

## VCE Psychology Unit 4

### Written Examination

### Suggested Solutions

#### SECTION A: MULTIPLE-CHOICE QUESTIONS

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44	<input type="checkbox"/> A	<input type="checkbox"/> B	<input type="checkbox"/> C	<input checked="" type="checkbox"/> D

**Question 1      A**

Individuals possess several different memory systems, as memory comprises numerous interconnected structures that serve different complex purposes.

**Question 2      B**

The process of converting information into a form that can be stored in the memory is known as **encoding**.

**Question 3      D**

The type of assessment task that Ms Warner should set is a **multiple-choice test**, whereby students are able to recognise the correct response among several different options.

**Question 4      C**

Research conducted on the relative sensitivity of various measures of retention has found that **relearning** is the most sensitive.

**Question 5      B**

The operation of Ahmed's **iconic** memory allows him to see the single frames in a flowing, joined sequence, as each image is stored in his sensory memory for one-third of a second.

**Question 6      C**

Information is stored in short-term memory for approximately **eighteen to twenty seconds**.

**Question 7      C**

Elaborative rehearsal involves making information meaningful by relating it to information already stored in the memory.

**Question 8      D**

Tom's memory of his first kiss with Charlotte is an example of **episodic** memory, as it is a long-term memory of a personal experience.

**Question 9      A**

According to the Semantic Network Theory, retrieval of information occurs through the activation of a network of **nodes**.

**Question 10      A**

When recall is postponed for thirty seconds or more, only the items at the **beginning** of the list are typically recalled, as the recency effect is no longer evident. The last few items will no longer be in short-term memory.

**Question 11      C**

Ebbinghaus (1885) stated that retention of information is influenced primarily by how well-learned material is in the first instance. Failure to properly encode information limits its capacity to be stored and subsequently recalled. Degree of difficulty also has an effect on storage.

**Question 12**      **B**

The retrieval failure theory states that information often cannot be recalled because the individual is **not using the correct cues** to retrieve that material from the long-term memory.

**Question 13**      **C**

**Proactive interference** occurs when previously learned information inhibits an individual's ability to recall new information.

**Question 14**      **D**

Motivated forgetting due to repression acts as a **defence mechanism** to protect individuals from distressing memories. It relies on the individual subconsciously blocking memories of bad experiences.

**Question 15**      **D**

Studies have shown that damage to the **hippocampus** prevents information from progressing to long-term memory systems, thereby causing anterograde amnesia.

**Question 16**      **A**

As Amadeus is suffering from retrograde amnesia, he will not be able to recall events that occurred in the period of time **immediately before** his accident.

**Question 17**      **B**

Ageing has an impact on short-term memory by affecting the recollection of information that involves the individual manipulating that material in the short-term memory.

**Question 18**      **C**

Context-dependent cues are established when learning occurs in a particular physical environment. Elements of that environment such as visual characteristics, smells and sounds may act as a prompt to retrieving information that was initially learned there. Thus, it is best for Georgina to sit her Psychology exam in the classroom in which she had her Psychology classes.

**Question 19**      **D**

Narrative chaining enables information to become **meaningful** to an individual by linking unrelated pieces of information into a consequential sequence. It also **organises** the information and can place items in the story **sequentially**, so as to retrieve the sequence of material to be learned.

**Question 20**      **A**

An operational hypothesis should always include how the variables will be manipulated and the population from which the sample is drawn.

**Question 21**      **B**

For the results of any experiment to be considered statistically significant, a *p* value no higher than **0.05** is required.

**Question 22**      **D**

The ethical principle of **voluntary participation** was breached in this experiment, as participants were compelled to be involved as part of their university assessment.

**Question 23      B**

Answering the phone is an example of learned behaviour. **A** is a reflex, **C** is a fixed-action pattern and **D** is maturation (all examples of behaviour that is not learned).

**Question 24      A**

Acquisition occurs most rapidly when the UCS is presented just after (about 0.5 seconds) the CS.

**Question 25      B**

Prior to conditioning, the birdseed was the **UCS**, which naturally resulted in the hungry bird's UCR of flying to the shoulder to eat the food. After several pairings, the banging near the window was the **CS**, which resulted in the bird flying to the shoulder (**CR**).

**Question 26      B**

See solution to Question 25 for explanation.

**Question 27      D**

Extinction has occurred when the UCS (the birdseed) is no longer presented after the CS (banging on the window); after a number of trials the CR no longer occurs.

**Question 28      B**

Garcia argued that this type of one-trial learning is different from standard cases of classical conditioning; for example, in the case of one-trial learning, the aversive stimuli could not be generalised.

**Question 29      D**

Classically conditioned responses may be **extinguished** relatively easily; one-trial learning is **resistant** to extinction.

**Question 30      B**

In Thorndike's puzzle box experiment, the cat learned an association between the behaviour (escaping the box) and the consequences (obtaining the reward).

**Question 31      C**

Operant conditioning can be defined as the modification of **voluntary** behaviour through the use of **consequences**.

**Question 32      B**

Skinner's research aimed to illustrate the impact of **reinforcement** on behaviour. For example, he used positive reinforcement (food) for hungry rats to press the lever in the Skinner box.

**Question 33      B**

The dog has been trained (**operantly conditioned**) to identify (**discriminate**) leafy drugs (by using a reward system), while ignoring similar substances (for example, leafy herbs).

**Question 34      A**

Phil's success is an example of **variable ratio** reinforcement schedule: the reinforcer (the bullseye) is given after an irregular (in this case, an average of twenty-five per cent) number of correct responses (hitting the bullseye).

**Question 35      C**

Scott's parents are using the **variable ratio** reinforcement schedule: the reinforcer (fifty dollars) is given after an irregular (variable) number of correct responses (ratio).

**Question 36      A**

**Punishment** occurs when the pleasant stimulus (watching television) is removed after a response is made (not handing in work), in order to **decrease** the probability of that response occurring again.

**Question 37      B**

Watson's experiment contained numerous ethical breaches, including the **failure to extinguish the conditioned fear response** at the conclusion of the experiment.

**Question 38      D**

Jasper's shaking response is automatic and thus has been **classically conditioned**. The avoidance response has been **operantly conditioned** and is an example of negative reinforcement.

**Question 39      D**

In **observational learning**, when a model (in this case, Donald's father Andrew) is seen to be punished for a behaviour (yelling and throwing the can), the behaviour is less likely to be imitated by the learner (Donald).

**Question 40      C**

**Reproduction** (the third stage of observational learning) is restricted by physical limitation; in this case, Zachary's inability to get the ball airborne is due to his physical limitations as outlined in the question.

**Question 41      A**

Bandura concluded that learning can occur by observing behaviour that has no consequences.

**Question 42      D**

Members of all three groups (including both boys and girls) were more likely to imitate the model's aggressive behaviour when they were offered a reward.

**Question 43      B**

In the two-choice discrimination problems, Harlow's monkeys first exhibited **trial-and-error behaviour**. They would then demonstrate **insightful behaviour** (they had learned/discovered a rule), and then continued to **use this rule** in future similar problems (learning set).

**Question 44      D**

Harlow (learning set) focused on the interactive process of perception, memory and thinking on learning (**cognitive phenomena**). Operant conditioning theorists focused on **observable phenomena**, such as the number of correct responses.

**SECTION B – SHORT-ANSWER QUESTIONS****Question 1**

The three types of recall are:

Type of recall	Description
Free recall	Retrieving information from long-term memory (in any order) without the use of any cues.
Serial recall	Retrieving information from long-term memory, in the same order it was learned, without the use of any cues.
Cued recall	Retrieving information from long-term memory with the use of cues.

*(1 mark for each description)*

3 marks

**Question 2**

a. Short-term memory is referred to as working memory because it is the level of memory where information is mentally manipulated and processed.

1 mark

b. Norm remembers the tax file numbers by **chunking** them into three sets of three-digit chunks.

1 mark

**Question 3**

According to the decay theory, information is forgotten because the chemical trace that was formed when it was first learned has faded or disappeared altogether due to disuse. This type of memory loss can only be avoided by mentally using that information periodically.

2 marks

**Question 4**

Reasons why ageing may have a negative impact on long-term memory include:

- It is believed that as individuals age they lose confidence in their memory ability and hence may not even attempt to remember certain pieces of information.
- Older individuals may lack the motivation necessary to recall information because they are no longer required to perform all of the tasks that were necessary when they were younger.
- Functioning of the central nervous system slows as individuals age, rendering a cognitive slowing of memory processes.

*(1 mark each for any two dot points identified)*

2 marks

**Question 5**

Elaboration helps memory storage and retrieval because:

- If we can connect new information with existing information in long-term memory, we can organise and store it more effectively.
- The more semantic links between information that we can create, the more cues we create to retrieve the information when required.

2 marks

**Question 6**

The steps involved in using the method of loci as a mnemonic device are:

1. Learn a set of distinguishable features that are organised in a naturally occurring sequence (such as a series of letterboxes along a street).
2. Create a mental picture of each piece of information that needs to be remembered.
3. Link each mental picture with the image of one of the features learned in step one.
4. Retrieve the information by recalling the features of the landmarks in order; these cues will then retrieve the required items.

*(1 mark each for any three steps identified)*

3 marks

**Question 7**

**Definition:** Fixed-action patterns are inborn predispositions to behave in certain ways, in response to a specific environmental stimulus that is characteristic of a particular species or group.

**Example:** Salmon swimming upstream to spawn to the exact area in which they were spawned.

*(1 mark for definition, 1 mark for suitable example)*

2 marks

**Question 8**

- a. The unconditioned stimulus is Meg **hammering the nail into her finger**.

1 mark

- b. Stimulus generalisation is the tendency for another stimulus (one that is similar to the CS) to produce a similar response to the CR.

For example, if Meg feels tension in her stomach when her mum picks up a screwdriver or another similar type of tool.

*(1 mark for explanation, 1 mark for suitable example)*

2 marks

**Question 9**

Trial-and-error learning involves a number of **trials** or attempts and a number of **errors** (incorrect choices) before the correct behaviour is learned.

2 marks

**Question 10**

- a. Penny is using **negative reinforcement** to deal with her headaches.

1 mark

- b. **Similarities** between punishment and reinforcement include:

- generalisations and discrimination may occur in both procedures
- both punishment and reinforcement follow the behaviour
- both utilise consequences to alter the frequency of a response.

*(1 mark for any of the above points)*

1 mark

c. **Differences** between punishment and reinforcement include:

- negative reinforcement increases the probability of a behaviour occurring, while punishment decreases the probability of a behaviour occurring
- in negative reinforcement, a negative stimulus is removed if the response occurs; in punishment, a negative stimulus is the consequence of a response.

*(1 mark for either of the above points)*

1 mark

### Question 11

- In operant conditioning, the **response** (behaviour) occurs **before** the **stimulus** (reinforcer).
- In classical conditioning, the **stimulus** is presented just **before** the **response**.

*(1 mark for each point)*

2 marks

### Question 12

Attention is influenced by

- the motivation and interest of the observer
- the personality characteristics of the model
- presence/absence of distractors
- the model standing out against other models
- status of the model (high status attracts attention)
- similarity to observer.

*(1 mark each for any two of the above points)*

2 marks

### Question 13

a. The dependent variable is the **percentage recall of nonsense syllables**.

1 mark

b. The independent variable is **lesson times**: morning versus afternoon for learning nonsense syllables.

1 mark

### Question 14

‘Students who learn fifteen nonsense syllables will have a higher free recall of syllables learned in a morning class than syllables learned in an afternoon class.’

*(1 mark each for operationalising the DV and the IV)*

2 marks

### Question 15

Dr Agon’s research is an experiment because:

- it tests a cause-and-effect relationship between two variables
- the researcher manipulates the treatment (levels of the IV) between groups
- participants are randomly allocated to groups/treatment.

*(1 mark for any of the above points)*

1 mark



**Question 16**

- a. **Random sampling** was attempted in this investigation. 1 mark
- b. The sample may be biased because the participants may not be truly representative of the population. 1 mark
- c. **Stratified random sampling:** A diverse population is divided into strata. A random sample is selected from each strata so that their proportions reflect those in the population. 1 mark

**Question 17**

The measure of variability used in this experiment is the **range**.

*(The 'mean' is incorrect as it is a measure of central tendency)*

1 mark

**Question 18**

- a. From the results it can be concluded that
- the results are statistically significant and hence the hypothesis is supported
  - the likelihood that the results (differences) are due to chance is less than five in 100
  - if this experiment was repeated 100 times, differences in results such as this would occur by chance fewer than five times.

*(1 mark for any of the above points)*

1 mark

- b. The researcher is unable to generalise the results to the wider population because
- there might be carry-over effects due to the repeated measures design; for example, in IQ tests, people can improve their results on certain tests.
  - the sample size is too small compared to the actual population
  - the sample only consisted of Year 10 students and thus may not be representative of other age groups.

*(1 mark each for any two of the above points)*

2 marks

**Question 19**

- a. The experiment has adhered to the participant right of **voluntary participation**. 1 mark
- b. The experiment has breached the right of **confidentiality**. Participants should not be identified in terms of their results. 2 marks

**Question 20**

- a. An **experimenter effect** occurs when the actions of the experimenter (rather than only the IV) affect the DV, and thus become an extraneous/confounding variable. This may cause the conclusion to be invalid. 1 mark
- b. A means to minimise the experimenter effect is the **double-blind procedure**. 1 mark
- c. Dr Agon could use an assistant to allocate the participants to both the experimental and control groups, and to collate the results, so that she is unaware of which is the experimental group and which is the control group. Participants should not be allowed to learn which treatment group they are in. 1 mark