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1 The working memory model has the following components: the central executive, phonological loop, visuo-spatial sketchpad and episodic buffer.

Describe **two** components of the working memory model. [4]

Ans.

The central executive is the supervisory component of the working memory model. It monitors information incoming from the sensory register and allocates it for further processing to either of the two slave systems - the visuospatial sketchpad (VSS) and the phonological loop (PL).

The episodic buffer is the temporary storage which creates 'episodes' or coherent forms of memory by integrating information from the VSS and the PL. It also helps connect the working memory with long-term memory by integrating information from these two separate memory storages.

2. Lee is driving with his friend James in a car.

"It is strange," Lee says. "I can clearly remember my first driving lesson and how difficult it was trying to drive the car. But now, after driving for years, I can do it without thinking."

James replies, "I love driving and I remember that, as a child, I could name every make and model of the cars we passed on the road."

Outline **three** types of long-term memory. Briefly explain how each type of memory is shown in the conversation between Lee and James. [6]

Ans. One type of long-term memory is episodic memory which involves remembering events that have occurred in one's life. In the given scenario Lee describes remembering his first driving lesson and how difficult he found it - which is an event from his life, demonstrating episodic memory.

Another type of long-term memory is procedural memory which involves remembering how to perform actions such as motor activities which become automatic after sufficient rehearsal and practice. Lee states that driving has become something he can do without thinking after having practised for years, suggesting that it has become a part of his procedural memory.

Yet another type of long-term memory is semantic memory which involves remembering general facts and information about the world. James used to remember the makes and models of cars when he was a child, suggesting that these were stored in his semantic memory.

3. Describe and evaluate the multi-store model of memory. [20]

AO1 = 8 marks; AO3 = 12 marks

AO1

- MSM = Atkinson and Shiffrin
- developed to show the multiphasic nature of memory and to simplify its understanding
- following components with their individual capacity, coding and duration-
 - SR = capacity is infinite, ALL information coming into any of 5 sense organs
 - duration is roughly, on an average for 2 seconds
 - coding depends on the sensory modality being used e.g. vision, in the form of imagery
 - STM = information which is attended to in SR comes into the STM
 - capacity very limited, estimated to be 7 ± 2 pieces of information
 - duration of STM very brief = 15 to 20 seconds
 - coding is acoustic
 - LTM = information which is rehearsed in STM transfers to LTM
 - capacity is unlimited
 - duration is for a lifetime = permanent storage
 - coding is semantic
 - information when retrieved transfers from LTM to STM where it is put into usage

AO3

- one strength = supported by research format
 - e.g. Peterson and Peterson demonstrated that STM lasts for exactly 18 seconds, by preventing rehearsal of trigrams in participants by making them count backwards from 3 or 4-digit numbers after learning them
 - shows that STM lasts for a very brief duration as suggested by the MSM, verifies the STM component of the model empirically
 - this increases the validity of the MSM

- another strength = application to everyday life
 - e.g. it suggests that rehearsal can transfer information from temporary STM storage to permanent LTM storage
 - students can use this understanding to keep rehearsing information they learn while studying so that they can retain it for a long time e.g. using a procedure called 'elaborative rehearsal' they could link new concepts with old ones, understand their meaning, relate to everyday life so that they transfer to LTM
 - this increases practical usefulness of the theory

- one weakness = reductionist view of memory
 - underestimated the potential of STM and LTM storages
 - e.g. STM actually the capacity to not only store but manipulate information while performing cognitive tasks as demonstrated by Baddeley and Hitch = might be better understood as a 'workbench' rather than a passive storage
 - this reduces the comprehensiveness of model

- one more weakness = challenged by later models of memory
 - e.g. LOP model has suggested that memory might not be structured into well-defined storages
 - not stage-wise transfer of information rather, how information is processed that determines whether it will be stored in the long-run = shallow processing, does not lead to permanent storage but deep processing result in long term storage
 - this reduces the validity of the model

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