Psychology A Level
Year 1 and AS

The Revision and Exam Companion

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Introduction

How to use this book  4
The examinations  5
Types of exam questions  6
AO1 – descriptive skills  8
AO2 – Application of knowledge  10
AO3 – Evaluation skills  12
Content checklists  14
Mock exam: AS Paper 1 Introductory topics in psychology  18
Mock exam: AS Paper 2 Psychology in context  19

<table>
<thead>
<tr>
<th>Chapter 1</th>
<th>Chapter 1 Social influence</th>
<th>20</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Key term checklist</td>
<td>38</td>
</tr>
<tr>
<td></td>
<td>Annotated answers</td>
<td>40</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Chapter 2</th>
<th>Chapter 2 Memory</th>
<th>48</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Key term checklist</td>
<td>66</td>
</tr>
<tr>
<td></td>
<td>Annotated answers</td>
<td>67</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Chapter 3</th>
<th>Attachment</th>
<th>80</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Key term checklist</td>
<td>94</td>
</tr>
<tr>
<td></td>
<td>Annotated answers</td>
<td>95</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Chapter 4</th>
<th>Psychopathology</th>
<th>104</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Key term checklist</td>
<td>122</td>
</tr>
<tr>
<td></td>
<td>Annotated answers</td>
<td>124</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Chapter 5</th>
<th>Approaches in psychology</th>
<th>132</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Key term checklist</td>
<td>148</td>
</tr>
<tr>
<td></td>
<td>Annotated answers</td>
<td>150</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Chapter 6</th>
<th>Biopsychology</th>
<th>156</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Key term checklist</td>
<td>178</td>
</tr>
<tr>
<td></td>
<td>Annotated answers</td>
<td>180</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Chapter 7</th>
<th>Research methods</th>
<th>190</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Key term checklist</td>
<td>236</td>
</tr>
<tr>
<td></td>
<td>Annotated answers</td>
<td>239</td>
</tr>
</tbody>
</table>

Mock exam: suggested answers  256
Activities: suggested answers  269
The concepts below relate to short- and long-term memory. Write the appropriate letter in the box below to complete the table.

- **A** - Unlimited
- **B** - Approximately 18 seconds, according to Peterson and Peterson (1959)
- **C** - Semantic

**Encoding**
- **Short-term memory**
- **Long-term memory**

**Capacity**
- **Short-term memory**: 7 ± 2
- **Long-term memory**: unlimited

**Duration**
- **Short-term memory**: approximately 18 seconds, according to Peterson and Peterson (1959)
- **Long-term memory**: lifetime

Answers on page 272

Read this student answer to the following exam question: Explain how the findings of one or more studies demonstrate the difference in capacity and duration between the two memory systems.

**Definition**
- The length of time a memory lasts before it is no longer available.

**Concept**
- The quantity of information that can be held in memory.

Answers on page 272
Multi-store model

Outline the multi-store model of memory.

Possible essay question ...

Discuss the multi-store model of memory. Refer to research evidence in your answer. (12 marks AS, 16 marks A)

Explain one criticism of the multi-store model.

Possible essay question ...

Discuss the multi-store model of memory. Outline the multi-store model of memory. (6 marks) + Explain one criticism of the multi-store model of memory. (4 marks)

One strength of the multi-store model comes from ...

supporting laboratory evidence

- E - Controlled lab studies on capacity, duration and coding support the existence of separate short- and long-term stores.

Other possible exam questions ...

Outline the multi-store model of memory. (6 marks) + Explain one criticism of the multi-store model of memory. (4 marks)

Another strength of the multi-store model comes from ...

supporting case studies.

- E - Scoville and Milner (1955) reported the case of patient HM. His brain damage was caused by an operation to remove the hippocampus from both sides of his brain, to reduce severe epilepsy. Therefore, he could not form new LTM, although he could still remember things from before the surgery. However, the multi-store model has been criticised for ...

However, the multi-store model has been criticised for ...

being overly simplistic.

- E - The MSM suggests that both STM and LTM are separate stores, but they are indeed connected. Furthermore, research has also found different types of LTM, for example episodic, procedural and semantic memory.

Attention, maintenance rehearsal and retrieval

The three memory stores are linked to each other by different processes that enable the transfer of information from one store to the next. If information is not transferred, it may be lost. Therefore, it is important to transfer information from one store to the next.

If a person's attention is focused on one of the three memory stores, then the information is transferred to STM. Rehearsal (repetition) keeps information in STM, but eventually rehearsal will create a LTM. According to Atkinson and Shiffrin (1968), the more information is rehearsed, the better it is remembered. Finally, information that is stored in LTM can be returned to the STM by the process of retrieval.

One strength of the multi-store model comes from ...

supporting laboratory evidence.

- E - For example, Miller (1956) found that the duration of STM is 7±2 items. Furthermore, Ruchkin (2003) found that the duration of STM is approximately 80 years.

- L - This supports the idea of separate short- and long-term memory stores, which is the basis of the multi-store model.

According to Atkinson and Shiffrin, the more information is processed deeply, the more enduring. Therefore, doing more complicated things with information will make the memories more enduring.

Another criticism of the multi-store model is that ...

STM and LTM are not separate stores.

- E - Craik and Lockhart (1972) suggest that long-term memories are created by the level of processing and not rehearsal.

- E - Information that is processed more deeply is memorably because of the way it is processed. Therefore, doing more complicated things with information will make the memories more enduring.

- L - This suggests that the process of rehearsal does not fully explain the process of remembering information in STM.

Answers on page 272

Describe the multi-store model of memory. If the information is interrupted during rehearsal it may be forgotten.


In each box below write one sentence describing an aspect of the multi-store model in about 20 words.

- Sensory register is...

- Another aspect of sensory register is...

- Short-term memory is...

- Another aspect of short-term memory is...

- Long-term memory is...

- Another aspect of long-term memory is...

Answers on page 272

A marking exercise

Read this student answer to the following exam question: Describe the multi-store model of memory. (6 marks)

The multi-store model consists of three stores which are the sensory memory, the short term memory and the long term memory. First of all information leaves the senses (sight, hearing and so on) and is stored in sensory memory. Then that information is passed to the short-term memory. If any information is not important then it decays or disappears. Data in the short term memory informed can be rehearsed and passed into long term memory. If the information is interrupted during rehearsal it may be forgotten.

Answers on page 272

Tick two of the boxes below to indicate which of the following are true in relation to the sensory register.

A The capacity of the sensory register is very large.

B The duration of the sensory register is very limited (milliseconds).

C Attention is required to transfer information from the sensory register to STM.

D The capacity of the sensory register is limited.

Tick the boxes below to indicate which of the following are true in relation to the sensory register.

A The capacity of the sensory register is very large.

B The duration of the sensory register is very limited (milliseconds).

C Attention is required to transfer information from the sensory register to STM.

D The capacity of the sensory register is limited.

Answers on page 272

Complete the diagram

Match the key terms with the diagram by writing the appropriate number from the diagram next to the related key term.

- Sensory register

- Long-term memory

- Maintenance rehearsal

- Transfer

- Retrieval

Answers on page 272

A level only zone

P - Another criticism of the multi-store model is that ...

Long-term memory involves more than just maintenance rehearsal.

- E - Craik and Lockhart (1972) suggest that long-term memories are created by the level of processing and not rehearsal.

- E - Information that is processed more deeply is memorably because of the way it is processed. Therefore, doing more complicated things with information will make the memories more enduring.

- L - This suggests that the process of rehearsal does not fully explain the process of remembering information in STM.

P - A final criticism of the multi-store model is that ...

STM and LTM are not separate stores.

- E - Logie (1999) suggested that STM actually relies on LTM and therefore cannot come first as suggested in the MSM.

- E - Furthermore, Ruchkin et al. (2003) found that when participants process a list of real words, other areas of the brain were activated, in comparison to when participants processed a list of pseudo-words (fake words).

- L - This suggests that STM relies on LTM and may just be another part of LTM and not a separate store.
Possible essay question …
Discuss the working memory model: include strengths and limitations in your answer. (12 marks AS, 16 marks A)

Other possible exam questions …
- Outline the working memory model. (6 marks)
- Describe one research study that supports the working memory model. (4 marks)
- Explain one criticism of the working memory model. (4 marks)

The working memory model
Baddeley and Hitch (1974) proposed the working memory model (WMM) because they felt that the STM was not one store, but multiple stores. The WMM consists of separate stores for processing acoustic and visual information, which are controlled by a central executive (CE) like KF whose short-term forgetting of auditory information was much greater than his forgetting of visual information.

The phonological loop (PL) deals with auditory information and the order of information. The visuo-spatial sketchpad (VSS) is used for the planning of spatial tasks and the temporary storage of visual and/or spatial information.

The central executive directs the brain’s resources to one of three slave systems.

- The phonological loop contains the phonological store which holds the words you hear and the articulatory process which allows for maintenance rehearsal of acoustic information.
- The VSS contains the visual cache which stores information about visual forms and the inner scribe which deals with spatial relationships whilst storing the arrangements of objects in the visual field.
- The articulatory loop, in comparison to a task which required just the articulatory loop, is therefore, his brain damage appeared to be restricting his phonological loop and not his visuo-spatial sketchpad.

Another strength of the WMM comes from…
- Shallice and Warrington (1970) studied a man called KF whose short-term forgetting of auditory information was much greater than his forgetting of visual information.

However, one criticism of the WMM is…
- E - Evidence using brain-damaged patients:
  - E - Some of the key evidence for the WMM comes from case studies of individuals with serious brain damage (e.g. KF).
  - E - There are several problems with using such evidence, for example, individuals may have difficulties in paying attention and therefore simply underperform on certain tasks.
  - L - This matters because the results of a single case study are difficult, if not impossible, to replicate and difficult to generalise to the general population.

P - Another criticism of the WMM comes from…
- Evidence using brain-damaged patients:
  - E - The PL explains why the word-length effect occurs. People are able to remember short words better than long words because the PL holds information for approximately two seconds and longer words simply don’t fit in the PL.
  - E - Furthermore, the word-length effect disappears. A person is given an articulatory suppression task, as participants are unable to rehearse information.
  - L - These findings support the idea of a phonological loop and articulatory process in the WMM.

P - A final strength of the WMM comes from…
- Evidence for the phonological loop and articulatory process.
  - E - The PL explains why the word-length effect occurs. People are able to remember short words better than long words because the PL holds information for approximately two seconds and longer words simply don’t fit in the PL.
  - E - Furthermore, the word-length effect disappears. A person is given an articulatory suppression task, as participants are unable to rehearse information.
  - L - These findings support the idea of a phonological loop and articulatory process in the WMM.

The central executive directs the brain’s resources to one of three slave systems, which include the phonological loop and the visuo-spatial sketchpad. The phonological loop contains the articulatory store and phonological store. The visuo-spatial sketchpad contains the visual cache and inner scribe. The purpose of the inner scribe is to store visual information.

Answers on page 272

Identify the psychology
Link to the WMM
Condition 1 (one visual and one auditory task)
This means that…

Answers on page 272

Identify the psychology
Link to WMM
Condition 2 (two visual tasks)
This means that…

Answers on page 272

Identify the psychology
Link to WMM

While writing this revision book, Mr Robinson is able to select pictures for the different pages whilst listening to music at the same time. However, he finds it difficult to talk to his friend while typing. Use your knowledge of the working memory model to explain why Mr Robinson 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.

Use your knowledge of the WMM to explain this finding.

Answers on page 272

Which of the following are not features of the working memory model?
A Long-term memory
B Sensory register
C Serial position curve
D Maintenance rehearsal
E All of the above

Answers on page 272