

VCE Psychology Unit 4

Written Examination

Suggested Solutions

SECTION A: MULTIPLE-CHOICE QUESTIONS

1	A	B	C	D
2	A	B	C	D
3	A	B	C	D
4	A	B	C	D
5	A	B	C	D
6	A	B	C	D
7	A	B	C	D
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30	A	B	C	D

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36	A	B	C	D
37	A	B	C	D
38	A	B	C	D
39	A	B	C	D
40	A	B	C	D
41	A	B	C	D
42	A	B	C	D
43	A	B	C	D
44	A	B	C	D

Question 1 B

Sensory memory is the first stage of memory, followed by short-term memory and then long-term memory.

Question 2 C

Recall has the least sensitivity, because it has the least chance of registering a low intensity retention (compared to relearning and recognition). Retrieval is not a measure of retention (hence is a distractor).

Question 3 B

$$\begin{aligned}\text{Savings score formula} &= \frac{(\text{original trials}) - (\text{trials for relearning})}{(\text{original trials})} \\ &= 1 \text{ out of } 5\end{aligned}$$

Question 4 A

STM tends to store information in terms of its **physical qualities**; LTM tends to store information in terms of **semantics** (i.e. its meaning).

Question 5 D

Maintenance rehearsal involves simply repeating information (without adding meaning). This keeps information in STM longer (i.e. for more than twenty seconds).

Question 6 B

Vinny's **consolidation process** has been **interrupted** by news of his girlfriend's accident; hence the memory may be altered or lost.

Question 7 C

Incoming information must be first attended to in sensory memory before being encoded while in short-term memory.

Question 8 A

Semantic memories include memory of facts (e.g. academic knowledge).

Question 9 A

The **visuospatial sketchpad** temporarily stores visual and spatial information.

Question 10 C

Information in LTM is organised systematically in the form of overlapping networks of concepts (nodes). These nodes of information are interconnected by meaningful links. The **shorter** the link (i.e. the closer the relationship between two concepts), the stronger the association and the less time it takes to activate (i.e. retrieve the related concepts).

Question 11 D

Proactive interference occurs when old memories interfere with the retrieval of new information.

Question 12 D

Retrieval failure represents the inability to retrieve information (from LTM) because of the absence of the right cues or a failure to use them – ‘tip of the tongue’.

Question 13 A

A primacy effect would occur (because items were more likely to have been stored in LTM), so recall would be best for items at the **start** of the list; the (short-term) recency effect is eliminated because of the time delay forced by the ordered recall condition.

Question 14 B

Immediate recall is best for items at the end of the list (recency effect), followed by items at the start (primacy effect), where information has been rehearsed more and hence is more likely to have been transferred to LTM. Recall is lowest for items in the **middle of the list**.

Question 15 C

In sufferers of anterograde amnesia, information enters sensory memory, and is attended to and transferred to STM. However, the structures of the brain that are involved in transferring it from STM to LTM are damaged and therefore no new permanent memories can be formed.

Question 16 B

Ebbinghaus’s forgetting curve: key statistics

Elapsed time	% remembered
twenty minutes	fifty-five per cent
one hour	forty-five per cent
one day	thirty-four per cent

Question 17 C

The slowing of the central nervous system goes hand-in-hand with the rate at which information is processed by STM.

Question 18 D

Episodic memories, such as childhood events, are most affected by age.

Question 19 A

Jonah is referring to his internal state (he was light-headed); hence this is an example of a **state-dependent** cue.

Question 20 D

Mnemonic devices make it easier to encode, store and retrieve information.

Question 21 C

The p value obtained is too high; hence the results fail to support the hypothesis. So, the difference between the results of the two groups may well be due to chance.

Question 22 D

Participant confidentiality was breached as participants must not be identified in terms of their test results, involvement in the study or any other confidential data. This should be outlined to the subjects at the **beginning** of the study.

Question 23 B

While there may be some incidents when learning occurs through chance, or through the influence of reward or punishment, learning typically occurs as the result of **experience**.

Question 24 A

Sucking while being breastfed is a **reflex** response. Walking and talking are learned behaviours, and Charlotte lifting her chest from the floor is due to maturational readiness.

Question 25 C

Classical conditioning occurs when a stimulus that automatically causes a response is paired with another stimulus. Through this pairing, an **association between two stimuli** is made and the response is given to the second stimulus (which would not ordinarily elicit that response).

Question 26 B

Extinction occurred because the association between the presentation of the meat powder and the ringing of the bell was broken. Hence the dogs no longer salivated upon hearing the bell.

Question 27 A

The neutral stimulus becomes the **conditioned stimulus** because the respondent 'learns' to respond to that stimulus once it has been repeatedly paired with the unconditioned stimulus.

Question 28 D

One-trial learning occurs because the experience involved is so **intense** that it does not take several associations to be made for learning to ensue.

Question 29 C

Taste aversions are **resistant to extinction** because the association made between the food and the negative reaction is so unpleasant that it is long-lasting.

Question 30 A

Trial and error learning relies on the learner making various attempts to solve a problem, learning from the initial errors and using those lessons to eventually work out the solution to the problem.

Question 31 D

With each successful 'escape' from the puzzle box, the cats began to recognise that pushing the lever would open the door. While this was a random behaviour to begin with, the more times they were able to escape, the more quickly they pushed the lever.

Question 32 D

Skinner found that **consequences** for behaviour were the primary factor in influencing whether or not such behaviour would occur again. Behaviours that receive a positive consequence tend to be repeated, while those that receive a negative consequence tend to abate.

Question 33 A

Administering mild electric shocks until the rats pulled the lever is an application of **negative reinforcement**.

Question 34 D

Mr Elray initially used the **variable-interval schedule** as he was providing reinforcement at different times throughout the day.

Question 35 A

The second method Mr Elray uses is the **continuous reinforcement** schedule.

Question 36 C

Punishment should occur as soon as possible after an undesired response so that the individual can make a mental association between that behaviour and the negative consequence.

Question 37 B

Watson was endeavouring to discover whether **emotional responses** (such as fear) could **become conditioned**, so that an individual would exhibit that response when confronted with a stimulus that would not ordinarily elicit it.

Question 38 D

Watson failed to abide by any of the ethical considerations listed.

Question 39 A

The learner is **passive** during classical conditioning as the two stimuli are merely presented together. In operant conditioning, the learner adopts a more **active** role as he or she must actually make a considered response for learning to occur.

Question 40 D

This is an example of **observational learning**, as Claire sees the reaction Shelley receives and then copies her behaviour in order to achieve a similar reaction.

Question 41 A

The four elements of observational learning are:

1. attention
2. retention
3. reproduction
4. motivation-reinforcement.

Question 42 C

Bandura found that typically the girls were not as aggressive as the boys, unless they were given positive reinforcement for acting in an aggressive manner. In this condition, the level of aggression the girls displayed was comparable to that of the boys.

Question 43 B

Learning set is the ability to apply lessons learned in one situation to a problem in a new, but similar, situation. This enables the learner to solve the subsequent problem with greater efficiency as rules learned previously can be applied.

Question 44 A

The monkeys in Harlow's study demonstrated learning set, or 'learning how to learn', by remembering the patterns or rules governing where food would be left in the initial learning situation. They used that memory and the same rules to solve the new problem of how to find food in the next set of trials.

SECTION B – SHORT-ANSWER QUESTIONS

Area of study 1 – Memory

Question 1

Laura's phonological loop enables her to

- hold words from the start of the sentence,
- while she continues processing the remainder of the sentence (so that the sentence makes sense).

(1 mark for each dot point identified)

2 marks

Question 2

The differences between maintenance rehearsal and elaborative rehearsal are:

- elaborative rehearsal is active; maintenance rehearsal is more passive
- elaborative rehearsal involves meaning; maintenance rehearsal does not involve meaning
- elaborative rehearsal involves linking to other material in LTM; there is no linking in maintenance rehearsal
- elaborative rehearsal transfers to LTM; maintenance rehearsal often stays in STM.

(1 mark each for any two dot points identified)

2 marks

Question 3

- a. Repression is an unconscious mental mechanism of self-preservation that blocks out (represses) painful memories from normal waking consciousness.

1 mark

- b. Repression protects the individual from the long-term effects of a traumatic event.

1 mark

- c. Limitations of repression:

- a lack of empirical evidence, i.e. laboratory testing
- some unpleasant memories have been lost due to interruption to consolidation.

(1 mark for either dot point identified)

1 mark

Question 4

The forgetting curve shows the rate and amount of forgetting that occurs over time.

2 marks

Question 5

- a. Josie is using the **method of loci**.

1 mark

- b. Step 1 – learn a series of familiar landmarks that have a serial order.

Step 2 – mentally associate, or create a mental picture of, each item on the target list with each landmark, in order.

Step 3 – retrieve the target list by recalling each of the landmarks and associated images, which will cue the target items.

(1 mark each for any two dot points identified)

2 marks

Question 6

Experimenters perform tests of significance

1. to be sure that the independent variable is the cause of the changes in the dependent variable
2. to confirm that results are not due to chance.

(1 mark for each dot point identified)

2 marks

Area of study 2 – Learning**Question 7**

The term ‘association’ refers to the recognition that there is a link between one stimulus and another. This is crucial to the process of classical conditioning because once the learner has made the association between the two stimuli (i.e. the unconditioned stimulus and the neutral stimulus), a learned response is given to the neutral stimulus (now known as the conditioned stimulus) without the unconditioned stimulus being present.

2 marks

Question 8

- a. Aversion therapy occurs by pairing an undesired behaviour with an unpleasant stimulus. Once an association is made between these two stimuli, the individual should cease performing the undesired behaviour.

2 marks

- b. Examples of aversion therapy include:

- applying ‘stop and grow’ to fingernails so a bad taste is experienced whenever the nails are bitten
- administering nausea-inducing drugs with alcohol to make alcoholics feel sick whenever they drink.

(Any appropriate example will gain the mark)

1 mark

Question 9

Thorndike’s ‘law of effect’ states that the likelihood of behaviours being repeated depends upon their consequences. Thus, those behaviours that receive positive consequences will be more likely to recur than behaviours that receive negative consequences.

2 marks

Question 10

Difference between positive reinforcement and negative reinforcement:

- Positive reinforcement provides a pleasant consequence after the desired response has been given; whereas negative reinforcement is the removal of an unpleasant stimulus after the desired response has been performed.

Similarity between positive reinforcement and negative reinforcement:

- Positive reinforcement and negative reinforcement both increase the frequency or likelihood of a response occurring.

2 marks

Question 11

Punishment may sometimes act as a reinforcer of an undesired behaviour if the individual finds the attention he or she receives as a result of the punishment to be pleasurable. This attention may encourage the person to keep misbehaving to gain more attention.

2 marks

Question 12

Students should provide any three of the following characteristics that make a model more likely to be copied:

- the behaviour demonstrated by the model must be readily identifiable
- the learner must feel that there are similarities between himself or herself and the model in terms of their characteristics
- the learner must deem the behaviour as able to be copied
- the model must be perceived in a positive manner
- the learner should view the model as a familiar figure.

3 marks

Area of study 3 – Research investigation**Question 13**

Hypothesis:

‘Year 12 female students who experience twice-weekly solarium treatments for three months will rate their sense of happiness on a mood scale as significantly higher than those students who do not receive the treatments.’

1 mark

Question 14

- a. The control group in this study was Group B – those students who did not go to the solarium.
1 mark
- b. A control group is important because it provides data that can be used as a basis for comparison with the data provided by the experimental group.
1 mark

Question 15

- a. **Independent variable:** exposure to ultraviolet light at the solarium versus no solarium visits.
1 mark
- b. **Dependent variable:** the degree of happiness as demonstrated on the mood scale administered to all students.
1 mark

Question 16

The major ethical consideration breached in this experiment is the failure to protect the well-being of all participants. It has been widely documented that exposure to ultraviolet light is harmful to individuals, yet Mrs Lopez sent half of her students to the solarium as part of the study. Furthermore, students were not given a choice about whether to participate. This breaks the voluntary participation principle.

2 marks

Question 17

- a. Mrs Lopez used the **independent groups design** in this study.

1 mark

- b. Other types of research design were **not** suitable for this experiment:

- The **repeated measures design** is only possible when the participants can perform the two levels of the independent variable serially (that is, solarium visits before the dance versus no solarium visits before the dance). It would require the dance to be held twice, which seems very difficult logistically. Additionally, this design may introduce extraneous variables due to order effects.
- The **matched participants design** is more time-consuming and expensive; therefore to measure and match participants on relevant variables that affect mood may not be possible.

(2 marks for either dot point identified)

2 marks

Question 18

Students may include any one of the following extraneous variables, or others similar in nature:

- Some students may be generally happier than other students (regardless of exposure or lack of exposure to the solarium) and this will affect the results of the mood scale.
- Students' moods may have been influenced by other variables such as sleep or nutrition.
- Students may have responded to questions on the scale according to how they *believe* they *should* respond.
- Participant expectancies in the experimental group may increase the mood scores of that group and possibly make conclusions invalid.

2 marks

Question 19

Students may include any one of the following methods, or others similar in nature:

- Students should complete the mood scale prior to the experiment to gain baseline data for later comparison.
- Students should reside together for the duration of the study to prescribe uniform sleep and eating patterns.
- Students should not be informed of the aim of the research until debriefing at the conclusion of the study.

1 mark

Question 20

No, the results of the experiment **cannot be generalised** to the wider population of all VCE students as Mrs Lopez studied quite a limited sample of adolescent girls, all from the same school. This sample is therefore not representative.

1 mark

Question 21

A single-blind procedure is one where participants are unaware of whether they are in the control group or the experimental group. This type of procedure could not be used in this study as participants were aware of whether or not they were attending the solarium. They were therefore aware of the group (control or experimental) to which they had been randomly assigned.

2 marks

Question 22

Descriptive statistics are those that are used to summarise, organise, analyse and describe various features of experimental data to enable interpretation and communication; whereas **inferential** statistics are those that are used to determine whether or not the results are due to chance and if the results may be generalised.

2 marks