

Victorian Certificate of Education
2017

SUPERVISOR TO ATTACH PROCESSING LABEL HERE

STUDENT NUMBER

Letter

PSYCHOLOGY
Written examination

Thursday 2 November 2017

Reading time: 9.00 am to 9.15 am (15 minutes)

Writing time: 9.15 am to 11.45 am (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	50	50	50
B	8	8	70
			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 of 36 pages
- Answer sheet for multiple-choice questions
- Additional space is available at the end of the book if you need extra paper to complete an answer.

Instructions

- Write your **student number** in the space provided above on this page.
- Check that your **name** and **student number** as printed on your answer sheet for multiple-choice questions are correct, **and** sign your name in the space provided to verify this.
- 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**

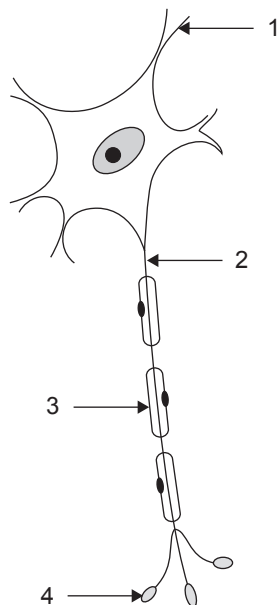
Answer **all** questions in pencil on the answer sheet provided for multiple-choice questions.

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

Which of the following corresponds to the structures labelled 1 to 4, in sequence, on the diagram above?

- A. dendrite, axon, myelin, axon terminal
- B. dendrite, myelin, axon, axon terminal
- C. axon terminal, myelin, axon, dendrite
- D. axon terminal, axon, myelin, dendrite

DO NOT WRITE IN THIS AREA

Question 2

Daniel ran quickly across a busy road to catch an approaching bus. When he got to the other side, he noticed that his breathing rate had increased and his hands were shaking.

Which divisions of the nervous system most likely coordinated Daniel's running, increased breathing and shaking hands?

	Running	Increased breathing	Shaking hands
A.	somatic	parasympathetic	sympathetic
B.	autonomic	parasympathetic	parasympathetic
C.	somatic	sympathetic	sympathetic
D.	sympathetic	sympathetic	sympathetic

Question 3

Diseases such as multiple sclerosis result from damage to the myelin of neurons.

Therefore, in terms of neural transmission, people who suffer from multiple sclerosis would most likely experience

- A. increased protection of the affected neurons.
- B. increased transmission of neurotransmitters across the synapse.
- C. slowing of the speed of electrical transmissions within a neuron.
- D. difficulty receiving chemical messages from surrounding neurons.

Question 4

Glutamate plays a key role in synaptic plasticity by

- A. releasing neurohormones into the bloodstream.
- B. increasing the speed of neurotransmitter transmissions along the axon.
- C. acting as an excitatory neurohormone released across the synaptic gap.
- D. acting as an excitatory neurotransmitter released across the synaptic gap.

Question 5

The areas of the brain that are associated with memory and are most likely to be affected by Alzheimer's disease are the

- A. hippocampus followed by the cerebral cortex.
- B. cerebral cortex followed by the hippocampus.
- C. cerebellum followed by the hippocampus.
- D. cerebellum followed by the amygdala.

Question 6

Which of the following conditions may cause a circadian phase disorder?

- A. shift work, jet lag, sleepwalking
- B. sleep-onset insomnia, jet lag, sleepwalking
- C. sleep-onset insomnia, sleepwalking, shift work
- D. jet lag, sleep-wake shifts in adolescence, shift work

Question 7

On the first day of term, Mr Watkins gave his Australian Politics students a test to assess their prior knowledge. Students had to circle all of the previous Australian prime ministers from a group of faces provided. On the last day of term, Mr Watkins gave his students another test, where they had to write down all of the names of the Australian prime ministers they could remember, without any cues.

The tests on the first day and the last day of the term were, respectively

- A. recall and recognition.
- B. recognition and recall.
- C. relearning and recognition.
- D. relearning and reconstruction.

Question 8

Dr Sabary conducted an experiment that involved hungry guinea pigs in a specially designed box. The box had an internal lever that, when pressed by the guinea pigs, would result in food being released into a dish inside the box.

In this experiment, the antecedent was

- A. hunger.
- B. the dish.
- C. pressing the lever.
- D. receiving the food.

Question 9

Unlike classical conditioning, both operant conditioning and observational learning require a specific process to occur in order to produce a desired behaviour.

What is this process?

- A. reinforcement
- B. spontaneous recovery
- C. involuntary behaviour
- D. stimulus generalisation

Question 10

Amal's sleep-wake cycle is regularly interrupted by her sleepwalking. Joshua has experienced a shift in his sleep-wake cycle where he has difficulty falling asleep before midnight.

The type of sleep disturbances that Amal and Joshua are most likely experiencing are

- A. both dyssomnias.
- B. both parasomnias.
- C. dyssomnia and parasomnia respectively.
- D. parasomnia and dyssomnia respectively.

Question 11

The multi-store model of memory can be used to explain how a person uses their knowledge of times tables to verbally answer a mathematics problem that is presented briefly on a computer screen.

Which of the following identifies the memory stores used to complete the aspects of solving the problem?

	Visual registration of problem	Storage of times tables	Storage of problem
A.	sensory memory	short-term memory	long-term memory
B.	short-term memory	sensory memory	long-term memory
C.	short-term memory	episodic memory	sensory memory
D.	sensory memory	long-term memory	short-term memory

Question 12

Hamish wanted to learn yoga but could not afford to attend classes with his friends. Instead, he decided to watch videos on the internet to learn the technical poses. Hamish could describe all of the poses in detail. However, despite practising and the encouragement of his friends, Hamish could not successfully perform each pose.

Which aspects of observational learning did Hamish most likely achieve?

- A. attention, retention, motivation, reproduction
- B. attention, retention, motivation, reinforcement
- C. motivation, attention, reproduction, reinforcement
- D. motivation, retention, reproduction, reinforcement

Question 13

Lucy and Xavier were at a bar for a friend's 21st birthday. Lucy was drinking alcohol; Xavier was not as he was the designated driver. Thomas was at home, asleep in bed.

Which of the following identifies the state of consciousness being experienced by Lucy, Xavier and Thomas?

	Lucy	Xavier	Thomas
A.	induced altered state of consciousness	naturally occurring altered state of consciousness	normal waking consciousness
B.	normal waking consciousness	naturally occurring altered state of consciousness	induced altered state of consciousness
C.	induced altered state of consciousness	normal waking consciousness	naturally occurring altered state of consciousness
D.	naturally occurring altered state of consciousness	normal waking consciousness	naturally occurring altered state of consciousness

Question 14

Every morning Teresa drinks coffee while answering her emails.

Which of the following identifies the most likely type of processing and level of awareness for each activity undertaken by Teresa?

	Drinking coffee	Answering emails
A.	controlled process, high level of awareness	automatic process, low level of awareness
B.	automatic process, low level of awareness	controlled process, high level of awareness
C.	automatic process, low level of awareness	controlled process, low level of awareness
D.	controlled process, low level of awareness	automatic process, high level of awareness

Question 15

Sophia has developed a specific phobia of dogs and cries whenever she sees one.

With reference to gamma-amino butyric acid (GABA), it is most likely that Sophia has

- A. an excess of this excitatory neurotransmitter.
- B. an excess of this inhibitory neurotransmitter.
- C. a deficiency of this excitatory neurotransmitter.
- D. a deficiency of this inhibitory neurotransmitter.

Question 16

Comparing a person's sleep-wake circadian rhythm to their ultradian rhythm of rapid eye movement (REM) and non-rapid eye movement (NREM) sleep, it can be said that

- A. both occur once in approximately a 24-hour period.
- B. both occur more than once in approximately a 24-hour period.
- C. ultradian rhythms occur approximately once in a 24-hour period but circadian rhythms occur more frequently.
- D. circadian rhythms occur approximately once in a 24-hour period but ultradian rhythms occur more frequently.

Use the following information to answer Questions 17 and 18.

Sam and Marcus were swimming at the beach. When the shark alarm was activated, they had to exit the water quickly. Sam was able to swim much faster than he usually could to get out of the water. However, although Marcus is a skilled swimmer, he panicked and needed assistance from the lifeguard to exit the water safely.

Question 17

Which of the following identifies the type of response that Sam and Marcus most likely had to the shark alarm?

	Sam	Marcus
A.	fight response	flight response
B.	flight response	fight response
C.	flight response	freeze response
D.	freeze response	freeze response

Question 18

Which of the following physiological responses may have been experienced by both Sam and Marcus when they first heard the shark alarm?

- A. relaxed bladders and dilated pupils
- B. stimulated digestion and relaxed bladders
- C. decreased adrenaline levels and stimulated digestion
- D. decreased muscle tension and increased perspiration

Question 19

According to the biopsychosocial model, which one of the following is a psychological risk factor?

- A. rumination
- B. substance abuse
- C. disorganised attachment
- D. loss of a significant relationship

Use the following information to answer Questions 20 and 21.

Millie the dog is always fed her dinner in the garage. Now Millie salivates every time her owner, Priya, opens the garage door.

Question 20

With reference to Millie's learned behaviour, Priya opening the garage door is the

- A. conditioned response.
- B. conditioned stimulus.
- C. unconditioned response.
- D. unconditioned stimulus.

Question 21

Millie's response of salivating every time the garage door is opened is the

- A. neutral stimulus.
- B. conditioned response.
- C. conditioned stimulus.
- D. unconditioned stimulus.

Question 22

Frank had suffered one night of full sleep deprivation. Charlotte had consumed several alcoholic drinks and her blood alcohol concentration (BAC) was 0.10

Compared to a legal BAC of 0.05, both Frank and Charlotte would be expected to show

- A. about the same cognitive impairment.
- B. better decision-making ability.
- C. no change to concentration.
- D. less exaggerated mood.

Use the following information to answer Questions 23 and 24.

Rose participated in a television game show about general knowledge. While waiting to go onstage she felt very stressed. At one point she felt so anxious that she left the studio. However, she then decided to return to the studio and study the notes she had prepared earlier.

Question 23

The coping strategies that Rose used prior to going onstage can be considered to be

- A. approach strategies only.
- B. avoidance strategies only.
- C. exercise and approach strategies.
- D. avoidance and approach strategies.

Question 24

Throughout the game show, Rose was composed and alert, which enabled her to win a lot of money.

During the show, Rose was most likely experiencing

- A. distress.
- B. eustress.
- C. major stress.
- D. acculturative stress.

Question 25

Janelle had been learning French for six years and was talking very excitedly to her friend Maneesha about their upcoming three-month exchange program in France. Maneesha told Janelle that she felt nervous about their trip because she had not learnt French before.

Considering Lazarus and Folkman's Transactional Model of Stress and Coping, in terms of appraisal, which is most likely to occur?

- A. Both Janelle and Maneesha will engage in coping strategies.
- B. Maneesha will be more likely to experience shock than Janelle.
- C. Maneesha will be more likely to experience acculturative stress than Janelle.
- D. Both Janelle and Maneesha will evaluate their upcoming exchange experience as a harm, threat or challenge.

Question 26

According to Lazarus and Folkman's Transactional Model of Stress and Coping, which of the following would occur during primary and secondary appraisal?

	Primary appraisal	Secondary appraisal
A.	evaluation of the situation	use of avoidance strategies
B.	evaluation of resources for coping	use of avoidance strategies
C.	evaluation of the situation	evaluation of resources for coping
D.	evaluation of resources for coping	use of approach strategies

Use the following information to answer Questions 27 and 28.

Arlo is a keen basketballer who plays on indoor and outdoor courts. During an indoor grand final, she fell over and twisted her knee. Her team also lost the game. Now, whenever Arlo plays on an indoor court, she becomes emotional.

Question 27

The brain area that is responsible for the storage of Arlo's implicit memory of how to play basketball is the

- A. cerebral cortex.
- B. hippocampus.
- C. cerebellum.
- D. amygdala.

Question 28

When Arlo becomes emotional, the indoor basketball court is acting as a

- A. recall cue.
- B. recognition cue.
- C. state-dependent cue.
- D. context-dependent cue.

Question 29

Brian is a healthy 55-year-old man who is an avid sports fan. He stayed up late on both Saturday night and Sunday night to watch American baseball and got very little sleep. At work on Monday, he was partially sleep deprived.

Which of the following changes to Brian's affective and cognitive functioning are likely to occur as a result of his partial sleep deprivation?

	Affective changes	Cognitive changes
A.	increased number of errors	increased positive mood
B.	increased irritability	reduced retention of information
C.	reduced retention of information	reduced number of errors
D.	increased negative mood	shorter response times

Use the following information to answer Questions 30 and 31.

Dr Chan investigated the effects of caffeine on an individual's response to a physical stressor. She designed and administered an experiment involving 20 individuals (10 male and 10 female), aged between 20 and 40 years old, with no existing medical conditions.

In Condition 1 of the experiment, participants were required to drink a 100 mL cola drink that contained no caffeine.

In Condition 2 of the experiment, the same participants were then required to drink a 100 mL cola drink that contained 20 mg of caffeine.

Question 30

What type of research design has Dr Chan used in her experiment?

- A. matched participants
- B. independent groups
- C. repeated measures
- D. cross-sectional

Question 31

Which one of the following research methodologies/techniques was used by Dr Chan to minimise potential confounding and extraneous variables in the experiment?

- A. use of a placebo
- B. counterbalancing
- C. stratified sampling
- D. a double-blind procedure

Question 32

Barry volunteered to stay overnight at a sleep laboratory so that his sleep patterns could be studied.

Which of the following identifies the qualitative and quantitative measures that could be used to indicate Barry's state of consciousness?

	Qualitative measures	Quantitative measures
A.	electro-oculograph (EOG) electroencephalograph (EEG)	sleep diary video monitoring
B.	electromyograph (EMG) video monitoring	electroencephalograph (EEG) electro-oculograph (EOG)
C.	sleep diary video monitoring	electromyograph (EMG) electro-oculograph (EOG)
D.	sleep diary electro-oculograph (EOG)	video monitoring electroencephalograph (EEG)

Use the following information to answer Questions 33–35.

Mary was prescribed medication to treat her mental health disorder. Mary took the medication as prescribed, but still had symptoms of her mental health disorder.

Question 33

Which one of the following is a biological risk factor that may have contributed to Mary's response to the treatment?

- A. stressors present in her life
- B. poor self-efficacy while taking the medication
- C. the impact of impaired reasoning and memory
- D. genetic factors influencing the effectiveness of the medication

Question 34

Mary's psychiatrist used breathing retraining and exercise to manage Mary's condition.

Breathing retraining and exercise are examples of

- A. social approaches because they involve human interaction.
- B. biological approaches because they reduce physiological arousal.
- C. psychological approaches because they reduce physiological arousal.
- D. psychological approaches because they reduce psychological arousal.

Question 35

Mary did not believe she was able to organise her daily routines to include the strategies suggested by the psychiatrist. As a result, her mental health condition did not improve.

The psychological factor that best describes Mary's perceived inability to implement these strategies is

- A. poor self-efficacy.
- B. perceived stigma.
- C. constant rumination.
- D. disorganised attachment.

Question 36

One difference between stress and anxiety is that

- A. stress is arousal when a person fears they cannot cope, whereas anxiety is the fear of being stressed.
- B. stress is a response to a stressor that may occur in the future, whereas anxiety is the worry about the current stressor.
- C. stress is a rational response to something that has happened, whereas anxiety is an irrational response to something that has happened.
- D. stress occurs when a person perceives they cannot cope with a current stressor, whereas anxiety occurs when a person perceives they cannot cope with a stressor that may occur in the future.

Question 37

Which of the following accurately describes a purpose of sleep according to restoration theory and a limitation of the evolutionary theory of sleep?

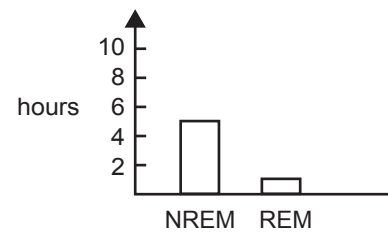
	Purpose of sleep according to restoration theory	Limitation of evolutionary theory of sleep
A.	Physical and mental functions are repaired.	Loss of awareness at night is maladaptive to survival.
B.	Neural and memory functions are repaired.	The brain is active during REM sleep, which is not consistent with conserving energy.
C.	Energy is conserved.	Animals that are smaller sleep for longer periods of time.
D.	Inactivity at night is adaptive to survival.	There is no explanation for why less active individuals experience the same amount of NREM sleep as more active individuals.

DO NOT WRITE IN THIS AREA

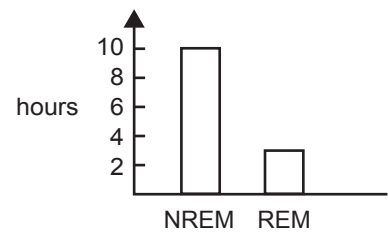
Question 38

Ben is a healthy 6-year-old and Charles is a healthy 65-year-old.

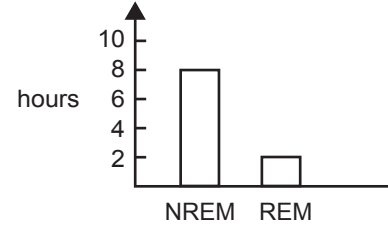
Graph I



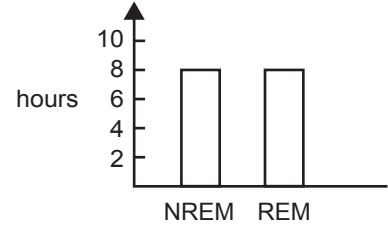
Graph II



Graph III



Graph IV



Which of the graphs above best represent the amount of time spent in NREM sleep and REM sleep in a typical 24-hour period for Ben and Charles?

	Ben	Charles
A.	Graph III	Graph I
B.	Graph II	Graph IV
C.	Graph I	Graph II
D.	Graph IV	Graph III

DO NOT WRITE IN THIS AREA

Use the following information to answer Questions 39–42.

Glen lost his job just after his third child was born. Glen felt overwhelmed by the demands of being a parent while also being unemployed. The local council had also closed the park closest to his house. Glen really missed the opportunities that the park had provided for his older children to play and for him to spend time with other fathers. Despite these challenges, Glen had strong support from his family and friends, and he was able to enjoy daily events related to being a father. He also actively looked for new employment opportunities and organised a surprise party for his own father's 70th birthday.

Question 39

Glen would be considered mentally healthy because he

- A. avoided stressful situations.
- B. was unable to focus on the needs of his family.
- C. received social and psychological support from his family and friends.
- D. worked towards goals in the face of stressors and disappointments in his life.

Question 40

Glen's situation is an example of how mental health can fluctuate

- A. depending on internal and external factors.
- B. when external factors outweigh internal factors.
- C. depending on internal rather than external factors.
- D. depending on external rather than internal factors.

Question 41

The stressors experienced by Glen through his adulthood and that might contribute to the development of a mental health disorder are best described as

- A. biological risk factors.
- B. cumulative risk factors.
- C. sociocultural risk factors.
- D. environmental risk factors.

Question 42

To help Glen manage his feelings of being overwhelmed by fatherhood, Glen's doctor suggested that he use a combined biopsychosocial approach.

Which of the following includes all aspects of the biopsychosocial approach?

- A. improving sleep strategies, challenging unrealistic thoughts and accessing social support
- B. reducing stigma, and improving sleep strategies and personal relationships
- C. challenging unrealistic thoughts, strategies and advice provided by family
- D. improving personal relationships and self-efficacy, and reducing stigma

DO NOT WRITE IN THIS AREA

Use the following information to answer Questions 43 and 44.

Raj has been working with a psychologist for several months to overcome a smoking habit. His psychologist identified that Raj is still in the preparation stage of the transtheoretical model of behaviour change.

Question 43

A behaviour that Raj would likely demonstrate during this stage is

- A. poor self-efficacy to cope with change.
- B. ruminating on the negative effects of smoking.
- C. telling his friends that he is going to give up smoking.
- D. deciding there is no point giving up smoking until after the new year.

Question 44

A positive strategy that the psychologist is likely to use during the preparation stage is to help Raj

- A. think about the advantages and disadvantages of smoking.
- B. learn to challenge the reasons for not giving up smoking.
- C. undertake activities that he can substitute for smoking.
- D. develop an action plan to give up smoking.

Question 45

A benzodiazepine can be used to treat a specific phobia because it

- A. increases the efficiency of the inhibiting action of GABA.
- B. decreases the efficiency of the inhibiting action of GABA.
- C. increases the efficiency of the inhibiting action of glutamate.
- D. decreases the efficiency of the inhibiting action of glutamate.

DO NOT WRITE IN THIS AREA

CONTINUES OVER PAGE

SECTION A – continued
TURN OVER

Use the following information to answer Questions 46–49.

Dr Smith is one of 10 doctors who work at the Bayview Lodge Medical Clinic. He wanted to investigate the effect of a new brand of benzodiazepine on the progression of a specific phobia in patients at the clinic. Fifty of Dr Smith's patients volunteered to take part in the study.

Dr Smith randomly divided the participants into two groups and gave Group A the treatment and Group B the placebo. The participants did not know if they were receiving the treatment or the placebo. The participants completed a self-report phobic anxiety scale both before and after the treatment.

Question 46

Group B was given the placebo to control for

- A. participant error.
- B. experimenter bias.
- C. participant expectations.
- D. experimenter expectations.

Question 47

Which of the following would be a suitable operationalised independent variable and operationalised dependent variable for this study?

	Independent variable		Dependent variable
	Experimental group	Control group	
A.	25 g placebo	25 g benzodiazepine	the difference in pre- and post-test scores on the self-report phobic anxiety scale
B.	25 g benzodiazepine	25 g placebo	score on self-report phobic anxiety scale
C.	25 g benzodiazepine	25 g placebo	the difference in pre- and post-test scores on the self-report phobic anxiety scale
D.	25 g placebo	25 g benzodiazepine	score on self-report phobic anxiety scale

Question 48

Results from the study showed that the participants who received the treatment reported a greater reduction in levels of anxiety after six weeks compared to the participants who received the placebo.

Can Dr Smith generalise the results from the study to the population of research interest?

- A. Yes, because he ensured that all participants voluntarily participated in the study.
- B. No, because he used random allocation to assign participants to each group.
- C. No, because the sample may not be representative of the population.
- D. Yes, because the sample is representative of the population.

Question 49

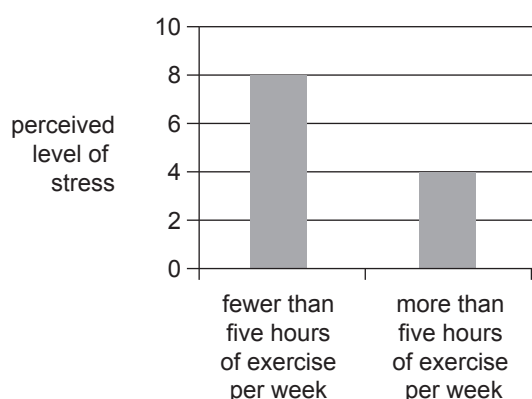
Some of the patients had a legal guardian.

In order to obtain informed consent from these patients, Dr Smith needed to ensure that

- A. only the patient was informed about the nature, purpose and risks of the study.
- B. only the guardian was informed about the nature, purpose and risks of the study.
- C. the guardian provided consent and the patient understood to the best of their ability the nature, purpose and risks of the study.
- D. the patient provided consent and their guardian understood to the best of their ability the nature, purpose and risks of the study.

Question 50

Perceived level of stress reported by participants



Which one of the following statements represents an appropriate conclusion for the experimental results shown in the graph above?

- A. The perceived level of stress was greater for those who exercised more than five hours per week than for those who exercised fewer than five hours per week.
- B. The perceived level of stress was greater for those who exercised fewer than five hours per week than for those who exercised more than five hours per week.
- C. People with a higher perceived level of stress did more hours of exercise per week than those who had a lower perceived level of stress.
- D. People with a lower perceived level of stress did fewer hours of exercise per week than those who had a higher perceived level of stress.

**END OF SECTION A
TURN OVER**

SECTION B**Instructions for Section B**

Answer **all** questions in the spaces provided. Write using blue or black pen.

Question 1 (3 marks)

Name each stage of Selye's General Adaptation Syndrome as it applies to each role of cortisol given in the table below.

Role of cortisol	Name of stage
Sustained levels of cortisol mobilise the body and increase arousal to respond to the stressor.	
The release of cortisol mobilises the body and increases arousal to respond to the stressor.	
Depleted levels of cortisol reduce the ability of the body to respond to further stressors.	

Question 2 (3 marks)

Nixon was in a restaurant when two masked intruders demanded that everyone hand over their wallets. No-one was seriously injured and the masked intruders escaped in a dark vehicle. Before he was interviewed by the police, Nixon was questioned by television reporters, who asked many questions, including 'How old were the boys who robbed you?' and 'What type of weapons did they have?' When interviewed by the police, Nixon described the two intruders as young males and armed. In the later court case, the reliability of Nixon's testimony was questioned by defence lawyers for the accused.

In terms of Loftus's research, why would defence lawyers question the reliability of the description that Nixon gave to the police?

SECTION B – continued**DO NOT WRITE IN THIS AREA**

Question 3 (8 marks)

Watson and Rayner classically conditioned 11-month-old 'Little Albert' to produce an emotional response to a white rat by pairing a loud noise with the presentation of a white rat.

During conditioning, Albert's response to the white rat was to startle and breathe heavily. After conditioning, he trembled and cried in fear every time he saw a white rat. He also generalised this emotional response to other white furry objects, including a rabbit and a dog.

Albert left the experiment still demonstrating an emotional response to white furry objects.

- a. Identify and describe the role of the neurohormone and brain region that are primarily involved in the consolidation of Little Albert's conditioned emotional response.

4 marks

Neurohormone _____

Brain region _____

- b. In terms of neural plasticity, describe the role of long-term potentiation in the development of Little Albert's conditioned emotional response to the white rat.

2 marks

- c. Using the language of classical conditioning, suggest how Watson and Rayner could have extinguished Little Albert's conditioned emotional response.

2 marks

DO NOT WRITE IN THIS AREA

Question 4 (11 marks)

Serena was sitting in the garden and playing when she felt something crawl onto her leg. She saw that it was a bee and brushed it away. Shortly after, she involuntarily kicked out her leg and then felt a stinging sensation that made her scream loudly in pain. She realised that she had been stung by a bee.

- a. Identify the division of the nervous system and the type of response involved when Serena brushed the bee off her leg. 2 marks

Division _____

Response _____

- b. In terms of nervous system functioning, name and explain Serena's response when she kicked out her leg. 3 marks

- c. Following the bee sting, Serena showed a fear response any time she saw a bee. One afternoon, when she was again playing in the garden, an insect landed on her leg. Serena immediately screamed loudly, brushed the insect away and kicked out her leg. She then realised it was a beetle, not a bee.

Identify the process of classical conditioning that best accounts for why Serena reacted this way to the beetle landing on her leg. 1 mark

- d. Serena developed a phobia of bees and refused to go into the garden.

Identify the process of operant conditioning that best accounts for why Serena's phobia has been perpetuated. 1 mark

- e. Explain how systematic desensitisation could be used to help Serena overcome her phobia.

4 marks

DO NOT WRITE IN THIS AREA

SECTION B – continued
TURN OVER

Question 5 (13 marks)**New study finds caffeine prevents stress**

by Samantha Delagonda

Chronic stress has a number of negative effects, including lowered mood and impairments of memory.

In new research conducted with mice, Dr Rodrigo Cunha and his colleagues claim to have provided the first evidence of a causal link between caffeine consumption and the prevention of stress, including the effects of caffeine on mood and memory.

Cunha and his colleagues first allocated the mice into two matched groups. One group was given caffeine in its drinking water for a period of three weeks and the other group was given a placebo substance in its water for a period of three weeks. During this time, half of the mice in the caffeine group and half of the mice in the placebo group were exposed to chronic stress. The other half of the mice in each group were not exposed to chronic stress.

Therefore, there were four groups of mice: placebo plus stress (P+S), placebo without stress (P–S), caffeine plus stress (C+S) and caffeine without stress (C–S).

After the three-week period, the mice from all four groups were tested on measures of mood and memory performance. The amount of sweetened water consumed was used to measure mood in the mice, with a lower consumption of sweetened water indicating lower mood. The number of trials taken to learn a maze was used to measure memory performance, with fewer trials in the maze being associated with better memory performance.

The results showed that the mice in the P+S group drank less of the sweetened water and took more trials to learn the maze than the mice in the P–S group. In contrast, the mice in the C+S and C–S groups performed similarly to each other, and did not differ from the mice in the P–S group on either measure.

Dr Cunha explained the results by saying that caffeine consumption appeared to prevent the effect of stress on mood and memory by acting as an antagonist for a substance called adenosine in the brain. Adenosine normally lowers mood and alertness, which can impair memory function.

DO NOT WRITE IN THIS AREA

- a. Caffeine is considered to be a stimulant.

Identify likely changes to the amplitude and frequency of brain wave patterns expected in a person after they have consumed caffeine.

2 marks

Amplitude _____

Frequency _____

- b. With reference to the lock-and-key process, explain how caffeine could act as an antagonist for adenosine in the brain.

3 marks

DO NOT WRITE IN THIS AREA

2 marks

1 mark

5 marks

[illegible]

Question 6 (9 marks)

Zac lives with his parents and contributes financially to the household by paying all of the rent. Zac was quite stressed about the expectations placed on him to provide financially for the family. Recently, his grandfather, who lives with them, became quite ill. Zac soon felt unable to cope with these stressors and tried to manage his distress through substance use. He subsequently lost his job and isolated himself from friends and family. Finally, his sister encouraged him to seek professional support from a psychologist, who then diagnosed him with a mental health disorder.

- a. Identify one biological risk factor and one psychological risk factor that are present in the scenario, and outline how each of these factors may have contributed to the development and/or progression of Zac's mental health disorder. 4 marks

Biological _____

Psychological _____

- b. Identify a different type of coping strategy that Zac could have used when he lost his job. 1 mark

- c. Describe **one** social strategy that Zac's psychologist could recommend to Zac to increase his resilience. 2 marks

- d. Identify **one** possible source of stigma and how this stigma could be a barrier to Zac accessing treatment for his mental health disorder. 2 marks

DO NOT WRITE IN THIS AREA

Question 7 (13 marks)

For her VCE Psychology practical investigation, Jaime decided to investigate the effect of maintenance rehearsal versus elaborative rehearsal on the ability to recall 20 words.

The following are extracts from her scientific poster.

IV: Memory technique used**DV:** List of 20 words

Method: Two of the five Year 10 classes at Sundown High School were selected to participate in the investigation. A Monday morning class and a Friday afternoon class were selected to fit with the experimenter's availability. All of the students voluntarily agreed to participate.

Class A (Friday afternoon): Students were told that they would be shown 20 words and were instructed to remember as many of the words as they could by silently repeating the words over and over. Each word was presented on the screen for two seconds at a time with a one-second blank screen between each word. The students were then asked to immediately write down as many of the 20 words as they could remember, in any order.

The following 20 words were shown to the students one at a time in a **random order** using a data projector.

bun	shoe	knee	door	hive	sticks	heaven	late	sign	hen
sun	new	tree	sore	jive	ticks	eleven	gate	mine	pen

Class B (Monday morning): Students were told that they would be shown 10 word pairs and were instructed to remember as many of the words as they could by silently repeating the words over and over. Each word pair was presented on the screen for four seconds at a time with a one-second blank screen between each word pair. The students were then asked to immediately write down as many of the words from the 10 pairs as they could remember, in any order.

The following 10 rhyming, numbered word pairs were shown to the students one at a time **in order** using a data projector.

- | | | | | |
|-----------------|------------------|--------------|--------------|--------------|
| 1. bun–sun | 2. shoe–new | 3. knee–tree | 4. door–sore | 5. hive–jive |
| 6. sticks–ticks | 7. heaven–eleven | 8. late–gate | 9. sign–mine | 10. hen–pen |

Conclusion: Elaborative rehearsal procedures produce better recall compared to maintenance rehearsal when trying to remember 20 words.

- a. Is Jaime's identification of the dependent variable correct? Justify your response. 2 marks

- b. Identify the sampling procedure that Jaime used and a potential limitation of this procedure for Jaime's conclusion. 2 marks

Sampling procedure _____

Potential limitation _____

- c. Identify an alternative sampling procedure that Jaime could have used to improve the validity of her conclusion. Justify your response. 2 marks

- d. Using the axes provided below, draw a graph of the likely results for the group of students who used maintenance rehearsal to learn the list of 20 words and label the axes appropriately.

2 marks



- e. How would the likely results of the maintenance rehearsal condition support the multi-store model of memory?

2 marks

- f. In terms of the factors that influence people's ability to remember information, what explanation could Jaime provide to account for the elaborative rehearsal condition producing better recall than the maintenance rehearsal condition?

3 marks

DO NOT WRITE IN THIS AREA

Considering the above information, create a detailed and clearly organised set of notes that Tim most likely would have taken during this presentation to give to Allira.

This image shows a single sheet of white paper with horizontal ruling lines. The lines are evenly spaced and run across the width of the page. There are no margins, text, or other markings on the paper.

DO NOT WRITE IN THIS AREA

Clearly number all responses in this space.

[illegible]

TURN OVER

DO NOT WRITE IN THIS AREA

DO NOT WRITE IN THIS AREA

DO NOT WRITE IN THIS AREA

TURN OVER

[illegible]