

The Multi-Store Model - Mark Scheme

Q1.

[AO1 = 2]

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

Long term memory = semantic (accept meaning or similar)

Q2.

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.

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.

(a) [AO2 = 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.

Q5.

(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).

Q6.

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.

Q7.

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 ± 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.

Q8.

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

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).