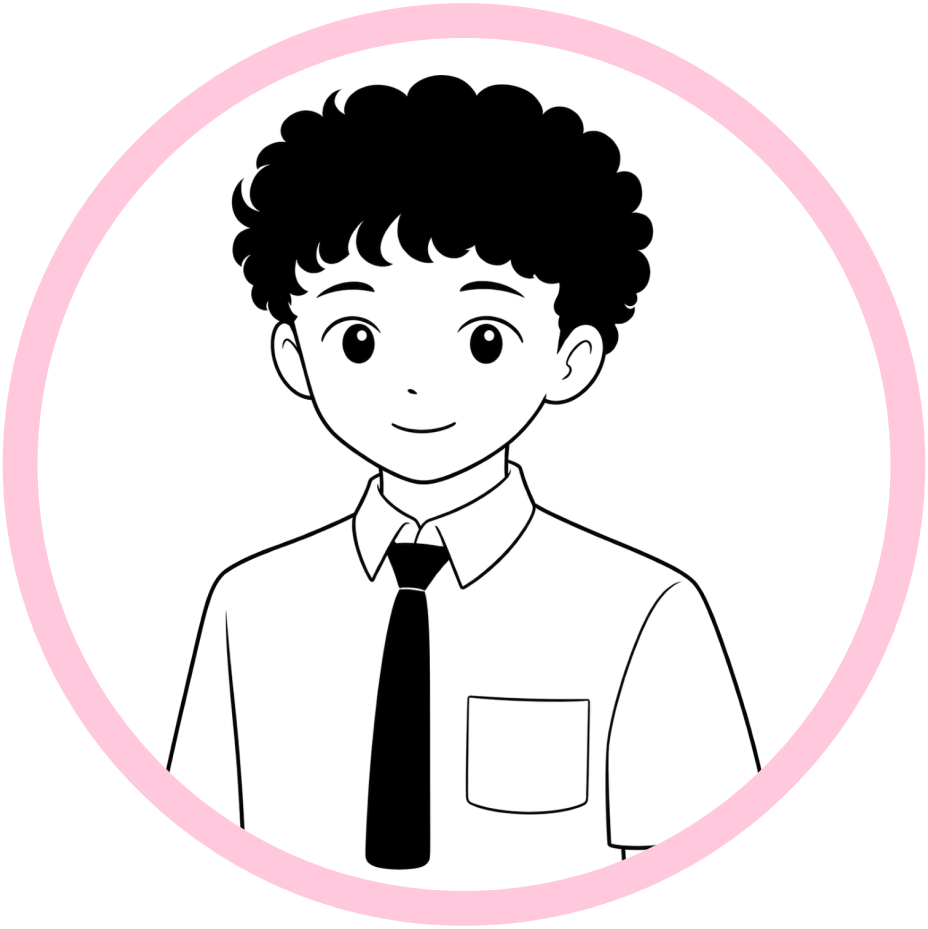
AQA A-LEVEL PSYCHOLOGY · 7182

PSYCHOLOGY



MARK SCHEME

3.1.2 THE MULTI-STORE MODEL

SCORE	PERCENTAGE
/148	%

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Q1.

[AO3 = 1]

1 mark for a brief suggestion of why the WMM offers a better explanation.

Possible content:

- it is not a unitary store
- range of research support, e.g. dual task studies, brain scanning studies
- the WMM explains STM as a more active process than the MSM.

Credit other valid points.

[1]

Q2.

[AO1 = 2]

Short term memory = acoustic (accept sound or similar).

Long term memory = semantic (accept meaning or similar)

Q3.

[AO2 = 4]

Possible content:
1 mark for each of the following:

Immediate task

- list A is made up of words that are acoustically similar/sound similar
- this will cause confusion/difficulty/problems (when tested immediately) as short-term memory (STM) uses acoustic/phonetic/sound-based coding

Delayed task

- list B is made up of words that are semantically similar/have similar meaning
- this will cause confusion/difficulty/problems (when tested after 30 minutes) as long-term memory (LTM) uses semantic/meaning-based coding.

Accept similar wording.

Q4.

[AO1 = 4]

Level	Marks	Description
2	3 – 4	Outline of what psychological research has shown about STM is clear and includes detail. The answer is generally coherent with effective use of terminology.

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1	1 – 2	Outline of what psychological research has shown about STM is present but lacks detail. The answer as a whole is not clearly expressed. Terminology is either absent or inappropriately used.
	0	No relevant content.

Content:

- Capacity is thought to be 7 items Plus or minus 2 items (between 5 and 9). Capacity can be increased by chunking items together to reduce the number of separate items overall
- Duration is thought to be approximately 18-30 seconds. Duration can be extended by verbal rehearsal ie information can be maintained in the rehearsal loop
- Coding is acoustic, sound based, phonological, auditory. Causes confusion where material sounds the same

A detailed outline of one aspect (capacity, duration, coding) can be awarded full marks.

Credit other relevant material e.g. ways of forgetting from STM (e.g. displacement)

Q5.

(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.

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

Q6.

[AO1 = 4 AO3 = 4]

Level	Marks	Description
4	7 – 8	Knowledge of the multi-store model, including reference to capacity duration and coding in the separate stores, is accurate and generally well detailed. Evaluation is effective. The answer is clear and coherent. Specialist terminology is used effectively. Minor detail and/or expansion of argument sometimes lacking.
3	5 – 6	Knowledge of the multi-store model is evident. There are occasional inaccuracies and some omissions. There is some effective evaluation. The answer is mostly clear and organised. Specialist terminology mostly used effectively.
2	3 – 4	Knowledge of the multi-store model is present. 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 the multi-store 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.

Possible content:

- Separate memory stores – sensory register, STM, LTM
- Capacity of each store
- Duration of each store
- Coding/mode within each store
- Functioning/dynamics of the model: eg role of rehearsal

Possible evaluation points:

- View of stores as unitary – contrast with different types of LTM
- Static view of STM contrasted with WMM
- Rehearsal – discussion of maintenance versus elaborative

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- Use of evidence to support the model
- Use of evidence to contradict the model

Credit also clearly labelled diagram.

Credit other relevant information.

Q7.

[AO1 = 4]

A = Unlimited
B = 18–30 seconds
C = Acoustic/phonetic/sound-based
D = Semantic

Q8.

(a) **[AO3 = 5]**

Level	Marks	Description
3	4 – 5	Evaluation of the use of case studies in psychological research is clear and accurate. There is at least one strength and one limitation, though a number of points may be presented in less detail. The answer is clear and organised. Specialist terminology is used effectively.
2	2 – 3	Evaluation of the use of case studies is limited. The answer may contain strengths or limitations, or both are presented but are lacking in detail. The answer may lack accuracy and organisation. There is some appropriate use of specialist terminology.
1	1	One evaluative point is stated but not developed, or there may be more than one but there is substantial inaccuracy. Specialist terminology is absent or inappropriately used.
	0	No relevant content.

Likely content:

- Depth/detail of data collected – qualitative
- Validity/meaningfulness of data, insight gained
- A single anomalous case may lead to revision of a theory
- Researcher bias/subjective interpretation
- Unscientific/unreliable, cannot be replicated
- Problems of generalisation

Accept other valid points.

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Application to the case of ‘Patient X’ may be present but is not essential for full marks.

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

1 mark for the link to the MSM: this suggests that STM and LTM are separate stores/functionally different (supporting the model).

Plus

1 mark for the idea that whilst Patient X’s STM is functioning normally, he is unable to retain new info in LTM/the link between STM and LTM appears to have been cut.

(c) **[AO2 = 4]**

2 marks for an outline of two types of LTM from the following (1 for each type):

- Episodic – memory for events/autobiographical memory
- Semantic – memory for facts/general knowledge/the rules of language
- Procedural – memory for motor skills/actions/’muscle memory’

Plus

2 marks for linking the two types to the information in the stem (1 for each type):

- Episodic – he had no recollection of ever doing the task
- Semantic – he could not remember the names of the psychologists
- Procedural – his performance improved on the rotating disc task over consecutive days

(d) **[AO3 = 4]**

Level	Marks	Description
2	3 – 4	Discussion of two differences is clear and mostly accurate. For full marks, there must be reference to both types of memory within each difference discussed. The answer is generally coherent with effective use of specialist terminology.
1	1 – 2	Discussion of two differences are both incomplete/partly accurate. For 1 mark there may be one difference briefly stated. Specialist terminology is not always used appropriately.
	0	No relevant content.

Content:

Possible differences (depends on the types of LTM chosen):

- Semantic/episodic – ‘knowing that’/declarative memory; available for conscious inspection – procedural – ‘knowing how’/non-declarative memory;

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often unavailable for conscious inspection

- Semantic – may not recall when we learned/encoded these memories – episodic – stored with reference to time and place
- Credit differences 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 use of evidence as part of the discussion of the differences.

Credit other valid differences.

Do not credit differences that merely restate the definitions of both types of memory.

Q9.

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.

AO2 Application of knowledge and understanding
4 marks Effective explanation Explanation is accurate, reasonably detailed and demonstrates sound knowledge and understanding of how research findings support a difference. e.g. 1 or more detailed

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differences + evidence illustrating both parts. (The evidence can be from 1 study)
3 marks Reasonable explanation 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.
2 marks Basic explanation Explanation demonstrates basic knowledge of how research findings support a difference. e.g. Duration is 20 seconds in STM and unlimited in LTM.
1 marks Rudimentary explanation Explanation demonstrates rudimentary knowledge of how research findings support a difference. e.g. Capacity is smaller in STM than LTM.
0 marks No creditworthy material relating to an explanation of how research findings support a difference.

Q10.

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.

Q11.

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.

Q12.

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 + / - 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.

Q13.

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.

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

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

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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).

Q14.

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.

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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.

Q15.

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

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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.

Q16.

AO1 = 2

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

1 mark for each correct answer.

Q17.

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.

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1 mark for a very brief or muddled explanation eg He can't rehearse it.
Further marks for elaboration.

Q18.

AO1 = 3

A Sensory memory

B Long-term memory

C Rehearsal loop

1 mark for each correct answer.

Q19.

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- 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

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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 + / – 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.
2nd 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.

Q20.

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.

Q21.

(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.

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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).

Q22.

AO1 = 2

One mark for each correct answer.

Definition	Concept
The length of time the memory store holds information	A – Duration
Transforming incoming information into a form that can be stored in memory	C – Encoding

Q23.

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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 = 6

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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:

- It is a structural model
- 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 for forgetting are different for each store.

Candidates may include a diagram. If this is accurately labeled and sufficiently detailed, this can potentially receive the full 6 marks.

6 marks Accurate and reasonably detailed Accurate and reasonably detailed outline of the multi-store model of memory that demonstrates sound knowledge and understanding of both structure and processes.
5 – 4 marks Less detailed but generally accurate Less detailed but generally accurate outline of the multi-store model of memory that demonstrates knowledge and understanding of structure and / or processes.
3 – 2 marks Basic Basic outline of the multi-store model of memory that correctly identifies the main structures and/or processes, but further detail may be muddled.
1 mark Very brief / flawed Very brief or flawed outline of the multi-store model demonstrating very little knowledge.
0 marks No creditworthy information.

Q24.

AO2 = 4

Candidates are most likely to focus on rehearsal. Answers could refer to the fact that mere rehearsal is too simple a process to account for the transfer of information from STM to LTM. Candidates might also point out that the type of information is important in whether it is recalled or not. For example, 1 mark for identifying rehearsal as a transfer mechanism and up to 3 further marks for explaining that even though students rehearse the information it doesn't transfer from STM to LTM as predicted by the model. However, information in the magazine is only presented once, but it does transfer to LTM, despite lack of rehearsal.

Alternative explanations related to the MSM would be acceptable. Explanations which don't relate to the MSM (eg shallow processing) or explanations related to a single individual (eg brain damage) would not.

Candidates who state a relevant criticism of the MSM, but who make no explicit reference to any part of the observation, should be restricted to a maximum of 2 marks.

Q1.

Most students could suggest one way, that the working memory model was not a unitary store.

Q2.

The majority of answers were correct. 83% of students were able to identify the main type of coding used in each component (short-term and long-term memory) of the multi-store model of memory.

Q3.

This question was done well, with may answers showing an impressive grasp of coding differences between short and long-term memory (acoustic versus semantic). However some students failed to see this as a coding question and referred mistakenly to, for example pro- and retro-active interference, or to capacity issues. There were many references to Baddeley's key findings, but a few answers failed to link these findings to the specific study outlined on the question paper, and so received little credit.

Q4.

Students who confined themselves to information about the characteristics of short-term memory tended to do well on this question. Whilst it was quite legitimate to focus on evidence, credit could only be awarded for the findings/conclusions of studies and not for the method. Students presenting detailed information on Baddeley's coding studies frequently misreported the outcome, stating that acoustically similar words were better recalled in short-term tasks. Unfortunately, several students misinterpreted this as a more general question about the multistore model as a whole and consequently presented a great deal of peripheral information, touching on characteristics of short-term memory, either incidentally or not at all. Another common error was to present an outline of the working memory model.

Q9.

Most students seemed to have good knowledge of this area but some had problems in applying what they knew. Many described differences between LTM and STM rather than explaining how studies showed there are differences. A number of answers failed to link the findings of studies with the explanations or vice versa. Where students used the serial position effect, findings of research were often given, but no understanding was shown as to how this linked to different memory stores. Where Baddeley's (1966) research on acoustic and semantic coding was cited, students sometimes incorrectly reported that acoustic and semantic similarity was favourable to STM and LTM coding respectively, when in fact acoustic dissimilarity (STM) and semantic dissimilarity (LTM) were the more favourable conditions.

However, there were some really good answers where the material was shaped to answer the question; here students explained a difference in STM and LTM and then used findings from studies to support their assertion.

Q10.

The question was usually well answered, with students referring to the form of processing

or form of storage of information in memory. Appropriate examples were used as a way of elaborating the explanation.

Q11.

Many students could outline the difference in capacity between STM and LTM. A few answers incorrectly referred to duration rather than capacity.

Q12.

The answer booklet was set out to help students identify two differences between short-term memory and long-term memory. This was a straightforward question requiring the identification and elaboration of two differences. Those students who ignored the layout and wrote about STM in difference 1 and LTM in difference 2 did not always make a comparison between the same factors and thus failed to identify any differences.

Q13.

On the whole, this question was answered well. Many students were able to access all the AO1 marks for knowledge of the model. Teachers should remind students though, that ten mark answers are subject to the Quality of Written Communication criteria and there is a limit to the credit that can be awarded for descriptions presented solely in the form of a labelled diagram (actually two marks in this question).

Relevant evidence was often very well described but was not always related effectively to the central claims of the model, for instance, the ‘functional separation / distinction between stores’. Most students were able to make relevant evaluative points about the multi-store model (MSM) but some were overly brief or speculative, for example, ‘the model has proved influential’. Similarly, points of comparison with alternative models were often cursory and under-developed, for example, ‘the STM is passive unlike the Working Memory…’) Having said this, there were lots of impressive answers and this was clearly an area of the subject that students knew well.

Q14.

There were some clear, well structured answers where students could both describe and evaluate the multi-store model (MSM) of memory. Students often scored well where they were accurate in their description of the structures and processes of MSM. Some excellent diagrams were produced that helped to explain the points being made. By way of evaluation, students often used neurobiological evidence, serial position effect, case studies and contrasted MSM with working memory which has a more detailed approach to STM.
Students did less well where their answer was punctuated with long descriptions and evaluation of the methodology of studies such as the Petersons (duration of STM) and Baddeley (types of coding in STM and LTM). Although many students could outline case studies, such as HM, KF and Clive Wearing, these were sometimes inaccurate and not all students could explain whether or not these supported MSM.

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Q16.

Most candidates answered this question correctly.

Q17.

The majority of candidates obviously had a good knowledge of the multi-store model (MSM) and were able to apply it to the scenario. It was pleasing to be able to give maximum marks to so many answers. The majority of students who did badly on this question focussed on the transfer of information from sensory stores to STM. They seem to be confused about the nature of sensory stores and / or are confusing sensory stores with STM. Answers such as 'he didn't pay attention so information did not go to the STM' disregard the fact that sensory stores last a fraction of a second and the stimulus material (which states Jamie has looked up the number in a directory) is now in STM). Other answers suggested that because Jamie did rehearse the number during the conversation that it did not go from sensory to STM.
Centres might do better to briefly mention sensory stores but focus on STM and LTM. A number of answers suggested that the concepts of maintenance and elaborative rehearsal were part of the MSM. Maintenance and elaborative rehearsal were introduced by Craik and Lockhart (1972) as a way of criticising the MSM which had simply relied on 'rehearsal' as a means of transferring information to LTM.
A few candidates inevitably choose to write about WM not the MSM.

Q18.

This was a straightforward question which most candidates answered correctly.

Q19.

(a) It was disappointing to see such poor understanding of how to write a non-directional hypothesis for an experiment. Common pitfalls were to write a directional hypothesis, a null hypothesis or a correlational hypothesis. Some candidates did not appear to understand the conventions of hypothesis writing at all and simply wrote a statement such as: 'They wanted to test memory span' or 'The capacity of STM is 7+ or – 2'.

(b) Some candidates clearly understood why the researchers had chosen an independent groups design and were able to offer a full answer worth 2 marks. However, this question was not answered well by many candidates. Candidates needed to apply their knowledge to answer this question but, unfortunately, many candidates simply gave a rote–learned advantage of an independent design without thinking about the context of this particular experiment where the problem of order effects or demand characteristics did not apply.

(c) Another straightforward question generally answered correctly.

(d) There were some full-mark answers where candidates demonstrated good understanding and were able to comment on several aspects of the graph. However, many candidates were only able to make a single point ie that adults generally had

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better recall than children and then ‘padded out’ their answer with repetition of the same point. A common pitfall was for candidates to state that 6 was the maximum number of digits recalled by children (or 7 by adults) instead of realising that this was the modal score. This was surprising as they had often successfully identified the modes in (c). Few candidates seemed to understand how to measure the range by looking at the information on the graph. It appears that candidates could benefit from more practical experience of interpreting graphs

(e) Most candidates answered this well and were able to refer to earlier research by Miller or Jacobs which had demonstrated the limited capacity of STM (ie 7+/– 2 items or a range between 5 and 9 items). A minority confused capacity with duration and tried to answer in terms of the Peterson and Peterson study.

Q20.

Many candidates who described the Brown-Peterson technique showed excellent understanding and provided a clear, appropriately detailed answer which addressed the three requirements of the question ie an outline of the stimulus materials, what the participants were asked to do and how duration was measured. Where such candidates failed to access full marks, it was usually because they had not made one of these aspects clear. Detail on what participants were asked to do was often better reported than exact details of stimulus material (eg trigrams were sometimes referred to as words or numbers). However, a significant minority of candidates did not achieve any marks on this question. Some simply stated what the duration of STM is thought to be while others did not seem to understand the term duration and described studies of capacity or encoding. A minority of candidates referred to the duration of the phonological loop and showed good understanding of the word length effect.

Q21.

(a) Most answers scored two marks. Very few candidates failed to score at least one mark.

(b) Candidates generally either answered the question effectively, relating the multi-store model to the stem about Peter, or they failed completely to apply their knowledge as required. Concise, apposite answers scored full marks.

(c) There were many appropriate and clear answers but also some which identified one issue but then described how a different issue could be dealt with. Some candidates failed to clearly state the issue merely saying how an unnamed issue could be dealt with. Also, identifying ‘withdrawal from the study’ as the issue and then saying ‘Peter should be told he could withdraw from the study’ as a way of dealing with the issue, is not going to gain more than minimal credit.

A few candidates offered problems of methodology rather than ethics.

Q22.

This was a simple question to introduce the paper. Many (but not all) candidates achieved the full 2 marks here.

Q23.

Candidates were very well prepared for this question and many deservedly achieved full marks. Weaker answers did not address structure and processes. A few candidates misunderstood the question and wrote wholly irrelevant answers on the working memory

model.

Q24.

This part was generally answered quite well with most candidates recognising the key role of rehearsal in the MSM. It was unfortunate that some candidates appeared confused about the difference between elaborative and maintenance rehearsal and gave answers that revealed this misunderstanding, eg ‘Atkinson and Shiffrin stressed the importance of elaborative rehearsal for transferring information from STM to LTM so reading the revision notes lots of times should have put them in LTM’. Many candidates obviously understood what this question was getting at but, unfortunately, failed to access full marks either by referring only to the two types of material or only to the criticism of the MSM. Better answers used the examples explicitly to explain the criticism of the MSM. Simple, concise answers could gain full marks.

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