

Victorian Certificate of Education  
2018

SUPERVISOR TO ATTACH PROCESSING LABEL HERE

STUDENT NUMBER  Letter

**PSYCHOLOGY**  
**Written examination**

Thursday 1 November 2018

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**

<i>Section</i>	<i>Number of questions</i>	<i>Number of questions to be answered</i>	<i>Number of marks</i>
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 40 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.

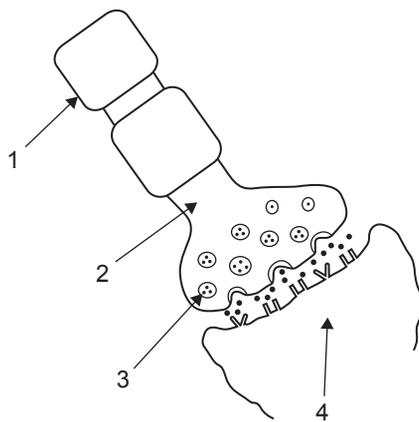
Marks will **not** be deducted for incorrect answers.

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

**Question 1**

The spinal reflex is

- A. the brain's survival response.
- B. a voluntary response to harmful stimuli.
- C. an automatic response that occurs in the spinal cord.
- D. a conscious response to external stimuli processed by the spinal cord.

**Question 2**

Each neural structure labelled 1 to 4 on the diagram above has a specific role during neural transmission.

Which of the following identifies the role of each neural structure?

	1	2	3	4
A.	insulate	transmit	release	receive
B.	insulate	receive	release	transmit
C.	receive	insulate	transmit	release
D.	receive	release	insulate	transmit

**Question 3**

Which of the following identifies the changes in neural function and motor function that are associated with Parkinson's disease?

	<b>Change in neural function</b>	<b>Change in motor function</b>
A.	reduction of dopamine	impaired fine motor movement
B.	growth of myelin	impaired balance
C.	increase of glutamate	increased gross motor movement
D.	regeneration of neurons	increased muscle spasms

**Question 4**

A role of cortisol during prolonged stress is to

- A. maintain homeostasis.
- B. activate the freeze response.
- C. suppress the immune system.
- D. trigger the parasympathetic nervous system.

DO NOT WRITE IN THIS AREA

Use the following information to answer Questions 5–8.

A psychologist wanted to investigate people's responses to being pricked by a needle. Details of the investigation were provided to a group of 10 participants prior to the investigation. The investigation involved blindfolding participants and pricking each participant's finger over several trials.

**Question 5**

Before the first trial, all of the participants were shown the needle that was to be used in the investigation. One of the participants, Nerissa, felt stressed when she saw the needle and her blood pressure dropped.

According to Selye's General Adaptation Syndrome, Nerissa was most likely experiencing

- A. shock, which activated her parasympathetic nervous system.
- B. resistance, which activated her sympathetic nervous system.
- C. exhaustion, which activated her fight-flight response.
- D. countershock, which activated her freeze response.

**Question 6**

The main role of Nerissa's autonomic nervous system when she saw the needle was to

- A. quickly initiate a response to a threat.
- B. modify the activity of internal muscles, organs and glands.
- C. maintain homeostasis in internal muscles, organs and glands.
- D. ensure that the brain activates internal muscles, organs and glands.

**Question 7**

When the psychologist first pricked her with the needle, Nerissa started crying and ran outside. She did not return and the psychologist was unable to contact her afterwards.

Which ethical principle was potentially compromised as a result of Nerissa leaving the investigation before it had finished?

- A. debriefing
- B. confidentiality
- C. informed consent
- D. withdrawal rights

**Question 8**

The psychologist repeated the investigation on another group of participants using exactly the same procedure and obtained similar results.

What do the similar results suggest?

- A. low validity
- B. high reliability
- C. no confounding variables
- D. few participant differences

*Use the following information to answer Questions 9 and 10.*

Mai began piano lessons when she was eight years old. Each time she practised, she played more accurately and made fewer mistakes. However, after two years, she lost interest and stopped her lessons. As an adult, Mai decided to take piano lessons again and found that she learnt to play the pieces she had played as a child more quickly than pieces she had never played before.

**Question 9**

In terms of neural plasticity, Mai's increased accuracy as she practised as a child was likely a result of

- A. rehearsal.
- B. relearning.
- C. long-term depression.
- D. long-term potentiation.

**Question 10**

When Mai was an adult, taking less time to learn a piece she had learnt to play as a child demonstrated

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

**Question 11**

Memories that are automatic and involve how to do things, such as riding a bike, are

- A. explicit memories, which are stored in the cerebellum.
- B. implicit memories, which are processed in the cerebellum.
- C. explicit memories, which are consolidated by the hippocampus.
- D. implicit memories, which are consolidated by the hippocampus.

DO NOT WRITE IN THIS AREA

*Use the following information to answer Questions 12–14.*

Kim had an accident that damaged his amygdala. After the accident he had difficulty sleeping, stopped seeing his friends and started to drink alcohol every day. He did not seek help because he was worried that his boss would find out about his difficulties and fire him.

**Question 12**

After his accident, which one of the following would Kim have the most difficulty with?

- A. recall of long-term memories
- B. recall of existing explicit memories
- C. consolidation of new short-term memories
- D. consolidation of emotionally arousing memories

**Question 13**

Which of the following identifies the biological risk factors experienced by Kim after the accident?

- A. stigma and poor sleep
- B. rumination and stigma
- C. substance use and poor sleep
- D. poor self-efficacy and substance use

**Question 14**

Kim had increased susceptibility to developing a mental health disorder after the accident due to

- A. resilience.
- B. genetic factors.
- C. cumulative risk.
- D. disorganised attachment.

*Use the following information to answer Questions 15 and 16.*

Sally takes the bus to school every day. She salivates each time the bus driver gives her and the other children a lolly. Sally now salivates when she sees the bus approach her bus stop.

**Question 15**

In terms of classical conditioning, the conditioned response in this scenario is

- A. Sally salivating when she sees the bus approach her bus stop.
- B. Sally waiting for the bus to take her to school.
- C. Sally seeing the bus driver in his seat.
- D. the bus driver giving out lollies.

**Question 16**

Sally also salivates when she sees other buses.

In terms of classical conditioning, Sally's response to seeing other buses demonstrates

- A. spontaneous recovery.
- B. stimulus generalisation.
- C. negative reinforcement.
- D. stimulus discrimination.

Use the following information to answer Questions 17–19.

Elijah paid careful attention to his friend making a funny video of her pet cat so that he could also make a funny video of his own cat, Kato.

When Elijah posted a funny video of his cat Kato on social media, he received hundreds of likes in the first hour, which made him happy.

**Question 17**

In terms of observational learning, Elijah making his own video demonstrates

- A. reproduction, as he received hundreds of likes in the first hour.
- B. retention, as he had the physical and mental ability to make the video.
- C. motivation, as he paid careful attention to how his friend made a funny video.
- D. reinforcement, as he wanted to use his own cat, Kato, to receive hundreds of likes.

**Question 18**

In terms of operant conditioning, the number of likes

- A. is an antecedent.
- B. is a response cost.
- C. is a positive reinforcer.
- D. causes a voluntary change in Elijah's behaviour.

**Question 19**

Elijah often posts videos when he should be doing his homework. When his mother finds out that Elijah is not doing his homework, she turns off his wi-fi access, which upsets him.

In terms of operant conditioning, Elijah's mother turning off his wi-fi access is an example of

- A. a response cost.
- B. positive punishment.
- C. positive reinforcement.
- D. negative reinforcement.

**Question 20**

Nadeem was asked to purchase 12 items from the bakery. On his way to the bakery, he tried to repeat the items over and over again in his head. When Nadeem arrived at the bakery, he could not remember all of the items.

According to the Atkinson-Shiffrin multi-store model of memory, the most likely reason Nadeem was unable to recall all of the items was due to limited

- A. rehearsal in his sensory memory.
- B. duration of his long-term memory.
- C. capacity of his short-term memory.
- D. retrieval from his implicit memory.

*Use the following information to answer Questions 21–25.*

Archer went to a sleep laboratory after reporting a history of insomnia and difficulty forming and consolidating memories. The sleep scientist gave Archer a prescription drug to make him feel relaxed enough to sleep, altering his state of consciousness. Archer's physiological responses were monitored throughout the night using an electroencephalograph (EEG), electromyograph (EMG) and electro-oculograph (EOG). Archer was also monitored through video recordings.

**Question 21**

Archer's difficulty forming and consolidating memories during periods of insomnia was likely due to a lack of

- A. rapid eye movement (REM) sleep.
- B. non-rapid eye movement (NREM) Stage 1 sleep.
- C. non-rapid eye movement (NREM) Stage 2 sleep.
- D. non-rapid eye movement (NREM) Stage 4 sleep.

**Question 22**

Compared to normal waking consciousness, Archer's brain wave patterns while in the drug-induced altered state of consciousness would likely show

- A. increased frequency and decreased amplitude.
- B. increased amplitude and decreased frequency.
- C. decreased frequency and amplitude.
- D. increased frequency and amplitude.

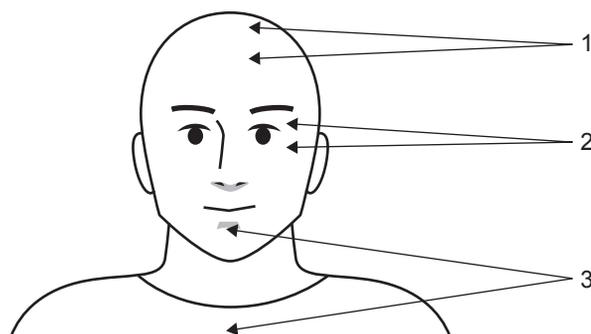
**Question 23**

Which one of the following identifies the likely change to Archer's psychological state while he was in an altered state of consciousness?

- A. increased content limitations
- B. decreased emotional awareness
- C. less difficulty performing two controlled processes at once
- D. reduced automatic processes compared to controlled processes

**Question 24**

Archer's physiological responses were monitored in three separate areas, as shown in the image below.



Which of the following identifies the equipment used to capture Archer's physiological responses at the points labelled 1–3 in the image above?

	1	2	3
A.	EMG	EEG	EOG
B.	EOG	EMG	EEG
C.	EEG	EMG	EOG
D.	EEG	EOG	EMG

**Question 25**

While reviewing the video recordings, the sleep scientist noticed that Archer had been sleepwalking. Based on this information, the sleep scientist concluded that Archer's sleep-wake cycle was disrupted by

- A. a dyssomnia.
- B. a parasomnia.
- C. sleep-onset insomnia.
- D. a circadian phase disorder.

**Question 26**

Theta brain waves can be associated with

- A. focused attention.
- B. increased alertness.
- C. a drug-induced state.
- D. normal waking consciousness.

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**Question 27**

Which one of the following is a biological cause of shifts in the sleep-wake cycle during adolescence?

- A. too much REM sleep
- B. too much light in the morning
- C. delayed release of sleep-inducing hormones
- D. later bedtime due to homework and/or part-time work

*Use the following information to answer Questions 28–30.*

Lu-Van's husband of 40 years died following a long illness. Lu-Van felt stressed, had difficulty sleeping, struggled to go shopping on her own and sometimes forgot to pay her bills, which affected her levels of anxiety and independence. Although her children would visit regularly, she felt embarrassed to tell them that she was not coping because she thought they would view this as a mental weakness.

**Question 28**

In terms of Lu-Van's sources of stress, her husband's death is an example of

- A. eustress.
- B. a life event.
- C. daily pressures.
- D. acculturative stress.

**Question 29**

In terms of Lu-Van developing a mental health disorder, which one of the following identifies a likely protective factor and a precipitating risk factor?

	<b>Protective factor</b>	<b>Precipitating risk factor</b>
A.	genetic vulnerability	poor self-efficacy
B.	rumination	disorganised attachment
C.	loss of a significant relationship	stigma
D.	family support	loss of a significant relationship

**Question 30**

Which one of the following is a psychological risk factor that perpetuated Lu-Van's anxiety?

- A. stigma
- B. insomnia
- C. impaired memory
- D. loss of a significant relationship

Use the following information to answer Questions 31 and 32.

Andrew was accepted to study psychology at a university in Germany. Although he was excited, he was also stressed about where he would stay. He considers two options: ask if he could stay with his aunt who lives close to the university or move into student accommodation at the university if his aunt rejects his request. However, when he visited the university's student accommodation website, he saw that the cost of accommodation was very high, which made him even more stressed.

**Question 31**

According to Lazarus and Folkman's Transactional Model of Stress and Coping, Andrew thinking about moving into student accommodation is an example of

- A. secondary appraisal, where he considers his aunt's possible rejection as a threat.
- B. primary appraisal, where he considers his aunt's possible rejection as a challenge.
- C. primary appraisal, where he considers his options should his plan of living with his aunt be rejected.
- D. secondary appraisal, where he considers his options should his plan of living with his aunt be rejected.

**Question 32**

In the end, Andrew did not ask his aunt if he could stay with her because he was too ashamed to ask for help. Which one of the following identifies Andrew's strategy for coping with stress?

- A. emotion-focused, as the problem upset him
- B. problem-focused, as he solved the problem
- C. avoidance, as he did not confront the problem
- D. approach-focused, as he confronted the problem

**Question 33**

Both Jaylee and Angelica wanted to join the police force but were assessed as being physically unfit. Jaylee announced that she would start an exercise program within the next week to improve her fitness, while Angelica said she had no intention of exercising.

Which of the following identifies the stages of the transtheoretical model demonstrated by Jaylee and Angelica?

	Jaylee	Angelica
A.	action	contemplation
B.	preparation	pre-contemplation
C.	pre-contemplation	preparation
D.	contemplation	preparation

**Question 34**

What are the typical characteristics of a mentally healthy person in terms of their levels of functioning and social and emotional wellbeing?

	<b>Functioning</b>	<b>Social wellbeing</b>	<b>Emotional wellbeing</b>
<b>A.</b>	successfully accomplishes tasks	shows respect for other people	manages stress reactions
<b>B.</b>	manages stress reactions	spends time with family	works independently and with others
<b>C.</b>	overcomes problems	demonstrates self-confidence when alone or with others	respects the cultural identity of others
<b>D.</b>	demonstrates self-confidence when alone or with others	undertakes everyday social interactions	displays a positive attitude

**Question 35**

Which of the following would most assist researchers with minimising extraneous variables in an experiment?

- A. single-blind procedures and use of a placebo
- B. convenience sampling and standardised procedures
- C. standardised instructions and double-blind procedures
- D. counterbalancing to control order effects and experimenter bias

**Question 36**

A researcher was investigating the effects of a gamma-amino butyric acid (GABA) agonist in the treatment of a specific phobia. Group A, the experimental group, received the GABA agonist. Group B, the control group, received a placebo. Concerned about experimenter bias, the researcher used a double-blind procedure with the help of a research assistant who worked directly with the participants.

Which one of the following identifies the double-blind procedure used in this investigation?

- A. Only the researcher knew who would receive the placebo.
- B. Only the research assistant knew who would receive the GABA agonist.
- C. Only the researcher and the control group knew who would receive the placebo.
- D. Only the researcher and the research assistant knew who was in the experimental group and the control group.

**Question 37**

Anxiety can be distinguished from phobia because only anxiety

- A. involves distress.
- B. can be helpful in mild amounts.
- C. triggers the fight-flight-freeze response.
- D. is influenced by biological, psychological and social factors.

*Use the following information to answer Questions 38–43.*

Phil had recently bought a new pair of very expensive running shoes. He was looking forward to wearing the new shoes during an upcoming race. A few days before the race, Phil went to put on his new shoes and could not find them. He started to panic, his heart started beating quickly and sweat started to run down his face. He frantically searched his entire bedroom but could not find his new shoes anywhere.

**Question 38**

Which one of the following best describes Phil's physiological response when he could not find his new shoes?

- A. the spinal reflex
- B. maintenance of homeostasis
- C. slowing of the somatic nervous system
- D. activation of the sympathetic nervous system

**Question 39**

The consolidation of Phil's explicit memory of losing his new shoes is likely to be enhanced because the

- A. hippocampus evaluated the loss as a threat.
- B. hippocampus initiated the release of adrenaline.
- C. amygdala released adrenaline to stop the fight-flight-freeze response.
- D. presence of adrenaline strengthened the signals sent from the amygdala to the hippocampus.

**Question 40**

When Phil told his sister about losing his new shoes, she suggested that he write down everything that he had done since the last time he saw them, in the order in which each occurred.

This method of memory retrieval is known as

- A. free recall.
- B. cued recall.
- C. recognition.
- D. serial recall.

DO NOT WRITE IN THIS AREA

Use the following **additional** information to answer Questions 41–43.

Phil slept for only four hours on the night he lost his new running shoes. He was worried about how he would participate in the race without them. He continued to have only four hours of sleep each night leading up to the race.

**Question 41**

According to the restoration theory of sleep, on the day of the race Phil may have had

- A. less energy due to limited amounts of REM sleep.
- B. difficulty focusing due to limited amounts of NREM sleep.
- C. a weakened immune system due to limited amounts of NREM sleep.
- D. inadequate restoration of hormone levels due to limited amounts of REM sleep.

**Question 42**

Which one of the following is an example of how Phil's affective functioning could change following his sleep deprivation?

- A. more short-tempered
- B. poorer completion of complex tasks
- C. greater difficulty undertaking simple tasks
- D. reduced ability to process declarative memories

**Question 43**

When Phil arrived at the race wearing tennis shoes, another competitor lent him a spare pair of running shoes. When Phil put the shoes on, he felt excited and nervous.

This feeling is characteristic of

- A. phobia.
- B. anxiety.
- C. distress.
- D. eustress.

*Use the following information to answer Questions 44–50.*

Following the work of Elizabeth Loftus, a psychologist conducted an experiment to investigate how misleading questions about a robber's appearance affected the accuracy of eyewitness descriptions of the robber and the accuracy of the identification of the robber from photographs.

**Stage 1**

Forty university students were randomly allocated to two equal-sized groups, Group A and Group B. Both groups were first shown a 30-second video of a robbery, in which the robber's neck was clearly visible from various angles. All participants then answered the same series of 10 questions about the robbery except for one critical question relating to the presence of a tattoo on the robber's neck. For Group A, the critical question was 'Do you recall seeing **the** tattoo on the robber's neck?' For Group B, the critical question was 'Do you recall seeing **a** tattoo on the robber's neck?'

**Stage 2**

After one day, participants returned and were asked to provide a description of the robber's appearance and the psychologist noted whether the participants mentioned the presence of a tattoo on the robber's neck.

**Question 44**

The use of leading or non-leading questions by the psychologist was

- A. a dependent variable.
- B. an extraneous variable.
- C. a confounding variable.
- D. an independent variable.

**Question 45**

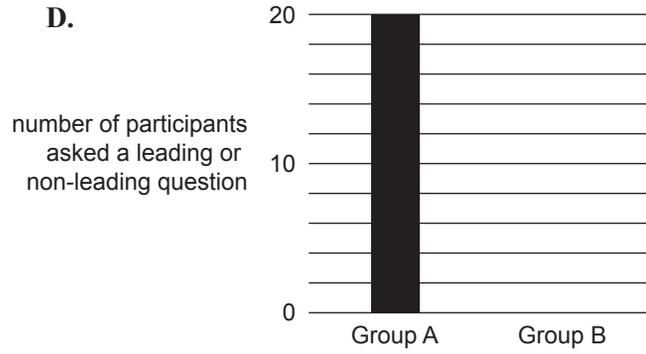
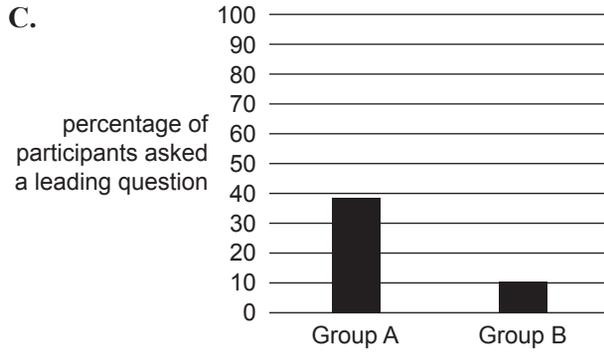
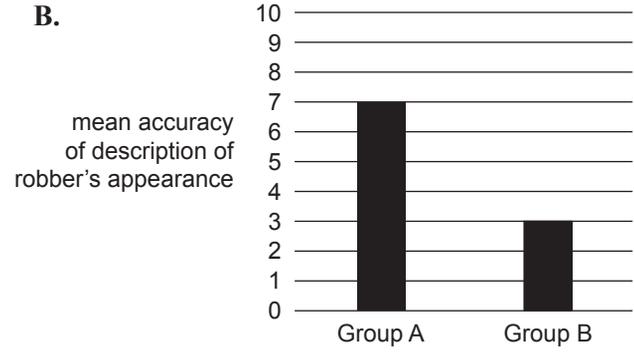
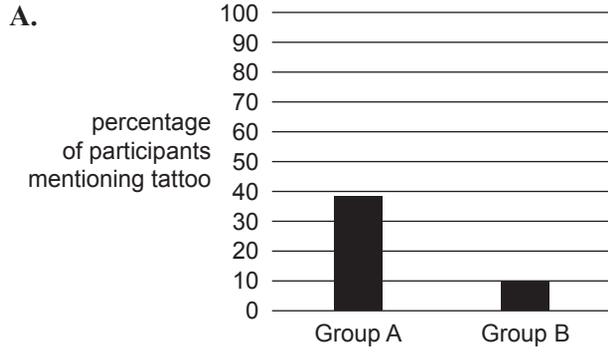
Which experimental research design was the psychologist using during Stage 1?

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

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**Question 46**

Which one of the following graphs is most appropriately labelled and best summarises the likely results of Stage 2?



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Use the following **additional** information to answer Questions 47–50.

### Stage 3

Participants were then asked to identify the robber from five photographs. Both groups viewed the same five photographs in the same order. Each photograph showed a different person: the robber and four other people who resembled the robber, one of whom had a tattoo on their neck.

Group	Number of times person in photograph was identified as the robber				
	Photograph 1	Photograph 2	Photograph 3	Photograph 4	Photograph 5
A	2	8	4	6	0
B	3	4	3	9	1

#### Question 47

Based on the results shown in the table above, which two photographs most likely represent the robber and the tattooed distractor, respectively?

- A. Photograph 3 and Photograph 4
- B. Photograph 1 and Photograph 2
- C. Photograph 2 and Photograph 5
- D. Photograph 4 and Photograph 2

#### Question 48

Although the results seemed consistent with Loftus's previous research, the psychologist noted that due to lack of space, participants in Group B viewed the photographs in the same room where they had watched the video during Stage 1, while participants in Group A viewed the photographs in a different room.

In what way might the room in which the participants were tested have confounded the interpretation of the results?

- A. The results could potentially be attributed to context rather than to type of questioning.
- B. Context could have acted as an extraneous variable that compromised the reliability of the results.
- C. The use of different rooms for testing meant that the results could not be generalised to the population.
- D. The participants in Group A were more likely to identify the robber accurately due to the presence of retrieval cues.

#### Question 49

In the written report of the experiment, the psychologist noted that the findings were similar to those obtained by Loftus and concluded that eyewitness testimonies are often fallible because

- A. the lack of retrieval cues makes it difficult to access the memory of the original event.
- B. information about the original event happens too quickly for eyewitnesses to give it proper attention.
- C. memory retrieval is a reconstructive process whereby the memory trace can be updated with false information.
- D. new information interferes with the rehearsal of the event, preventing its transfer from short-term memory to long-term memory.

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**Question 50**

In the written report of the experiment, the psychologist noted that using university students as participants made it difficult to

- A. ensure the results were valid.
- B. ensure the results were reliable.
- C. draw conclusions from the results.
- D. generalise the results to the wider population.

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END OF SECTION A



**Question 2 (10 marks)**

As a child, David would become frightened when he saw his mother Tracy scream and run away every time she saw a cockroach. Tracy always appeared relieved when she was no longer near the cockroach. David acquired the same phobia of cockroaches and also screamed and ran away whenever he saw a cockroach.

- a. Outline how attention in observational learning led to David developing a phobia of cockroaches. 2 marks

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- b. As an adult, David decided to seek professional help to manage anxiety associated with his phobia of cockroaches. David’s psychologist recommended using breathing retraining.

Explain how breathing retraining could be used to assist David with lowering his levels of anxiety. 3 marks

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c. How could context-dependent cues help David remember his psychologist’s breathing retraining instructions?

2 marks

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d. Explain how **one** evidence-based social intervention could be used to further assist David in managing his specific phobia of cockroaches.

3 marks

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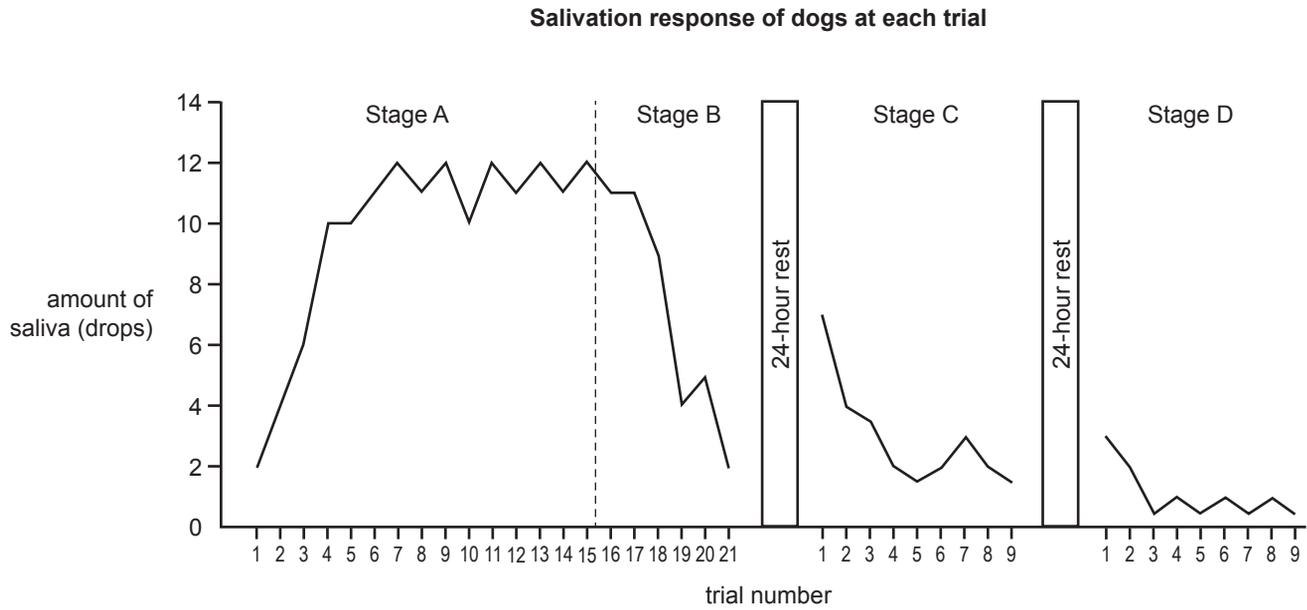
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**Question 3** (9 marks)

In a replication of Ivan Pavlov’s classical conditioning experiment, researchers measured the salivation response of 10 dogs over multiple trials.

In Stage A, the researchers presented the dogs with the sound of a buzzer, followed by food. In Stages B, C and D, the researchers presented the sound of the buzzer alone. The results of the experiment were very similar to Pavlov’s results and are represented in the graph below.



a. i. Name the experimental design used in this experiment. 1 mark

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ii. Outline **one** advantage of using this experimental design. 1 mark

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b. How do the results from this experiment show the reliability of Pavlov’s original experiment? 1 mark

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c. Using the language of classical conditioning, outline the processes that led to the acquisition of the conditioned response shown in Stage A of the graph.

3 marks

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d. In terms of neural plasticity, how does long-term depression contribute to the weakening of the response shown in Stage B of the graph?

3 marks

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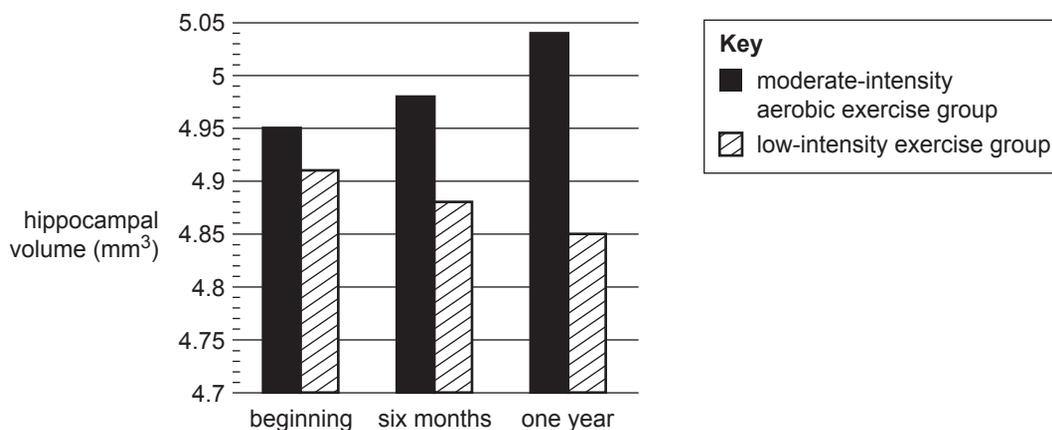
**Question 4** (10 marks)**Exercise may be the key to delaying the progression of Alzheimer's disease**

by Helena Graviana

A research team led by the University of Pittsburgh and the University of Illinois investigated how regular exercise may help protect the brain from the normal age-related decline of brain structures that are important for memory and learning.

The researchers randomly allocated 120 healthy older adult volunteers to either a moderate-intensity aerobic exercise group (brisk walking) or a low-intensity exercise group (stretching). Each group was led by an exercise instructor for 40 minutes, three times a week for one year.

Brain images (using magnetic resonance imaging, or MRI) were taken of each participant to measure the volume of the hippocampal structures at the beginning of the study, after six months and after one year. The groups differed slightly in mean hippocampal volume at the beginning of the study but, after one year, the moderate-intensity aerobic exercise group demonstrated a 2% increase in volume, whereas the low-intensity exercise group demonstrated a 1.4% decrease.

**Mean hippocampus measurements over a one-year period**

The graph above shows the mean hippocampal volume (in cubic millimetres) for the left and right hemispheres for the moderate-intensity aerobic exercise group and the low-intensity exercise group over a one-year period.

The results provide evidence that regular moderate-intensity aerobic exercise can reverse the normal age-related decline in hippocampal volume, and that this could protect against the development and progression of Alzheimer's disease.

Data: adapted from KI Erickson, MW Voss, RS Prakash, et al., 'Exercise training increases size of hippocampus and improves memory', in *Proceedings of the National Academy of Sciences of the United States of America*, vol. 108, no. 7, 15 February 2011, pp. 3017–3022

a. Write a research hypothesis for this investigation.

3 marks

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b. The researchers were unable to generalise the results from this investigation to people with Alzheimer's disease.

Why?

1 mark

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c. Explain why the effects of exercise on hippocampal volume may be of interest to researchers investigating Alzheimer's disease.

3 marks

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- d. Researchers decided to conduct a similar investigation using people diagnosed with Alzheimer’s disease.

Describe the informed consent procedures that should be used by researchers investigating people diagnosed with Alzheimer’s disease.

3 marks

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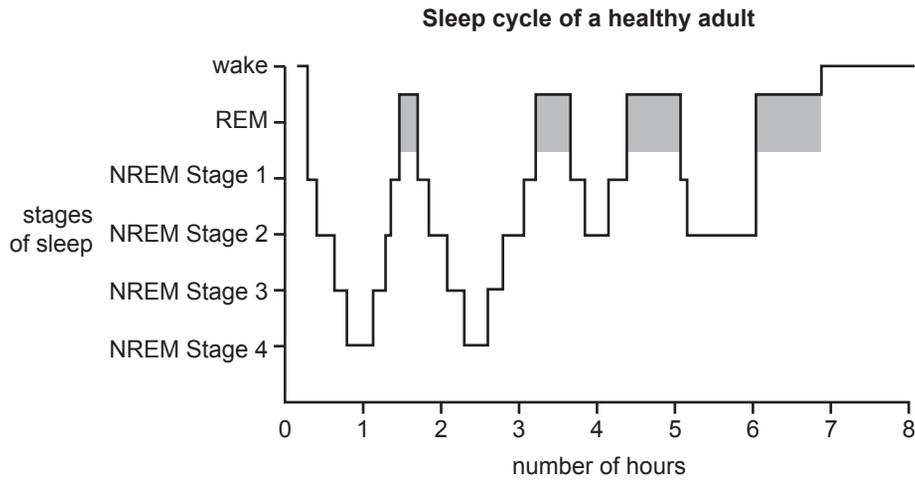
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**Question 5** (4 marks)

a. The figure below is a hypnogram representing the sleep cycle of a healthy adult.



Outline **two** differences between rapid eye movement (REM) sleep and non-rapid eye movement (NREM) sleep evident in the hypnogram above.

2 marks

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b. Compare how REM and NREM sleep would differ in a hypnogram of a healthy adolescent and a hypnogram of an elderly person.

2 marks

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**Question 6** (13 marks)

For his extended VCE Psychology practical investigation, Jake obtained permission from GeoCo Mining Company to design and undertake an investigation into the effects of jet lag on employees' cognitive functioning and interpersonal relationships. Jake was provided with the following information from the company.

GeoCo is an Australia-based mining company that employs 114 geologists to help it search for metals, oil and other resources. The geologists use sophisticated equipment and work with complex mathematical formulas in a team environment. Some of the geologists work at a local mine site an hour's drive from the company's head office, but many of the geologists travel overseas through different time zones to visit and assess new sites for possible mining opportunities. This involves longer working hours and frequent disruption to their regular sleep patterns, increasing their susceptibility to developing a circadian phase disorder. All of the geologists are required to complete travel reports following site visits.

Jake identified three different groups, each comprising 20 geologists, for comparison:

- Group A travelled to South America twice a month.
- Group B travelled to South America three times a month.
- Group C travelled to the local mine once a week.

a. What is the purpose of Group C in this investigation?

1 mark

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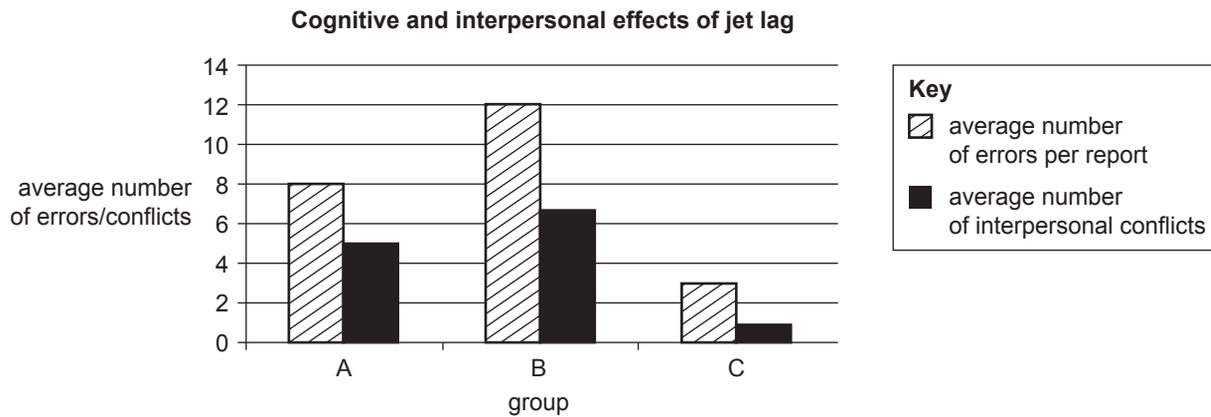
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Jake's investigation involved two parts. The first part involved assessing the number of errors in the travel reports submitted to the company by the participants. The second part involved assessing the number of interpersonal conflicts reported to the company's Human Resources Department that involved the participants. Jake's results are shown in the graph below.



- b. What conclusions could Jake draw from his results about the cognitive and interpersonal effects of jet lag? In your response, refer to the results for each group shown in the graph above.

3 marks

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- c. Identify **one** relevant extraneous variable that Jake could have considered in designing his investigation. Justify your response.

2 marks

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d. Jake identified a problem with the geologists driving themselves home from the airport after travelling without sleep for 24 hours.

i. Outline how **one** physiological measure could be used to determine a geologist’s state of consciousness after travelling without sleep for 24 hours.

2 marks

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ii. Describe the effects of sleep deprivation on driving and compare these effects with the effects of legal blood alcohol concentrations (BAC).

3 marks

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e. When Jake presented the findings from his investigation to the company, he was asked to suggest a suitable intervention to help manage jet lag. Jake suggested the use of bright light therapy.

Outline how bright light therapy could be used to help manage jet lag for the geologists.

2 marks

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**SECTION B – continued**  
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**Question 7** (10 marks)

Shari moved interstate for her first job at an advertising company. She quickly found it difficult to work with the other people at the company as she considered them untrustworthy. A month after Shari started, the company underwent a restructure and Shari’s job became more demanding. She struggled to meet deadlines and to think clearly. She became increasingly stressed and doubted her ability to do her job effectively. Concerned about her mental health, Shari organised an appointment with the company’s psychologist.

- a. Identify where the psychologist might place Shari on the mental health continuum. Justify your response. 2 marks

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- b. Describe how **one** relevant internal factor may have increased Shari’s susceptibility to developing a mental health disorder. 2 marks

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- c. Explain how **one** relevant psychological protective factor could influence Shari's resilience. 3 marks

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- d. The psychologist identified that Shari had a history of disorganised attachment.  
Explain how disorganised attachment appears to have affected Shari's experience at work. 3 marks

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**END OF QUESTION AND ANSWER BOOK**





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