



Victorian Certificate of Education
2023

Name: _____

Teacher's name: _____

STUDENT NUMBER

Letter

UNITS 3&4 PSYCHOLOGY – TRIAL 1

Written examination

2023

Reading time: 15 minutes

Writing time: 2 hours 30 minutes

QUESTION AND ANSWER BOOK

Structure of book

Section	Number of questions	Number of questions to be answered	Number of marks
A	40	40	40
B	8	8	80
			Total 120

- Students are permitted to bring into the examination room: pens, pencils, highlighters, erasers, sharpeners, and rulers.
- Students are NOT permitted to bring into the examination room: blank sheets of paper and/or correction fluid/tape.
- No calculator is allowed in this examination.

Materials supplied

- Question and answer book.
- Answer sheet for multiple-choice questions.
- Additional space is available at the end of the book if you need extra space to complete an answer.

Instructions

- Write your student number in the space provided above on this page.
- Check that your name on your answer sheet for multiple-choice questions is correct.
- All written responses must be in English.

At the end of the examination

- Place the answer sheet for multiple-choice questions inside the front cover of this book.

Students are NOT permitted to bring mobile phones and/or any other unauthorised electronic devices into the examination room.

SECTION A – Multiple-choice questions**Instructions for Section A**

Answer **all** questions in pencil on the answer sheet provided for multiple-choice questions.

Choose the response that is **correct** or that **best answers** the question.

A correct answer scores 1; an incorrect answer scores 0.

Marks will **not** be deducted for incorrect answers.

No marks will be given if more than one answer is completed for any question.

Question 1

Daniel studied Indonesian when he was in high school. He used to practice his speaking skills and became quite fluent; however, Daniel is now in his mid-30s and struggles to remember words and cannot construct any sentences. What process has most likely occurred?

- A. sprouting
- B. rerouting
- C. pruning
- D. long-term potentiation

Use the following information to answer Questions 2 and 3.

Abby was holding a hot cup of coffee and, after taking a sip, decided it was too hot and put the cup back on the table.

Question 2

The sensory information from Abby's lips is travelling to her brain via

- A. efferent pathways.
- B. afferent pathways.
- C. GABA pathways.
- D. the spinal cord.

Question 3

The sensory function of Abby's lips is governed by which division of the peripheral nervous system?

- A. spinal cord
- B. brain
- C. somatic nervous system
- D. autonomic nervous system

Question 4

An example of an internal stressor would be

- A. the pain in your arm after an injection.
- B. a person shouting at you from across the street.
- C. the extreme dry heat in a sauna.
- D. a bushfire threatening your home.

DO NOT WRITE IN THIS AREA

Use the following information to answer Questions 5 – 7.

Michelle has a fear of public speaking. She has just been informed that she will need to complete a 10-minute oral presentation during the last week of her university course.

Question 5

Michelle is stunned when she first hears this news and feels unable to cope. Which stage of Selye's General Adaptation Syndrome (GAS) is Michelle in?

- A. exhaustion
- B. alarm
- C. primary appraisal
- D. secondary appraisal

Question 6

After a moment, Michelle's sympathetic nervous system activates and stress hormones are released so that Michelle can begin combating the stressor. Michelle is now in what stage of the GAS model?

- A. exhaustion
- B. alarm
- C. primary appraisal
- D. secondary appraisal

Question 7

Michelle has been able to cope with the stress of public speaking because she has been preparing all term for the oral presentation. She has spoken with previous students who had completed this task the year before, set a timeline for creating her presentation, and practised her presentation multiple times, which has made her feel at ease. According to Lazarus and Folkman's Transactional Model of Stress and Coping, which of the following statements relates to Michelle's ability to cope?

- A. Michelle has appraised the stressor as irrelevant
- B. Michelle has appraised the stressor as a threat
- C. Michelle has appraised the stressor as a harm/loss to her
- D. Michelle has appraised that she has the resources and ability to cope

Use the following information to answer Questions 8 – 10.

Henry is attempting to train his pet rat to perform tricks using food pellets as a reward. After many trials of trying to reinforce the correct behaviour with food pellets, the rat was unable to perform any tricks.

Question 8

What could be a problem with Henry's method of reinforcement?

- A. Henry is presenting the consequence immediately after the desired behaviour was performed
- B. Henry is only reinforcing the correct behaviour and no other behaviours
- C. the rat does not like the taste of the food pellets and does not see them as a reward
- D. the rat is making a connection between the food pellet and the trick

Question 9

Henry decided to try a different strategy to get his rat to perform the tricks. Every time the rat did not perform the trick correctly, Henry would remove an item from the rat's cage (e.g. its food bowl, water supply etc.). This is a form of

- A. positive reinforcement.
- B. negative reinforcement.
- C. positive punishment.
- D. negative punishment.

DO NOT WRITE IN THIS AREA

Question 10

After a few weeks, Henry's rat was performing the tricks effortlessly without the need for a consequence. This form of learning for the rat was

- A. passive.
- B. involuntary.
- C. active.
- D. reflexive.

Use the following information to answer Questions 11 and 12.

Kiera, a young Indigenous Australian girl, is watching her father perform a smoking ceremony. She watches intently and would like to perform the ceremony herself one day.

Question 11

Kiera's learning process involves

- A. innate skills.
- B. classical conditioning.
- C. observational learning.
- D. operant conditioning.

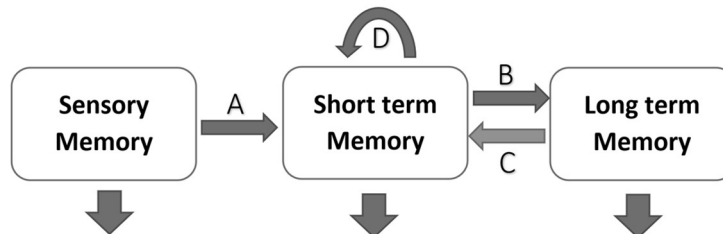
Question 12

Traditionally, most of the knowledge Kiera has about Country and her culture would come from

- A. story books.
- B. websites.
- C. story sharing.
- D. textbooks.

Use the following information to answer Questions 13 and 14.

Below is a representation of the Atkinson-Shiffrin multi-store model of memory.

**Question 13**

Information from sensory memory enters short-term memory through the process of

- A. attention.
- B. rehearsal.
- C. decay.
- D. retrieval.

Question 14

Which arrow is most likely representing the process of retrieval?

- A. A
- B. B
- C. C
- D. D

Use the following information to answer Questions 15 and 16.

Marcus is a retired car mechanic. He is reminiscing with his friends about the time he pulled apart an old Mercedes and restored it. Marcus has vivid memories of this event and can recall all the steps that he took to restore the old car.

Question 15

Marcus' memory of his experience of restoring the old Mercedes car is an example of a/an _____ memory.

- A. procedural
- B. semantic
- C. implicit
- D. autobiographical

Question 16

Marcus' memory of how to restore the old Mercedes car would likely be stored in his

- A. hippocampus.
- B. amygdala.
- C. neocortex.
- D. suprachiasmatic nucleus.

Question 17

To remember the order of the planets in our solar system, Ariel came up with the following saying: 'My Very Educated Mother Just Served Us Nine Pizzas'. This is an example of

- A. an acronym.
- B. an acrostic.
- C. the method of loci.
- D. the use of Songlines.

DO NOT WRITE IN THIS AREA

Use the following information to answer Questions 18 – 21.

A group of doctors are researching the effects of stress on the gut microbiota of 40 volunteer interns at their hospital. The researchers tested the microbiomes in their guts before they commenced their internships and then retested them six months later after they had endured the highly stressful internship program.

After the six-month program, the researchers found that there were disturbances to the microbiome in 80% of the participants with an indication of more harmful bacteria and a depletion of good bacteria in the gut. The participants were also tested for their levels of depression and anxiety before and after the program. Participants with the highest microbiome disturbances also scored higher on the depression and anxiety tests.

Question 18

What is the dependent variable for this study?

- A. the stressful internship program
- B. the change in the microbiome
- C. the diet of participants and whether they take probiotics
- D. whether the participants are experiencing acute or chronic stress

Question 19

What experimental design has been used in this study?

- A. between-subjects design
- B. within-subjects design
- C. mixed design
- D. observational design

Question 20

After the stressful internship program, the participants were more likely to have a weakened immune system and were more prone to catching a cold or flu. This is likely due to the sustained release of

- A. adrenaline.
- B. dopamine.
- C. serotonin.
- D. cortisol.

Question 21

Which of the following is not a physiological management strategy for the increased depressive symptoms in participants?

- A. taking a mindfulness course before commencing the next six-month training program
- B. a faecal transplant from a healthy donor
- C. an improved diet with probiotics
- D. anti-depressant medication

DO NOT WRITE IN THIS AREA

Use the following information to answer Questions 22 – 24.

Jack, a 20-year-old man, has just entered REM sleep.

Question 22

Which of the following monitors would show the least amount of activity whilst Jack is in REM sleep?

- A. electroencephalography
- B. electro-oculography
- C. electromyography
- D. a heart rate monitor

Question 23

Which of the following correctly describes the appearance of Jack's brain waves during electroencephalography while he is in REM sleep?

	Frequency	Amplitude
A.	high	low
B.	low	high
C.	high	high
D.	low	low

Question 24

During which sleep cycle would we expect Jack to experience a longer period of REM sleep?

- A. cycle 1
- B. cycle 2
- C. cycle 3
- D. all cycles would have equally brief periods of REM sleep as it only makes up 20% of sleep

DO NOT WRITE IN THIS AREA

Use the following information to answer Questions 25 – 28.

Cassandra has been working nightshifts and has not been sleeping when she gets home. Cassandra has gone three days with very minimal sleep.

Question 25

A behavioural symptom for Cassandra following this sleep deprivation would be

- A. difficulty with remembering how to use the new coffee machine.
- B. clumsily spilling her coffee.
- C. being shocked when coffee spills on the table.
- D. difficulty maintaining attention to what she is watching on YouTube.

Question 26

Cassandra's husband has offered to drive her to work and pick her up because he believes that her sleep deprivation would affect her driving. Cassandra has gone 24 hours without sleep. Research has found that 24 hours without sleep has comparable effects to someone with a BAC level of

- A. 0.10%.
- B. 0.5%.
- C. 0.01%.
- D. 0.05%.

Question 27

After a week of working night shifts, Cassandra has been assigned to the morning shifts for the following week. Cassandra was excited about this as she was looking forward to getting some quality sleep; however, when Cassandra went to bed that night, she had difficulty falling asleep and staying asleep. It appears that Cassandra is suffering from

- A. total sleep deprivation.
- B. a circadian rhythm sleep disorder.
- C. delayed sleep-phase syndrome.
- D. advanced sleep-phase disorder.

Question 28

Which of the following activities would not improve Cassandra's sleep hygiene?

- A. avoiding the use of screens and technology in the bedroom
- B. going for a 2km run just before going to sleep
- C. getting out of bed if she is struggling to fall asleep
- D. ensuring that the room is dark

Question 29

A person who has high social and emotional wellbeing is most directly shown by

- A. being able to cope with the daily hassles of work.
- B. having irrationally high confidence in completing impossible tasks.
- C. feeling connected to a community.
- D. being organised and achieving goals.

DO NOT WRITE IN THIS AREA

Question 30

Which of the following correctly identifies a similarity and a difference between anxiety and specific phobias?

	Similarity	Difference
A.	they are both considered 'normal'	anxiety can be adaptive whereas specific phobias are not
B.	they are both considered a mental disorder	specific phobias can be treated whereas anxiety cannot
C.	they are both considered 'helpful' in mild amounts	only specific phobias activate the fight-flight-freeze response
D.	often leads to an activation of the sympathetic nervous system	the trigger for anxiety may not be known, whereas the trigger of a phobic response is usually known

Question 31

Benzodiazepines assist with GABA dysfunction by

- A. making the receptor sites on the post-synaptic neuron become more responsive to GABA.
- B. blocking the glutamate receptor sites on the post-synaptic neuron.
- C. increasing the amount of GABA that is released into the synapse by the pre-synaptic neuron.
- D. blocking the glutamate receptor sites on the pre-synaptic neuron.

Question 32

Protecting Aboriginal and Torres Strait Islander peoples' culture over time, including their sense of history, identity and belonging, is known as

- A. self-determination.
- B. connection to Country.
- C. cultural and community wellbeing.
- D. cultural continuity.

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Use the following information to answer Questions 33 and 34.

A group of nutritionists wanted to explore the effects of a healthy diet and hydration on the mental wellbeing of a group of volunteers.

The participants completed a pre-test to determine their overall mental wellbeing. Participants were then provided with a strict diet that they needed to maintain (where they were only allowed to eat the pre-prepared meals provided by the experimenters), including the consumption of two litres of water each day for four weeks (which was monitored by the nutritionists).

At the end of the experiment, participants completed the post-test to determine their overall mental wellbeing.

Question 33

This experiment would be influenced by a range of potential extraneous variables. Which of the following would not be one of the extraneous variables for this experiment?

- A. the participants' diet and hydration before coming into the experiment
- B. other risk and protective factors that could be influencing the mental wellbeing of participants
- C. the resilience of participants
- D. the differing diet and hydration consumed by each participant during the experiment

Question 34

The nutritionists were too busy to inform participants about their results and did not give them the opportunity to discuss the impact of diet and hydration on their mental wellbeing. This has breached the ethical guideline of

- A. informed consent.
- B. voluntary participation.
- C. confidentiality.
- D. debriefing.

Use the following information to answer Questions 35 and 36.

Fatima has just been awarded a scholarship to complete her university degree in the United States. Fatima is excited about the opportunity but is also nervous about leaving her family and moving to another country.

Question 35

Receiving this news would have activated which division and sub-division of her nervous system?

	Division	Sub-division
A.	autonomic	sympathetic
B.	somatic	parasympathetic
C.	autonomic	parasympathetic
D.	somatic	sympathetic

Question 36

After receiving this news, one of Fatima's reactions could include her

- A. pupils contracting.
- B. saliva production increasing.
- C. stomach contractions decreasing.
- D. sweat production decreasing.

Use the following information to answer Questions 37 and 38.

Melatonin is an important sleep hormone.

Question 37

Melatonin is released from the

- A. suprachiasmatic nucleus.
- B. hypothalamus.
- C. optic chiasm.
- D. pineal gland.

Question 38

When will melatonin levels be at their highest for a normal adult?

- A. 4pm
- B. 8pm
- C. 2am
- D. 8am

Use the following information to answer Questions 39 and 40.

Tilly is five years old. She is lying in bed and trying to fall asleep. Several minutes later, Tilly's legs jolt and she feels like she is about to fall.

Question 39

It appears that Tilly has entered

- A. stage 1 of NREM sleep.
- B. stage 2 of NREM sleep.
- C. stage 3 of NREM sleep.
- D. REM sleep.

Question 40

Tilly has a newborn sister. The newborn and Tilly will have differing patterns of sleep. Which of the following is incorrect?

- A. the newborn will sleep for longer overall compared to Tilly
- B. the newborn will spend more time in REM sleep compared to Tilly
- C. Tilly will wake more throughout the night compared to the newborn
- D. the newborn will likely require several periods of sleep during the day whereas Tilly will not

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Question 2 (9 marks)

Neurotransmitters are chemical substances that are produced by a neuron that carries a message to other neurons.

- a.** Glutamate is the main excitatory neurotransmitter. Explain what this means in relation to memory and learning. 3 marks

- b.** Serotonin and dopamine are considered neuromodulators. Outline two differences between neurotransmitters and neuromodulators. 2 marks

- c.** List two functions of serotonin and two functions of dopamine. 4 marks

Serotonin:

Dopamine:

Question 3 (8 marks)

Van was at the playground with his older sister and was watching her play on the swing. Van wanted to be able to swing independently as well.

- a.** With reference to each stage of observational learning, outline how Van can learn how to swing independently like his sister. 5 marks

- b.** Van learns that he must not drag his feet while near the ground for him to swing independently. With reference to long-term depression, explain what is happening to allow Van to swing independently. 3 marks

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Question 4 (6 marks)

When Kessia was 14, she decided to go for a swim in the local river with her friends. While standing in the water, she was pinched by a yabby (a small freshwater crayfish). Kessia screamed in pain and ran out of the water, and was pinched by another yabby on her way out. Kessia now avoids going anywhere near rivers and her heart rate soars whenever she crosses a bridge over a river.

- a.** Explain whether Kessia's conditioned fear is implicit or explicit. 2 marks

- b.** Identify the brain area primarily involved in encoding this conditioned fear. 1 mark

- c.** Kessia uses an app on her phone for mindfulness meditation whenever she begins to feel anxious about rivers. Identify what type of strategy this is in relation to the biopsychosocial approach to maintaining mental wellbeing, and list two benefits of mindfulness meditation for Kessia. 3 marks

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Question 5 (7 marks)

Isabelle is a Year 12 student who often feels tired during the day because she stays up late texting her boyfriend while she does her homework on her laptop and watches her favourite Netflix series. She goes to sleep around 2am and must be up at 7am to get ready to catch the bus to school. Isabelle does not feel tired in the evenings; if she goes to bed before 2am, she finds it very difficult to fall asleep. On weekends when she can sleep whenever she wants, she sleeps soundly from 2am to 11am.

- a.** What circadian rhythm sleep disorder is Isabelle likely experiencing? 1 mark

- b.** Explain two biological reasons for Isabelle's condition. 2 marks

- c.** How much sleep is Isabelle supposed to be getting? 1 mark

- d.** Explain how bright light therapy could be used to assist Isabelle in feeling tired at the desired time. 3 marks

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Question 6 (17 marks)

Dr Paine wanted to explore the effects of aphantasia on memory. He gathered a group of 100 volunteers for his study, 50 of whom were aphantasics while the remaining 50 were not.

Dr Paine presented the participants with 20 everyday objects under a cloth. The cloth was removed and participants were given 30 seconds to memorise the items before the cloth was replaced. Participants needed to recall as many items as possible within 60 seconds.

The results of this experiment are shown below:

	Participants with aphantasia	Participants without aphantasia
Mean recall of items (out of 20)	13.1	15.8

- a. Define aphantasia. 1 mark

- b. Write a hypothesis for Dr Paine's study. 3 marks

- c. Explain what is involved in a between-subjects and a within-subjects experimental design, and outline why neither of these could have been used in Dr Paine's study. 4 marks

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- d.** What is the duration and capacity of short-term memory? Describe how participants in this study could increase the functional duration and capacity of their short-term memories while undertaking the memory task. 4 marks

- e.** Write a conclusion for Dr Paine's study. 3 marks

- f.** Dr Paine found that the standard deviation for the aphantasia group was significantly lower ($SD = 0.1$) than the standard deviation for the non-aphantasia group ($SD = 7.4$). Define the term 'outlier' and explain whether the aphantasia or non-aphantasia group is more likely to contain outliers. 2 marks

Question 7 (15 marks)

Sarah and James were travelling to the airport for their first overseas holiday together. When they arrived at the airport, they were told that their flight had been delayed by three hours due to inclement weather. James was furious and became very stressed and upset. Although Sarah was also affected, she did not care as much as James; she was still excited about going on the holiday and decided to distract herself by buying some snacks and setting herself up in a comfortable spot to wait. She also saw the delay as an opportunity to catch up on a book she had been meaning to read for months. Meanwhile, James had an argument with the airport staff, sulked, and paced around the airport terminal trying to spot the issue with the weather.

- a. According to Lazarus and Folkman's Transactional Model of Stress and Coping, explain the difference in Sarah and James' primary and secondary appraisals regarding their flight delay. 4 marks

- b. What is the difference between approach and avoidance strategies? Which strategy would have been more effective for James in this scenario? 3 marks

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c. Identify one advantage of using approach strategies and one advantage of using avoidance strategies when coping with stress. 2 marks

d. Describe three ways that Lazarus and Folkman's Transactional Model of Stress and Coping may have greater explanatory power as compared to Selye's General Adaptation Syndrome when explaining human stress responses. 6 marks

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Question 8 (10 marks)

Nicole has a specific phobia of cats. As a child, she was repeatedly chased and scratched by a neighbour's cat, causing bleeding from her arm. Since these incidents, Nicole has avoided any situation where she could be in contact with a cat. She avoids taking her pet dog to the vet and will not visit one of her close friends who owns a cat. Nicole's husband and daughter both want to have a pet cat and hope that Nicole seeks treatment from a psychologist to help her to overcome her specific phobia.

Describe the precipitation and perpetuation of Nicole's phobia through behaviourist approaches, and outline the psychotherapeutic treatments that a psychologist may use to help Nicole overcome her phobia as well as strategies that Nicole's husband and daughter could employ to assist with Nicole's treatment.

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END OF QUESTION AND ANSWER BOOK

Extra space for responses

Clearly number all responses in this space.

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VCE PSYCHOLOGY
Written Examination
ANSWER SHEET – 2023

Student
name:

Use a **PENCIL** for **ALL** entries. For each question, shade the box which indicates your answer.

Marks will **NOT** be deducted for incorrect answers.

NO MARK will be given if more than **ONE** answer is completed for any question.

If you make a mistake, **ERASE** the incorrect answer – **DO NOT** cross it out.

1	A	B	C	D
2	A	B	C	D
3	A	B	C	D
4	A	B	C	D
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6	A	B	C	D
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