

<b>AO1</b> <b>Knowledge and understanding</b>	<b>AO2</b> <b>Evaluation / commentary</b>
<p><b>4 marks Accurate and reasonably detailed</b>            Accurate and reasonably detailed description that demonstrates sound knowledge and understanding of research into misleading information. There is appropriate selection of material to address the question.</p>	<p><b>4 marks Effective commentary / evaluation</b>            Effective use of material to address the question and provide informed commentary / evaluation. Broad range of issues in reasonable depth or a narrower range in greater depth.</p>
<p><b>3 marks Less detailed but generally accurate</b>            Less detailed but generally accurate answer that demonstrates relevant knowledge and understanding of research into misleading information. There is some evidence of selection of material to address the question.</p>	<p><b>3 marks Reasonable commentary / evaluation</b>            Material is not always used effectively but produces a reasonable commentary / evaluation. A range of issues in limited depth, or a narrower range in greater depth.</p>
<p><b>2 marks Basic</b>            Basic answer that demonstrates some relevant knowledge and understanding of research into misleading information, but lacks detail and may be muddled. There is little evidence of selection of material to address the question.</p>	<p><b>2 marks Basic commentary / evaluation</b>            The use of material provides only basic commentary / evaluation demonstrates basic analysis. Superficial consideration of a restricted range of issues.</p>
<p><b>1 mark Very brief and or flawed</b>            Very brief or flawed answer that demonstrates very little knowledge of research into misleading information. Selection of material is largely inappropriate.</p>	<p><b>1 mark Rudimentary commentary / evaluation</b>            The use of material provides only a rudimentary commentary. Evaluation of research is just discernible or absent.</p>
<p><b>0 marks</b>            No creditworthy material.</p>	<p><b>0 marks</b>            No creditworthy material.</p>

24

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- AO2 application (of psychological knowledge)
- AO3 evaluation, analysis, interpretation.

(a) **[AO3 = 1]**

One mark for the independent variable.

Likely answers: the context of recall / whether participants recalled the words in the same room or a different room / the classroom or the school hall.

Reference to both conditions might be implicit rather than clearly stated.

(b) **[AO3 = 1, AO2 = 2]**

**AO3**

Award one mark for stating the likely outcome.

Likely answers: Participants who learned and recalled in the same context are likely to recall more words than those who learned and recalled in different contexts / there will be a higher mean number of words recalled in Condition 1 than Condition 2.

Accept alternative wording.

**AO2**

Award up to two marks for explanation of the likely outcome based on knowledge of retrieval failure as an explanation for forgetting. Credit reference to environmental cues / context triggering recall; the absence of cues / context in Condition 2.

For two AO2 marks there must be some reference to condition two's participants failing to retrieve / recall information.

Credit use of evidence and / or use of an example as part of the discussion.

(c) **[AO3 = 2]**

Award up to two marks for an explanation of how random allocation to one of the two conditions might have been carried out. Two marks for a full explanation, one mark for a brief / vague answer.

Possible answer: All participants' names / numbers are placed into a hat / lottery system / computer (1) the first name drawn is assigned to condition one, the next to condition two / the first twenty are allocated to condition one, the second twenty to condition two (1).

(d) **[AO3 = 2]**

Award up to two marks for an explanation of how participants could be matched and then allocated to the two conditions for a matched pairs design.

Possible answer: Participants are paired on some relevant variable (eg memory ability, IQ, age, etc.), (1) and then one from each pair is allocated to each condition (1).

Answers based on the use of identical twins can get full marks as long as there is some reference to the idea that twins are likely to have a similar level of recall.

**25****AO2 = 4**

Candidates are likely to identify capacity, duration and encoding as ways in which STM and LTM differ. Processes are acceptable eg putting information into the stores or keeping information in the stores. Any legitimate difference(s) in multi-store model should be credited.

For each difference:

1 mark for identifying the difference eg STM holds less than LTM or LTM lasts longer than STM.

2nd mark for accurate elaboration eg the capacity of STM is limited to  $7 \pm 2$  items whereas the capacity of LTM is unlimited or the duration of STM is up to 30 seconds whereas the duration of LTM is a lifetime.

0 marks for simply naming eg capacity, duration, encoding of STM or LTM but no difference.

**26**

Please note that the AOs for the new AQA Specification (Sept 2015 onwards) have changed. Under the new Specification the following system of AOs applies:

- AO1 knowledge and understanding
- AO2 application (of psychological knowledge)
- AO3 evaluation, analysis, interpretation.

Although the essential content for this mark scheme remains the same, mark schemes for the new AQA Specification (Sept 2015 onwards) take a different format as follows:

- A single set of numbered levels (formerly bands) to cover all skills
- Content appears as a bulleted list
- No IDA expectation in A Level essays, however, credit for references to issues, debates and approaches where relevant.

**AO1 = 4**

Candidates may describe the original 1974 version of the model or include later additions such as the episodic buffer which was added in 2000.

The working memory model replaced the idea of a unitary STM. It suggests a system involving active processing and short-term storage of information.

Key features include the central executive, the phonological loop (consisting of two components, the phonological store and the articulatory control process), and the visuo-spatial sketch pad.

For 4 marks candidates should refer to components and the relationship between them.

Candidates may include a diagram. If this is accurately labelled and sufficiently detailed, this can potentially receive the full 4 marks.

<b>AO1 Knowledge of the working memory model</b>
<b>4 marks Accurate and reasonably detailed</b> Accurate and reasonably detailed answer that demonstrates sound knowledge of the model. There is appropriate selection of material to address the question.
<b>3 marks Less detailed but generally accurate</b> Generally accurate but less detailed answer that demonstrates relevant knowledge of the model. There is some evidence of selection of material to address the question.
<b>2 marks Basic</b> Basic answer that demonstrates some relevant knowledge of the model, but lacks detail and may be muddled. There is little evidence of selection of material to address the question.
<b>1 mark Very brief and/or flawed</b> Very brief or flawed answer that demonstrates very little knowledge of the model. Selection of material is largely inappropriate.
<b>0 marks</b> No creditworthy material.

27

Please note that the AOs for the new AQA Specification (Sept 2015 onwards) have changed. Under the new Specification the following system of AOs applies:

- AO1 knowledge and understanding
- AO2 application (of psychological knowledge)
- AO3 evaluation, analysis, interpretation.

#### **AO2 = 4**

Likely strengths include research support such as dual task studies and physiological evidence from brain scans. Candidates may offer a comparison with the MSM and suggest WMM gives a better account of STM. Strengths may include practical applications of the model eg the phonological loop plays a key role in the development of reading, and working memory capacity might be used as a measure of suitability for certain jobs.

Likely limitations include the fact that little is known about how the central executive works or evidence from brain studies suggesting the central executive is not unitary. The model doesn't account for musical memory because participants can listen to instrumental music without impairing performance on other acoustic tasks.

Simply stating that the model does not explain LTM is not credit-worthy as a limitation. However, stating that the link between WM and LTM is not fully explained is legitimate.

Credit any acceptable strength and limitation.

For each strength and limitation, 1 mark for identification. A further mark for accurate elaboration. For example (strength), there is evidence from dual task studies to support the model (1 mark). It is easier to do two tasks at the same time if they use different processing systems (verbal and visual) than if they use the same slave system (2 marks).

For example (limitation), the central executive is too simple / vague (1 mark). The central executive is an important / vital part of the model but its exact role is unclear (2 marks).

28

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- Content appears as a bulleted list
- No IDA expectation in A Level essays, however, credit for references to issues, debates and approaches where relevant.

#### **AO1 = 4**

Candidates must select a study which clearly relates to both anxiety and eyewitness testimony. For full marks there must be some reference to what was done and what was found.

In Loftus's (1979) weapon focus experiment more participants correctly identified a person holding a pen (49%) than a person holding a knife covered in blood. Loftus and Burns (1982) found participants who saw a violent version of a crime where a boy was shot in the face had impaired recall for events leading up to the accident. Peters (1988) found participants who visited a healthcare centre were better able to recognise a researcher than a nurse who gave an injection. However, in a real life study Yuille and Cutshall (1986) found witnesses who had been most distressed at the time of a shooting gave the most accurate account five months later. Also Christianson and Hubinette (1993) found victims of genuine bank robberies were more accurate in their recall than bystanders.

<p><b>4 marks Accurate and reasonably detailed</b>  Accurate and reasonably detailed answer that demonstrates sound knowledge and understanding of one study into the effect of anxiety on eyewitness testimony.  There is appropriate selection of material to address the question.</p>
<p><b>3 marks Less detailed but generally accurate</b>  Generally accurate but less detailed answer that demonstrates relevant knowledge and understanding of one study into the effect of anxiety on eyewitness testimony.  There is some evidence of selection of material to address the question.</p>
<p><b>2 marks Basic</b>  Basic answer that demonstrates some relevant knowledge and understanding of one study into the effect of anxiety on eyewitness testimony, but lacks detail and may be muddled.  There is little evidence of selection of material to address the question.</p>
<p><b>1 mark Very brief and or flawed</b>  Very brief or flawed answer that demonstrates very little knowledge of one study into the effect of anxiety on eyewitness testimony.  Selection of material is largely inappropriate.</p>
<p><b>0 marks</b>  No creditworthy material.</p>

29

Please note that the AOs for the new AQA Specification (Sept 2015 onwards) have changed. Under the new Specification the following system of AOs applies:

- AO1 knowledge and understanding
- AO2 application (of psychological knowledge)
- AO3 evaluation, analysis, interpretation.

[AO1 = 2, AO2 = 1]

**AO1**

One mark each for:

An example of semantic memory – knowing that Paris is the capital of France or a hawk is a bird of prey.

An example of episodic memory – remembering a conversation we had yesterday or our 10th birthday party. Example must be personalised to get credit.

**AO2**

One mark for a distinction point. Likely points: semantic memories are general knowledge about the world, but episodic memories are memories of our personal experiences. Or, we may not recall when and where we learned / encoded our semantic memories but we do recall this for our episodic memories. Evidence suggests they are located in different areas of the brain.

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- AO1 knowledge and understanding
- AO2 application (of psychological knowledge)
- AO3 evaluation, analysis, interpretation.

(a) Up to 2 marks for knowledge of interference as an explanation of forgetting. Likely points: the theory suggests that forgetting is a result of disruption / confusion of one memory by other information (1); more likely to occur when memories are similar (1). There are two types – **retroactive** where recent information learned disrupts recall of previously stored information (1) and **proactive** where what we have already stored disrupts current learning (1). Credit explanation if embedded within an example. One mark for naming two types only. Credit other valid points.

(b) **[AO1 = 2]**

Up to 2 marks for a description of the procedure / method of a relevant study. This must include detail of the conditions / variables / task.

Likely studies: Schmidt et al 2000 (street names and house moves) Baddeley & Hitch 1977 (rugby players, injury and number of teams played), Keppel and Underwood 1962 (trigrams), Jenkins and Dallenbach 1924 (recall after period of being awake / asleep).

(c) **[AO1 = 1, AO2 =2]**

#### **AO1**

1 mark for a limitation of the interference theory of forgetting. Likely answers: many of the studies on which the theory is based are laboratory based. Difficulty of distinguishing effects of interference from other forms of forgetting. Unsure of the mechanisms involved in interference / how and why it occurs.

#### **AO2**

Up to 2 marks for discussion of the limitation identified.

Possible answer: studies that support interference tend to laboratory based (1) where participants are required to learn similar material in a very short time-frame (1) making it more likely that interference will occur (1).



**31**

Marks for this question: AO1 = 6, AO3 = 10

Level	Marks	Description
4	13 – 16	Knowledge is accurate and generally well detailed. Evidence is clear. Discussion / evaluation / application is thorough and effective. The answer is clear, coherent and focused. Specialist terminology is used effectively. Minor detail and / or expansion of argument sometimes lacking.
3	9 – 12	Knowledge is evident. Evidence is presented. There are occasional inaccuracies. Discussion / evaluation / application is apparent and mostly effective. The answer is mostly clear and organised. Specialist terminology is mostly used effectively. Lacks focus in places.
2	5 – 8	Some knowledge is present. Focus is mainly on description. Any discussion / evaluation / application is only partly effective. The answer lacks clarity, accuracy and organisation in places. Specialist terminology is used inappropriately on occasions.
1	1 – 4	Knowledge is limited. Discussion / evaluation / application is limited, poorly focused or absent. The answer as a whole lacks clarity, has many inaccuracies and is poorly organised. Specialist terminology either absent or inappropriately used.
	0	No relevant content.

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### **AO1**

Marks for accurate description of the model including information about the characteristics (duration, capacity and coding) of each store; linear / information processing model; related types of forgetting; transfer from sensory to STM via attention; description of rehearsal loop. Some marks can be credited for the same information conveyed by an accurately labelled diagram if there is no other creditworthy information provided.

### **AO3**

Marks for analysis which might include discussion of the issue of rehearsal as a requirement for transfer of information to LTM; criticisms of aspects of the model by comparison with other models, such as arguments that the STS and LTS are not unitary stores; explanation of primacy and recency effects in serial position studies; coding confusion in STM; discussion of the nature of deficits in case studies of neurological damage. Credit evaluation of the methodology of studies only when made relevant to the discussion of the model.

Credit use of evidence.

Likely studies include: Murdock (1962) Glanzer and Cunitz (1966), Peterson and Peterson (1959), Craik and Watkins (1973), Conrad (1963 / 4), Baddeley (1966), Milner et al (1978), Blakemore (1988), Craik and Tulving (1975), Hyde and Jenkins (1973), and Working Memory studies such as Baddeley, Thomson and Buchanan (1975), Hoosain and Salili (1988).

Marks for this question: AO1 = 6, AO3 = 10

Level	Marks	Description
4	13 – 16	Knowledge is accurate and generally well detailed. Discussion / evaluation / application is thorough and effective. The answer is clear, coherent and focused. Specialist terminology is used effectively. Minor detail and / or expansion of argument sometimes lacking.
3	9 – 12	Knowledge is evident. There are occasional inaccuracies. Discussion / evaluation / application is apparent and mostly effective. The answer is mostly clear and organised. Specialist terminology is mostly used effectively. Lacks focus in places.
2	5 – 8	Some knowledge is present. Focus is mainly on description. Any Discussion / evaluation / application is only partly effective. The answer lacks clarity, accuracy and organisation in places. Specialist terminology is used inappropriately on occasions.
1	1 – 4	Knowledge is limited. Discussion / evaluation / application is limited, poorly focused or absent. The answer as a whole lacks clarity, has many inaccuracies and is poorly organised. Specialist terminology either absent or inappropriately used.
	0	No relevant content.

Please note that although the content for this mark scheme remains the same, on most mark schemes for the new AQA Specification (Sept 2015 onwards) content appears as a bulleted list

### **AO1**

Most answers will focus on the cognitive interview technique but any method / technique with a psychological basis should be credited (eg avoiding leading questions). Likely content: the original cognitive interview – 4 features: restore context; recall everything even trivial detail; recall in reverse order; recall from another perspective. Credit also features of the enhanced cognitive interview eg relax, speak slowly. Likely evidence: Geiselman (1985).

### **AO3**

How / why recall is enhanced: eg role of context reinstatement; work on reconstructive memory; use of context; makes the event more meaningful. Limitations: eg usefulness of the cognitive interview with children; less useful when there is increased time between event and recall.

Relative effectiveness of individual features of the cognitive interview; better for recall of peripheral detail than central detail.

Use of relevant evidence to support / refute argument.

Marks for this question: AO1 = 6, AO3 = 6

Level	Marks	Description
4	10 – 12	Knowledge is accurate and generally well detailed. Evidence is clear. Discussion / evaluation / application is effective. The answer is clear, coherent. Specialist terminology is used effectively. Minor detail and / or expansion of argument sometimes lacking.
3	7 – 9	Knowledge is evident. Evidence is presented. There are occasional inaccuracies. There is some effective Discussion / evaluation / application. The answer is mostly clear and organised. Specialist terminology is mostly used appropriately.
2	4 – 6	Knowledge is present. Focus is mainly on description. Any discussion / evaluation / application is of limited effectiveness. The answer lacks clarity, accuracy and organisation in places. Specialist terminology is used inappropriately on occasions.
1	1 – 3	Knowledge is limited. Discussion / evaluation / application is limited, poorly focused or absent. The answer as a whole lacks clarity, has many inaccuracies and is poorly organised. Specialist terminology is either absent or inappropriately used.
	0	No relevant content.

Please note that although the content for this mark scheme remains the same, on most mark schemes for the new AQA Specification (Sept 2015 onwards) content appears as a bulleted list.

### **AO1**

Most answers will focus on the cognitive interview technique but any method / technique with a psychological basis should be credited (eg avoiding leading questions). Likely content: the original cognitive interview – 4 features: restore context; recall everything even trivial detail; recall in reverse order; recall from another perspective. Credit also features of the enhanced cognitive interview eg relax, speak slowly. Likely evidence: Geiselman (1985).

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How / why recall is enhanced: eg role of context reinstatement; work on reconstructive memory; use of context; makes the event more meaningful. Limitations: eg usefulness of the cognitive interview with children; less useful when there is increased time between event and recall.

Relative effectiveness of individual features of the cognitive interview; better for recall of peripheral detail than central detail.

Use of relevant evidence to support / refute argument.

34

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- AO1 knowledge and understanding
- AO2 application (of psychological knowledge)
- AO3 evaluation, analysis, interpretation.

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- Content appears as a bulleted list
- No IDA expectation in A Level essays, however, credit for references to issues, debates and approaches where relevant.

(a) **AO2 = 2**

This is an example of misleading information because the word “youth” suggests the man was young.

1 mark for a brief or muddled answer eg identifying the use of the word “youth” or “it refers to age”.

2 marks for some accurate elaboration eg the answer clearly states that the man was young or a youth or suggests that his age may influence the answer.

Credit answers which state that the information is misleading because the question suggests there was a youth in the picture, when in fact there was only a man and a woman.

(b) **AO3 = 1 mark + 3**

1 mark for independent (groups, measures, participants or subjects or between subjects or participants) design or unrelated design. 0 marks for individual.

1 mark for matched (groups, measures, participants, subjects).

A repeated measures design could not be used because participants would take part in both conditions. This would be inappropriate because their answer to one question would affect their answer to the other question. Candidates may point out this would make it easy to work out the aim of the experiment and so could lead to demand characteristics.

1 mark for a very brief / muddled answer eg "they couldn't answer both questions." "It could lead to demand characteristics."

Further marks for accurate detail. "It could lead to demand characteristics because they would know what the experiment was about." 2 marks

"Participants couldn't take part in both conditions because their answer to one question would affect their answer to the other question." 3 marks

(c) **AO3 = 4**

In this experiment it could be used to check how long the participant should be given to look at the picture so that the timing could be changed if it was too long or too short. It could check the participants understand the questions asked and what they are required to do. It could also be used to ask a few participants about their experience of taking part.

Credit any appropriate answer which could apply to this investigation. No marks are awarded for a definition of a pilot study. Explanations which do not relate to this investigation maximum 2 marks.

<b>AO3 Application of knowledge of research methods</b>
<b>4 marks Accurate and reasonably detailed</b> Accurate and reasonably detailed explanation that demonstrates sound understanding of why a pilot study would be appropriate in this study.
<b>3 marks Less detailed but generally accurate</b> Less detailed but generally accurate answer that demonstrates sound understanding of why a pilot study would be appropriate in this study.
<b>2 marks Basic</b> Basic answer that demonstrates some understanding of why a pilot study would be appropriate in this study, but lacks detail and may be muddled.
<b>1 mark Very brief/flawed</b> Very brief or flawed answer demonstrating very little understanding of why a pilot study would be appropriate in this study.
<b>0 marks</b> No creditworthy material.

(d) **AO3 = 4**

One strength of using photographs in the investigation would be control of variables eg the same pictures could be shown for the same amount of time. Candidates may refer to a limitation of the live conversation.

One limitation is lack of validity. The findings cannot be generalised to real life situations where other factors such as changing facial expressions and gestures could be relevant.

For each strength and limitation 1 mark for stating a strength / limitation. 2<sup>nd</sup> mark for accurate elaboration.

(e) **AO1 = 6**

Candidates must select a research study (studies) which relates to misleading information / leading questions, so research into weapon focus should not be credited.

Candidates are likely to refer to Loftus and Palmer's (1974) experiment where the verb in the critical question was changed (smashed, collided, bumped, hit or contacted.) Other relevant research would be Loftus and Palmer asking participants "Did you see any broken glass?" and Loftus et al's (1978) study using a red Datsun and Stop or Yield signs.

Research into anxiety and EWT is not relevant unless the candidate refers to misleading information such as Yuille and Cutshall where the witnesses to a real-life shooting appeared resistant to misleading information.

Research relating to age could also be relevant. Eg Warren et al (2005) found children were more likely to be influenced by misleading information than adults.

Credit any relevant research.

Examiners are reminded that there is a depth / breadth trade-off.



<b>AO1 Knowledge and understanding</b>
<p><b>6 marks Accurate and reasonably detailed</b>  Accurate and reasonably detailed answer that demonstrates sound knowledge and understanding of the procedures and findings of one or more relevant research studies.</p>
<p><b>5 – 4 marks Less detailed but generally accurate</b>  Less detailed but generally accurate answer that demonstrates relevant knowledge and understanding of the procedures and findings of one or more relevant research studies.</p>
<p><b>3 – 2 marks Basic</b>  Basic answer that demonstrates some relevant knowledge and understanding of the procedures and findings of one or more relevant research studies but lacks detail and may be muddled.</p>
<p><b>1 mark Very brief/flawed</b>  Very brief or flawed answer demonstrating very little knowledge of the procedures and findings of one or more relevant research studies.</p>
<p><b>0 marks</b>  No creditworthy material.</p>

35

AO2 = 4

The answer should clearly relate to one or more of the main techniques used in a cognitive interview (other than report everything):

Context reinstatement.

Recall from a changed perspective.

Recall in reverse order.

And / or the main additional features of the enhanced cognitive interview:

Encourage to relax and speak slowly.

Offer comments to help clarify their statements.

Adapt questions to suit the understanding of individual witnesses.

1 mark for simple identification of a relevant cognitive technique, or a very brief suggestion eg “tell me what you saw in reverse order.”

2 marks for naming two or more relevant techniques or for a very brief outline of how one technique could be used eg “tell me what you saw in reverse order, starting with when the man was stabbed. A maximum of 2 marks can be awarded if there is no reference to details in the passage.

Further marks for accurate elaboration including reference to details in the passage.

Candidates who refer to only one technique should include more detail than those who refer to more than one.

Marks for this question: AO1 = 6, AO3 = 10

Level	Marks	Description
4	13 – 16	Knowledge is accurate and generally well detailed. Discussion / evaluation / application is thorough and effective. The answer is clear, coherent and focused. Specialist terminology is used effectively. Minor detail and / or expansion of argument sometimes lacking.
3	9 – 12	Knowledge is evident. There are occasional inaccuracies. Discussion / evaluation / application is apparent and mostly effective. The answer is mostly clear and organised. Specialist terminology is mostly used effectively. Lacks focus in places.
2	5 – 8	Some knowledge is present. Focus is mainly on description. Any discussion / evaluation / application is only partly effective. The answer lacks clarity, accuracy and organisation in places. Specialist terminology is used inappropriately on occasions.
1	1 – 4	Knowledge is limited. Discussion / evaluation / application is limited, poorly focused or absent. The answer as a whole lacks clarity, has many inaccuracies and is poorly organised. Specialist terminology either absent or inappropriately used.
	0	No relevant content.

Please note that although the content for this mark scheme remains the same, on most mark schemes for the new AQA Specification (Sept 2015 onwards) content appears as a bulleted list

## **AO1**

Atkinson and Shiffrin's (1968) multi-store model of memory (MSM) makes a distinction between the separate stores of sensory, short-term and long-term memory.

Likely features include:

Structural nature.

SM STM and LTM are unitary stores.

Information passes from store to store in a linear way.

Rehearsal is needed to pass information from STM to LTM.

Each store has its own characteristics in terms of encoding, capacity and duration.

Explanations of forgetting are different for each store.

Limited credit for diagram only.

## **AO3**

Evaluation of the MSM in terms of strengths and weaknesses.

Use of research in support of the distinction between STM and LTM; in terms of capacity, duration and encoding eg HM, Glanzer and Cunitz.

Likely weaknesses include an emphasis on rote rehearsal as a mechanism for transfer from STM to LTM although this is not a very effective means of transfer, and transfer often occurs with no rehearsal. Candidates may also refer to case studies such as that of Clive Wearing who lost episodic but not procedural memory, suggesting there may be more than one type of LTM.

Comparison / contrast with alternative models of memory.

Marks for this question: AO1 = 6, AO3 = 6

Level	Marks	Description
4	10 – 12	Knowledge is accurate and generally well detailed. Discussion / evaluation / application is effective. The answer is clear, coherent. Specialist terminology is used effectively. Minor detail and / or expansion of argument sometimes lacking.
3	7 – 9	Knowledge is evident. There are occasional inaccuracies. There is some effective discussion / evaluation / application. The answer is mostly clear and organised. Specialist terminology is mostly used appropriately.
2	4 – 6	Knowledge is present. Focus is mainly on description. Any discussion / evaluation / application is of limited effectiveness. The answer lacks clarity, accuracy and organisation in places. Specialist terminology is used inappropriately on occasions.
1	1 – 3	Knowledge is limited. Discussion / evaluation / application is limited, poorly focused or absent. The answer as a whole lacks clarity, has many inaccuracies and is poorly organised. Specialist terminology is either absent or inappropriately used.
	0	No relevant content.

Please note that although the content for this mark scheme remains the same, on most mark schemes for the new AQA Specification (Sept 2015 onwards) content appears as a bulleted list.

### **AO1**

Atkinson and Shiffrin's (1968) multi-store model of memory (MSM) makes a distinction between the separate stores of sensory, short-term and long-term memory.

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Structural nature.

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Information passes from store to store in a linear way.

Rehearsal is needed to pass information from STM to LTM.

Each store has its own characteristics in terms of encoding, capacity and duration.

Explanations of forgetting are different for each store.

Limited credit for diagram only.

### **AO3**

Evaluation of the MSM in terms of strengths and weaknesses.

Use of research in support of the distinction between STM and LTM; in terms of capacity, duration and encoding eg HM, Glanzer and Cunitz.

Likely weaknesses include an emphasis on rote rehearsal as a mechanism for transfer from STM to LTM although this is not a very effective means of transfer, and transfer often occurs with no rehearsal.

Candidates may also refer to case studies such as that of Clive Wearing who lost episodic but not procedural memory, suggesting there may be more than one type of LTM.

Comparison / contrast with alternative models of memory.

**38**

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**[AO1 = 2, AO2 = 1]**

### **AO1**

1 mark each for a descriptive point about procedural and semantic memory.

Procedural memory is a motor / action-based memory or a memory of how to do something.

Semantic memory is memory for facts / information about the world / knowledge memory / the meaning of words.

No credit for answers based on semantic processing.

Do not credit examples alone.

### **AO2**

1 mark for a distinction point. Likely points: procedural is non-declarative / not easy to express in words and semantic is declarative / knowing how vs knowing that; procedural is more resistant to forgetting; semantic is conscious and procedural less conscious; stored in different parts of the brain.

Allow full credit for one distinction point that is fully elaborated or for more than one point with less detail about each.

Allow full credit for three valid distinction points.

**39**

**[AO1 = 2]**

Up to 2 marks for an outline of two features of the working memory model.

Central executive – oversees the activity of the subsystems, an attentional system, retrieves information from LTM.

Articulatory loop / articulatory control process / articulatory rehearsal process – is a verbal rehearsal system / inner voice.

Primary acoustic store / phonological store – is a sound-based system / inner ear. (these may be subsumed under Phonological loop – the sound system)

Visuospatial scratch / sketch pad – where visual and spatial information is imaged and manipulated / inner eye.

Episodic buffer – where information from each subsystem can inter-connect.

Allow broader features of the model including parallel processing, limited capacity, active processing in STM.

Maximum of 1 mark for only naming two components.

**40****[AO1 = 2]**

Up to 2 marks for a description of the procedure / method. Typically a full answer will include the two conditions of the study.

Possible answers:

In one study, participants in Condition 1 were asked to memorise a series of letters while participants in Condition 2 were asked to rehearse the sounds of the letters in their heads. All the participants had their blood flow in their brains measured by PET scan while doing the tasks.

In a study, participants in one condition were asked to play a computer game using a joystick while carrying out a visuospatial distracter task. In the other condition participants played the same game but they had to carry out a verbal memory distracter task.

**41**

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- AO2 application (of psychological knowledge)
- AO3 evaluation, analysis, interpretation.

**[AO1 = 1, AO2 = 2]****AO1**

One mark for one strength of the working memory model. Likely points: the model helps to explain how cognitive processes interact / memory is an active rather than passive process / it provides explanation and possible treatment programmes for people with processing deficits / it highlights the different memory tasks that STM can deal with by identifying separate components. Can explain the results of dual task studies.

**AO2**

Up to 2 marks for an explanation of how / why the issue chosen is a strength. Credit comparison with other models.

Credit use of evidence as part of the explanation.

**42****AO1 = 2**

- B Duration (short-term memory).
- C Encoding (short-term memory).

1 mark for each correct answer.

**43**

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- AO2 application (of psychological knowledge)
- AO3 evaluation, analysis, interpretation.

Although the essential content for this mark scheme remains the same, mark schemes for the new AQA Specification (Sept 2015 onwards) take a different format as follows:

- A single set of numbered levels (formerly bands) to cover all skills
- Content appears as a bulleted list
- No IDA expectation in A Level essays, however, credit for references to issues, debates and approaches where relevant.

**AO1 = 4**

Candidates may describe the original 1974 version of the model or include later additions such as the episodic buffer.

The working memory model replaced the idea of a unitary STM. It suggests a system involving active processing and short-term storage of information.

Key features include the central executive, the phonological loop (consisting of two components, the phonological store and the articulatory control process), and the visuo-spatial sketch pad.

For 4 marks candidates should refer to components and the relationship between them eg central executive as a control system of slaves.

Candidates may include a diagram. If this is accurately labelled and sufficiently detailed, this can potentially receive the full 4 marks.

<b>AO1 Knowledge of the working memory model</b>
<b>4 marks Accurate and reasonably detailed</b> Accurate and reasonably detailed answer that demonstrates sound knowledge of the model.
<b>3 marks Less detailed but generally accurate</b> Less detailed but generally accurate answer that demonstrates relevant knowledge of the model.
<b>2 marks Basic</b> Basic answer that demonstrates some relevant knowledge of the model, but lacks detail and may be muddled.
<b>1 mark Very brief / flawed</b> Very brief or flawed answer demonstrating very little knowledge of the model eg simply naming one or more components.
<b>0 marks</b> No creditworthy material

**44**

Please note that the AOs for the new AQA Specification (Sept 2015 onwards) have changed. Under the new Specification the following system of AOs applies:

- AO1 knowledge and understanding
- AO2 application (of psychological knowledge)
- AO3 evaluation, analysis, interpretation.



## AO2 = 2

Likely limitations include: little is known about how the central executive works; evidence from brain studies suggesting the central executive is not unitary; it fails to account for musical memory because we are able to listen to instrumental music without impairing performance on other acoustic tasks.

Simply stating the model does not explain LTM is not credit-worthy. However stating the link between WM and LTM is not fully explained is legitimate.

Stating the model is too simple (with no accurate elaboration) is not credit-worthy.

1 mark for identification eg the central executive is too simplistic. A further mark for accurate elaboration.

45

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- AO1 knowledge and understanding
- AO2 application (of psychological knowledge)
- AO3 evaluation, analysis, interpretation.

### (a) AO3 = 2

0 marks for a non-directional or correlational hypothesis.

The DV in this experiment is number of pictures correctly identified. Hypotheses where the DV is incorrect (eg number of participants who identified 10 pictures) = 0 marks.

1 mark if not fully operationalised, eg Participants who used the memory improvement strategy did better.

2 marks Participants who use a memory improvement strategy will correctly identify more pictures / objects than participants who do not use a memory improvement strategy.

### (b) AO3 = 1

In an independent groups design a different group of participants is used in each condition.

1 mark = Different participants / people in each condition / group

Different / separate groups

Random allocation to groups / conditions.

0 marks = Different / separate conditions

Independent participants / people

Different experiments.

(c) **AO3 = 2 + 2**

Strength

The participants are naïve because they take part in only one condition, so are less likely to show demand characteristics. There are no order effects such as practice or fatigue because participants take part in one condition.

Limitation

Individual variation, because there are different participants in each condition. More participants are needed than if a repeated measures design was used.

In each case 1 mark for very brief or slightly muddled strength or limitation, 2nd mark for appropriate elaboration of explanation.

0 marks for simply stating there are different participants in each condition.

(d) **AO3 = 3**

A pilot study is used to check aspects of the research such as whether participants understand standardised instructions, whether timings are adequate etc. It allows the researcher to try out the study with a few participants so that adjustments can be made before the main study, so saving time and money.

1 mark for a very brief explanation. Further marks for appropriate elaboration or identification of other reasons. Eg

To check it works. 1 mark

To check the standardised instructions are clear. 2 marks

To check the standardised instructions are clear enough for the participants to understand what they are required to do in the experiment. 3 marks

This question requires an explanation of why a pilot study was used, so a description of what a pilot study is (small scale study carried out before the main research) is not credit-worthy on its own. Candidates do not have to refer to a specific aspect of this experiment.

However, to gain full marks the answer must be relevant, so reference to checking sound levels for example would not be relevant.

(e) **AO3 = 2**

The standard deviation (spread of scores) is larger in the condition with the memory improvement strategy.

Candidates who use the word 'range' to suggest spread should be credited.

1 mark The standard deviation is larger in the condition with the memory improvement strategy.

2 marks The data shows the dispersion or spread of scores is larger in the condition with the memory improvement strategy.

**46****AO2 = 4**

According to the MSM rehearsal is needed to keep information in the STM or transfer it to LTM. The conversation with his friend will prevent Jamie from rehearsing the phone number. Reference to the limited capacity and duration of STM would also be relevant. Candidates may explain one of these in reasonable detail or refer to more than one more briefly. 1 mark for a very brief or muddled explanation eg He can't rehearse it. Further marks for elaboration.

**47****Marks for this question: AO1 = 6, AO3 = 10**

<b>Level</b>	<b>Marks</b>	<b>Description</b>
4	13 – 16	Knowledge is accurate and generally well detailed. Discussion / evaluation / application is thorough and effective. The answer is clear, coherent and focused. Specialist terminology is used effectively. Minor detail and / or expansion of argument sometimes lacking.
3	9 – 12	Knowledge is evident. There are occasional inaccuracies. Discussion / evaluation / application is apparent and mostly effective. The answer is mostly clear and organised. Specialist terminology is mostly used effectively. Lacks focus in places.
2	5 – 8	Some knowledge is present. Focus is mainly on description. Any Discussion / evaluation / application is only partly effective. The answer lacks clarity, accuracy and organisation in places. Specialist terminology is used inappropriately on occasions.
1	1 – 4	Knowledge is limited. Discussion / evaluation / application is limited, poorly focused or absent. The answer as a whole lacks clarity, has many inaccuracies and is poorly organised. Specialist terminology either absent or inappropriately used.
	0	No relevant content.

Please note that although the content for this mark scheme remains the same, on most mark schemes for the new AQA Specification (Sept 2015 onwards) content appears as a bulleted list.

### **AO1**

Candidates may describe the original 1974 version of the model or include later additions such as the episodic buffer which was added in 2000.

The working memory model replaced the idea of a unitary STM. It suggests a system involving active processing and short-term storage of information.

Key features include the central executive, the phonological loop (consisting of two components, the phonological store and the articulatory control process), and the visuospatial sketch pad or scratchpad.

Candidates should refer to components and processes.

Candidates may be credited for a diagram but description of the mechanisms involved should also be present.

### **AO3**

Candidates are likely to evaluate the WMM in terms of its strengths and weaknesses.

Likely strengths include use of research support such as dual task studies and physiological evidence from brain scans. Candidates may offer a comparison with the MSM and suggest WMM gives a better account of STM.

Likely weaknesses include the fact that little is known about how the central executive works or evidence from brain studies suggesting the central executive is not unitary. Stating that WM focuses too much on STM and not on LTM is not creditworthy, although suggesting it isn't a complete model of memory could be.

Genuine comparison / contrast with alternative models of memory is creditworthy, but description eg of MSM is not.

Marks for this question: AO1 = 6, AO3 = 6

Level	Marks	Description
4	10 – 12	Knowledge is accurate and generally well detailed. Discussion / evaluation / application is effective. The answer is clear, coherent. Specialist terminology is used effectively. Minor detail and / or expansion of argument sometimes lacking.
3	7 – 9	Knowledge is evident. There are occasional inaccuracies. There is some effective discussion / evaluation / application. The answer is mostly clear and organised. Specialist terminology is mostly used appropriately.
2	4 – 6	Knowledge is present. Focus is mainly on description. Any discussion / evaluation / application is of limited effectiveness. The answer lacks clarity, accuracy and organisation in places. Specialist terminology is used inappropriately on occasions.
1	1 – 3	Knowledge is limited. Discussion / evaluation / application is limited, poorly focused or absent. The answer as a whole lacks clarity, has many inaccuracies and is poorly organised. Specialist terminology is either absent or inappropriately used.
	0	No relevant content.

Please note that although the content for this mark scheme remains the same, on most mark schemes for the new AQA Specification (Sept 2015 onwards) content appears as a bulleted list.

### AO1

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**49**

**AO1 = 3**

- A Sensory memory
- B Long-term memory
- C Rehearsal loop

1 mark for each correct answer.

**50**

Please note that the AOs for the new AQA Specification (Sept 2015 onwards) have changed. Under the new Specification the following system of AOs applies:

- AO1 knowledge and understanding
- AO2 application (of psychological knowledge)
- AO3 evaluation, analysis, interpretation.

(a) **AO3 = 2**

0 marks for a directional hypothesis.

1 mark if not operationalised, eg "Age affects memory." "There will be a difference between the two conditions."

2 marks for eg "There will be a difference in how many numbers are correctly recalled by children and adults." "Children and adults have different short-term memory spans." Or "The capacity of short-term memory is different for adults and children.

Candidates may write a hypothesis where the IV is how many numbers are in the list and the DV is the number of participants who can recall that digit span.

Eg As numbers in the list increase, recall changes. 1 mark.

As the number of random numbers in the list increases, the number of participants recalling the list correctly, changes. 2 marks.

(b) **AO3 = 2**

The experiment uses adults in one condition and children in the other so it would be impossible to use a repeated design unless the researchers waited for the children to grow into adults.

Given the nature of this experiment, demand characteristics and order effects are inappropriate.

1 mark for a brief explanation. A further mark for elaboration. Eg Can compare the two different groups to see who is better. 0 marks (because this relates to all experimental designs).

They needed to have different people in each condition. 1 mark.

They needed to have different people in each condition based on age. 2 marks.

They needed to have children in one group and adults in the other. 2 marks.

(c) **AO3 = 2**

Children 6

Adults 7

1 mark for each correct answer.

(d) **AO3 = 3**

The frequency distribution shows that there is a difference in results between the two age groups.

Adults recalled more digits than children. However, the difference is small and some children recalled more digits than some adults. Candidates might refer to the modal scores being different while the range is the same.

Any credit-worthy material should be credited.

1 mark for a very brief answer eg identifying there is a difference between adults and children and / or adults score more than children. Further marks for more detail as above.

(e) **AO2 = 2**

Other research has suggested the capacity of short-term memory is  $7 \pm 2$ . The results do support this as the range is from 5-9.

1 mark for a brief or muddled explanation eg capacity is 5-9 / other research has similar findings.

2<sup>nd</sup> mark for elaboration as above.

Candidates will be credited for reference to research such as Jacobs which found STM increases with age. However, reference to such research is not a requirement.

**51**

**AO1 = 4**

It is likely that candidates will refer to the experiment by Peterson and Peterson (1959). They presented participants with a consonant trigram. Although Peterson and Peterson is the most likely study, answers need not refer to an identifiable study to receive credit. Rehearsal was prevented by asking them to count backwards in threes from a specified number. After intervals of 3, 6, 9, 12, 15 or 18 seconds participants were asked to stop counting and to repeat the trigram. The % of trigrams correctly recalled was recorded for each time interval.

Duration has also been investigated in a similar way using single words or sets of words.

Research relating to word length effect in the phonological loop would be credit-worthy. Any acceptable way of investigating duration of STM should be credited.

1 mark for a brief answer, eg reference to trigrams in a duration study.

3 further marks for elaboration.

For full marks all three elements should be covered.

**52**

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- AO1 knowledge and understanding
- AO2 application (of psychological knowledge)
- AO3 evaluation, analysis, interpretation.

Although the essential content for this mark scheme remains the same, mark schemes for the new AQA Specification (Sept 2015 onwards) take a different format as follows:

- A single set of numbered levels (formerly bands) to cover all skills
- Content appears as a bulleted list
- No IDA expectation in A Level essays, however, credit for references to issues, debates and approaches where relevant.

(a) **AO2 = 4**

The main techniques used in the cognitive interview are summarised below.

*Context reinstatement* – trying to mentally recreate an image of the situation, including details of the environment, such as the weather conditions and the individual's emotional state including their feelings at the time of the incident.

*Recall from changed perspective* – trying to mentally recreate the situation from different points of view eg describing what another witness present at the scene would have seen.

*Recall in reverse order* – the witness is asked to recall the scene in a different chronological order eg from the end to the beginning.

*Report everything* – the interviewer encourages the witness to report all details about the event, even though these details may seem to be unimportant.

1 mark for naming one relevant technique.

2 marks for naming two or more relevant techniques or for a very brief outline of how one technique could be used.

Further marks for elaboration. Candidates who refer to only one technique should include more detail than those who refer to more than one.

3 or 4 marks can be awarded if the outline could relate to this event.

(b) **AO2 = 6**

Candidates must refer to research where the anxiety component is clear.

Candidates might refer to the Yerkes-Dodson law which suggests moderate anxiety is associated with better recall than very high or very low anxiety. In this case friends and relatives might show worse recall than other people in the crowd.

Laboratory based research has generally shown impaired recall in high anxiety conditions. In Loftus's (1979) weapon focus experiment more participants correctly identified a person when they were holding a pen (49%) than when they were holding a knife covered in blood (33%).

Loftus and Burns (1982) found participants who saw a violent version of a crime where a boy was shot in the face had impaired recall for events leading up to the incident.

However, in a real life study Yuille and Cutshell (1986) found witnesses who had been most distressed at the time of a shooting gave the most accurate account five months later. Also Christianson and Hubinette (1993) found victims of genuine bank robberies were more accurate in their recall than bystanders.

There is a range of acceptable answers to this question and marks should be given for effective use of the material.

Answers which do not make explicit reference to this event should be awarded a maximum of 4 marks.



<p><b>6 marks Effective explanation</b> Accurate and reasonably detailed explanation of how anxiety might affect eye-witness testimony of this event that demonstrates sound knowledge and understanding of relevant research.</p>
<p><b>5 – 4 marks Less detailed but generally accurate</b> Less detailed but generally accurate explanation of how anxiety might affect eye-witness testimony of this event that demonstrates knowledge and understanding of relevant research.</p>
<p><b>3 – 2 marks Basic</b> Basic explanation of how anxiety might affect eye-witness testimony of this event has that demonstrates some knowledge of relevant research but detail may be muddled.</p>
<p><b>1 mark Very brief/flawed</b> Very brief or flawed explanation of how anxiety might affect eye-witness testimony of this event has that demonstrates very little knowledge of relevant research.</p>
<p><b>0 marks</b> No creditworthy information.</p>

**53**

**AO3 = 3**

Candidates are likely to refer to the fact that in real life settings research has high validity because the findings can be generalised to other similar situations. It is therefore more likely to be relevant eg to eyewitness testimony in court cases. There are often real consequences / emotional impact in real life which do not occur in laboratory investigations.

In a laboratory participants may show demand characteristics because they know they are in an experiment. This is less likely in real world settings.

Answers which refer to advantages of laboratory research or disadvantages of real world research are not relevant and should not receive credit.

1 mark for a brief explanation eg higher ecological validity.

Further marks for some elaboration as above.

**54**

**AO1 = 2**

C and D are features of the WMM. A and B are not.

1 mark for each correct answer. If more than 2 boxes are ticked, 0 marks.

**55**

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- AO1 knowledge and understanding
- AO2 application (of psychological knowledge)
- AO3 evaluation, analysis, interpretation.

**AO2 = 4**

Candidates may refer to the original 1974 version of the model, later additions, or may include the episodic buffer which was added in 2000.

Likely strengths include research support such as dual task studies and physiological evidence from brain scans. Candidates may offer a comparison with the MSM and suggest WMM gives a better account of STM.

Likely weaknesses include the fact that little is known about how the central executive works or evidence from brain studies suggesting the central executive is not unitary. Simply stating the model does not explain LTM is not credit-worthy as a weakness. However, stating that the link between WM and LTM is not fully explained is legitimate.

Credit any acceptable strength and weakness.

For each strength and weakness, 1 mark for identification. A further mark for accurate elaboration.

For example, there is evidence from dual task studies to support the model (1 mark). It is easier to do two tasks at the same time if they use different processing systems (verbal and visual) than if they use the same slave system (2 marks).

**56**

(a) **AO2 = 2**

Digit span is normally considered to be  $7+ / -2$ , so Peter's was much shorter.

1 mark for simply stating his digit span was shorter than normal.

Second mark for an explanation of the difference, eg Peter's digit span of two items was much shorter than the average span of around 7 items.

(b) **AO2 = 4**

The MSM suggests there are separate ST and LT stores. Peter's short-term memory was impaired, but his long-term memory was not. This supports the idea of separate ST and LT stores, because one was damaged but not the other.

One mark for some reference to separate ST and LT stores. Three further marks for elaboration of the explanation.

Alternatively, candidates could suggest the evidence goes against MSM. If memory has to pass through the ST store to reach the LT store, it is likely that damage to the ST store would impair the transfer. Candidates could legitimately refer to evidence both for and against the model.

(c) **AO3 = 4**

There are no ethical issues named in the specification, so any potentially relevant issues should be credited.

Likely ethical issues include informed consent, right to withdraw, confidentiality or respect. Candidates may point out that as the man has brain damage, his ability to give informed consent might be in doubt.

One mark for identification of a relevant ethical issue.

One mark for a brief mention of how the issue could be dealt with. Two further marks for elaboration.

For example: confidentiality (1 mark); keep the man's details private (1 mark); the psychologists should not use the man's name in published work, but could use his initials instead (2 further marks).

57

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- AO3 evaluation, analysis, interpretation.

(a) **AO3 = 2**

A field experiment takes place in the real world rather than in a carefully controlled environment.

The IV is manipulated by the experimenter.

One mark for reference to the environment, real world, naturally occurring, etc.

One mark for reference to manipulating / changing an independent variable.

Candidates who simply restate the words – an experiment carried out in a field – should receive no credit.

(b) **AO3 = 2**

One weakness of using a field experiment is lack of control of variables. In this case, the participants would be different distances from the staged argument.

It would be difficult to replicate the experiment precisely. Sampling difficulties.

One mark for brief identification of a relevant weakness.

Second mark for some elaboration.

(c) **AO2 = 2**

This is an example of misleading information, because neither man was wearing glasses. The psychologist could see whether participants' description of the event was influenced by the question about the man in glasses.

One mark for identification of misleading information or a leading question / trick question.

Second mark for some elaboration.

For example: it was a leading question (1 mark); the psychologist wanted to see whether including misleading information would affect the participant's memory of the event (2 marks).

**58****AO1 = 6**

The main techniques used in the cognitive interview are summarised below.

*Context reinstatement* – trying to mentally *recreate* an image of the situation, including details of the environment, such as the weather conditions and the individual's emotional state including their feelings at the time of the incident.

*Recall from changed perspective* – trying to mentally recreate the situation from different points of view eg describing what another witness present at the scene would have seen.

*Recall in reverse order* – the witness is asked to recall the scene in a different chronological order eg from the end to the beginning.

*Report everything* – the interviewer encourages the witness to report all details about the event, even though these details may seem to be unimportant.

Other techniques, including those used in enhanced cognitive interviews, should be credited. In both cases, 1 mark for identifying an appropriate technique and 2 further marks for accurate elaboration.

**59****(a) AO2 = 4**

The visuo-spatial scratchpad (sketchpad) stores / manipulates visual and spatial information and will be active when the person is doing a visual task. The phonological loop, comprising the phonological store (inner ear) and articulatory control system (inner voice) will be active during a verbal task.

1 mark for accurate identification of at least two components, eg central executive, visuo-spatial sketchpad / scratchpad and phonological loop (or a sub-component). Credit an accurate diagram.

1 mark for a very brief or muddled explanation.

Up to 2 further marks for an accurate explanation.

**(b) AO2 = 2**

Likely examples for a verbal task include learning / repeating words, speaking and reading. Visual tasks include forming an image of something and answering questions about it or mentally counting the windows of a house, watching DVD, reading.

Credit any acceptable tasks which are clearly verbal or visual.

To be appropriate in this context, the verbal and visual tasks must be different. However, some tasks, eg reading, could be verbal or visual.

**60**

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- No IDA expectation in A Level essays, however, credit for references to issues, debates and approaches where relevant.

### **AO1 = 6**

Candidates must discuss research where the anxiety component is clear.

Candidates might refer to the Yerkes-Dodson law which suggests moderate anxiety is associated with better recall than very high or very low anxiety.

In Loftus's (1979) weapon focus experiment more participants correctly identified a person when they were holding a pen (49%) than when they were holding a knife covered in blood (33%). Loftus and Burns (1982) found participants who saw a violent version of a crime where a boy was shot in the face had impaired recall for events leading up to the incident.

However, in a real life study Yuille and Cutshall (1986) found witnesses who had been most distressed at the time of a shooting gave the most accurate account five months later. Also Christianson and Hubinette (1993) found victims of genuine bank robberies were more accurate in their recall than bystanders.

### **AO2 = 6**

Evaluation might relate to the contradictory nature of the research, possibly linked to lack of ecological validity in laboratory studies. Problems of control might also be relevant, eg in Yuille & Cutshall's study those who experienced the highest levels of stress were closer to the event, which might have helped their recall. Ethical issues could also be relevant as could the practical applications of research.

<b>AO1</b> <b>Knowledge and understanding</b>	<b>AO2</b> <b>Analysis and evaluation</b>
<p><b>5 marks Accurate and reasonably detailed</b></p> <p>Accurate and reasonably detailed answer that demonstrates sound knowledge and understanding of one or more physiological methods of stress management.</p> <p>There is appropriate selection of material to address the question.</p>	<p><b>5 marks Effective evaluation</b></p> <p>Effective use of material to address the question and provide informed commentary.</p> <p>Effective evaluation of research.</p> <p>Broad range of issues and/or evidence in reasonable depth, or a narrower range in greater depth.</p> <p>A coherent answer</p>
<p><b>4-3 marks Less detailed but generally accurate</b></p> <p>Less detailed but generally accurate answer that demonstrates relevant knowledge and understanding.</p> <p>There is some evidence of selection of material to address the question.</p>	<p><b>4-3 marks Reasonable evaluation</b> Material is not always used effectively but produces a reasonable commentary.</p> <p>Reasonable evaluation of research.</p> <p>A range of issues and/or evidence in limited depth, or a narrower range in greater depth.</p> <p>A reasonably coherent answer.</p>
<p><b>2 marks Basic</b></p> <p>Basic answer that demonstrates some relevant knowledge and understanding but lacks detail and may be muddled.</p> <p>There is little evidence of selection of material to address the question.</p>	<p><b>2 marks Basic evaluation</b></p> <p>The use of material provides only a basic commentary. Basic evaluation of research.</p> <p>Superficial consideration of a restricted range of issues and/or evidence. Answer lacks some coherence.</p>
<p><b>1 mark Very brief/flawed or inappropriate</b></p> <p>Very brief or flawed answer demonstrating very little knowledge.</p> <p>Selection and presentation of information is largely or wholly inappropriate.</p>	<p><b>1 mark Rudimentary evaluation</b></p> <p>The use of material provides only a rudimentary commentary.</p> <p>Evaluation of research is just discernible or absent.</p> <p>Answer is not coherent.</p>
<p><b>0 marks</b></p> <p>No creditworthy material.</p>	<p><b>0 marks</b></p> <p>No creditworthy material.</p>