Mark schemes

Q1.

[AO1 = 3]

3 marks for a clear, coherent and detailed description of the sensory register using appropriate terminology.
2 marks for a description with some detail of the sensory register.
1 mark for a limited or muddled description of the sensory register.

Possible content:

- receives information from any sense
- can be divided into subsystems/each sense has a store (register) eg iconic, echoic, haptic etc
- coding is modality-specific eg visual in iconic store, acoustic in echoic store
- capacity is very large
- duration – information is stored for milliseconds/fraction of a second, eg 50 milliseconds–2 seconds duration (iconic) to a few seconds (echoic); information is lost quickly
- directs attention to some incoming information which it passes on to STM
- forgetting from sensory register, eg trace decay/displacement can occur as information is lost quickly if it is not attended to.

Credit other relevant material.

[3]

Q2.

[AO3 = 4]

For **each** criticism award marks as follows:

2 marks for a clear and coherent outline of an appropriate criticism of studies into short-term memory.
1 mark for a muddled/limited outline.

Possible criticisms:

- lack of mundane realism: use of artificial material (eg recall of trigrams, lists of unconnected words etc)
- early research often lacked adequate control, introducing confounding variables into the study, reducing validity
- inconsistent findings: span for letters is lower than span for digits
- overestimation of capacity: capacity is only 4 chunks not 7+/- 2 items
- lack of ecological validity: studies carried out in an artificial laboratory setting or with artificial tasks, do not reflect real life memory
- alternative explanations in relation to specific studies, eg Peterson and Peterson's findings may be more to do with interference than duration
- issues with participant variables in studies that used independent measures design (eg Baddeley's study of coding)
- issues with order effects in studies that used repeated measures designs (eg Jacobs).

Credit other relevant criticisms including positive points.

Relevant studies would include: Baddeley, Jacobs, Miller, Peterson and Peterson. Studies of working memory could be made relevant.

[4]

Q3.

[AO2 = 4]

Level	Marks	Description
2	3-4	The explanation of the results is clear and detailed with appropriate reference to the multi-store model. The answer is generally coherent with effective use of specialist terminology.
1	1-2	The explanation of the results is limited. The reference to the multi-store model is partial or includes inaccuracies. Terminology is either absent or inappropriately used.
	0	No relevant content.

Possible content:

- in Group B, the disruption of the reading task prevented maintenance rehearsal
- in Group B, the reason the last few words are not available (recency effect) is because the duration of STM (18–30 secs) has been exceeded
- in Groups A and B, the first few words are rehearsed and transferred to long-term memory (primacy effect)
- in Groups A and B, the poor recall of words in the middle of the list is due to displacement from the later words/decay of earlier words in the list
- in Groups A and B, poor recall of words in the middle of the list is due to the limited capacity of STM (7+/-2)
- in Group A, due to immediate recall the last few words are still available in short-term memory (recency effect).

Note

- Naming of the primacy effect or the recency effect is not required for full marks.
- To gain full marks the response must address the results of both Group A and Group B.

[4]

Q4.

[AO1 = 6 AO3 = 6]

Level	Marks	Description
4	10-12	Knowledge of the multi-store model of memory is accurate and generally well detailed. Evaluation is effective. Minor detail and/or expansion is sometimes lacking. The answer is clear and coherent. Specialist terminology is used effectively.
3	7-9	Knowledge of the multi-store model of memory is evident but there are occasional inaccuracies/omissions. There is some effective evaluation. The answer is mostly clear and organised. Specialist terminology is mostly used appropriately.
2	4-6	Limited knowledge of the multi-store model of memory is present. Focus is mainly on description. Any evaluation is of limited effectiveness. The answer lacks clarity, accuracy and organisation in places. Specialist terminology is used inappropriately on occasions.
1	1-3	Knowledge of the multi-store model of memory is very limited. Evaluation 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.

Possible content:

- structural nature of the model
- sensory register, STM and LTM are separate, unitary memory stores
- characteristics of each store, eg capacity, duration and coding
- information passes from store to store in a linear way
- functioning/dynamics of the model, eg role of attention to pass info from SR to STM; rehearsal to pass info from STM to LTM
- explanations of forgetting are different for each store.

Possible evaluation points:

- use of evidence to support the distinction between STM and LTM, eg HM, Murdock (1962), Glanzer and Cunitz (1966), Beardsley (1997), Squire et al (1992)
- use of evidence to contradict the model, eg KF, Clive Wearing, Tulving et al (1994)
- view of stores as unitary too simplistic – contrast with different types of STM/LTM
- static view of STM contrasted with active processing view of WMM
- discussion of maintenance versus elaborative rehearsal, eg Craik and Tulving (1975) showed deep/elaborative processing creates longer memories than shallow processing
- comparison/contrast with alternative models of memory.

Credit evaluation of the methodology of studies only when made relevant to the evaluation of the model.

Credit other relevant information.

[12]

Q5.

[AO1 = 2]

2 marks for a clear and coherent outline with some elaboration with reference to immediate (within 30 seconds) recall.

1 mark for a limited or muddled outline.

Possible content:

- participants are read a sequence of letters/numbers and asked to repeat the same sequence back **immediately**. An additional digit is added on each subsequent trial to measure the capacity of STM (the digit span technique).

Credit other possible ways.

Note that a wide range of answers is possible here – material presented to participants may vary, eg letters, numbers, words, different tones, etc.

Credit outline of studies that investigated the capacity of working memory components, and studies of chunking in STM. Accept relevant procedural details if embedded in findings.

Simply naming a way is not creditworthy.

[2]

Q6.

[AO1 = 2]

2 marks for a clear and coherent outline with some elaboration with reference to recall within 30 seconds.

1 mark for a limited or muddled outline.

Possible content:

- participants are given a trigram (three-letter nonsense syllable) and then asked to count backwards from a certain number for a specified time. They are then asked to recall the original trigram.

Credit other possible ways, eg the serial probe technique.

Credit outline of studies that investigated the duration of working memory components. Accept relevant procedural details if embedded in findings.

Simply naming a way is not creditworthy.

[2]

Q7.

(a) **[AO2 = 1 AO3 = 1]**

1 mark for interpreting what the mean memory span values suggest about coding in short-term memory: coding in short-term memory is based on sound (acoustic).

Accept alternative wording.

Plus

1 mark for an accurate justification about the difference in the mean scores: mean number of words recalled is smaller when words are similar sounding than when they are different.

Accept alternative wording.

0 marks for just stating the data from the table.

Justifications are not creditworthy in isolation.

2

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

1 mark for an accurate comment about what the standard deviation values suggest: there was more variability in scores in the different sounding condition.

Accept alternative wording (there was more consistency in scores in the similar sounding condition).

Plus

1 mark for an accurate justification about the difference in the standard deviations: standard deviation is greater in the different sounding condition than in the similar sounding condition.

Accept alternative wording (standard deviation is smaller in the similar sounding condition).

0 marks for just stating the data from the table.

Justifications are not creditworthy in isolation.

2

[4]

Q8.

[AO1 = 3 AO3 = 5]

Level	Mark	Description
4	7-8	Knowledge of research into duration in memory is accurate and generally well detailed. Evaluation is thorough and effective. Minor detail and/or expansion of argument is sometimes lacking. The answer is clear, coherent and focused. Specialist terminology is used effectively.
3	5-6	Knowledge of research into duration in memory is evident but there are occasional inaccuracies/omissions. Evaluation is mostly effective. The answer is mostly clear and organised but occasionally lacks focus. Specialist terminology is used appropriately.
2	3-4	Limited knowledge of research into duration in memory is present. Focus is mainly on description. Any evaluation present is of limited effectiveness. The answer lacks clarity, accuracy and organisation in places. Specialist terminology is used inappropriately on occasions.
1	1-2	Knowledge of research into duration in memory is very limited. Evaluation 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.

Possible content

- knowledge of procedures and/or findings/conclusions of studies which investigate duration of sensory memory, STM or LTM, eg Peterson and Peterson - Trigrams study (1959), Bahrick - Yearbook study (1974).

Accept other valid studies of duration in memory.

Note: That the term ‘research’ may include theories/explanations and/or studies.

Possible evaluation:

- use of artificial material, eg recall of trigrams, lists of unconnected words etc
- use of artificial laboratory setting
- discussion of issues of validity (higher in Bahrick study), reliability
- alternative explanations – Peterson and Peterson’s findings may be more to do with interference than duration.

Note that one study is sufficient for full marks.

[8]