Neap:

Trial Examination 2016

# VCE Psychology Units 3&4

## Written Examination

## Question and Answer Booklet

Reading time: 15 minutes
Writing time: 2 hours 30 minutes

Student's Name: _____

Teacher's Name: _____

**Structure of Booklet**

| *Section* | *Number of questions* | *Number of questions to be answered* | *Number of marks* |
|---|---|---|---|
| A | 65 | 65 | 65 |
| B | 19 | 19 | 60 |
| C | 3 | 3 | 15 |
| | | | Total 140 |

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 booklet of 33 pages.

Answer sheet for multiple-choice questions.

Additional space is available at the end of the booklet if you need extra paper to complete an answer.

**Instructions**

Write your **name** and your **teacher's name** in the space provided above on this page, and on the answer sheet for multiple-choice questions.

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 booklet.

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

Students are advised that this is a trial examination only and cannot in any way guarantee the content or the format of the 2016 VCE Psychology Units 3&4 Written Examination.



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## 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**

In terms of content limitations, the content of our minds tends to be most limited in which of the following states?

**A.** sleep

**B.** normal waking consciousness

**C.** daydreaming

**D.** an alcohol-induced state

**Question 2**

An elderly person would typically spend most of their nightly sleep in which of the following stages of sleep?

**A.** stages 3 and 4 of NREM sleep

**B.** stages 1 and 2 of NREM sleep

**C.** REM sleep

**D.** microsleeps

**Question 3**

The autonomic nervous system is responsible for

**A.** conveying efferent messages away from the brain.

**B.** conveying afferent messages towards the brain.

**C.** regulating the activity of the skeletal muscles.

**D.** regulating the activity of the visceral (non-skeletal) muscles.

**Question 4**

When under threat, an allostatic response will trigger a large increase in

**A.** body temperature.

**B.** the water content of the body.

**C.** heart rate.

**D.** the melatonin levels in the brain.

**Question 5**

Claire is feeling highly anxious just prior to her Psychology exam.

Her anxiety could best be described as

**A.** distress.

**B.** eustress.

**C.** allostatic overload.

**D.** a fixed action pattern.

*Use the following information to answer Questions 6–9.*

Rufus decides to use shaping to teach his dog Cujo to roll over (360 degrees) on command.

**Question 6**

Rufus is using which learning theory to train his dog?

**A.** classical conditioning

**B.** operant conditioning

**C.** trial-and-error learning

**D.** observational learning

**Question 7**

Rufus will most likely reward Cujo the first time he

**A.** is given the command to roll over.

**B.** rolls over (completes a 360 degree roll).

**C.** performs part of a roll (90 degrees).

**D.** rolls over and looks at Rufus.

**Question 8**

When training Cujo to roll, Rufus would be best advised to use which of the following schedules of reinforcement?

**A.** continuous

**B.** fixed ratio

**C.** variable ratio

**D.** fixed interval

**Question 9**

Eventually Cujo rolls over when Rufus says 'roll over Cujo'.

In this case, the command 'roll over Cujo' is

**A.** a conditioned stimulus.

**B.** an unconditioned stimulus.

**C.** the operant response.

**D.** the antecedent.

**Question 10**

Xander demonstrates to his son Zachary the correct way to reverse a car with a trailer attached into a tight space.

According to social learning theory, in order for Zachary to learn how to do this, he must first

**A.** have the physical ability to turn the steering wheel of the car correctly.

**B.** develop a mental reorientation of the steps required to reverse the car and trailer.

**C.** actively watch his father throughout his demonstration and observe key features of the process.

**D.** be motivated to try and reverse the car and trailer.

*Use the following information to answer Questions 11–16.*

During a Psychology class, an experiment was conducted on the serial position effect. Fifteen words were read out in two-second intervals, with half of the participants (the control group) recalling the words immediately and the other half of participants (the experimental group) recalling the words after first counting backwards from 500 by 7s and recording these numbers on a sheet for one minute, and then attempting to recall the fifteen words.

**Question 11**

Both groups are using which measure of retention to remember the fifteen words?

**A.** free recall

**B.** cued recall

**C.** recognition

**D.** relearning

**Question 12**

The two-second interval between each word read out enabled the students to subvocally rehearse some of the words.

This is the function of which component of Baddeley and Hitch's working memory?

**A.** central executive

**B.** episodic buffer

**C.** phonological loop

**D.** visuo-spatial sketchpad

**Question 13**

Memorising the fifteen words relies on which type of memory?

**A.** procedural

**B.** episodic

**C.** semantic

**D.** echoic

**Question 14**

The effect of counting backwards by 7s from 500 for one minute is to

**A.** hinder short-term memory by preventing rehearsal of the fifteen words.

**B.** prevent chunking.

**C.** eliminate the use of context-dependent cues.

**D.** trigger suppression of some of the words.

**Question 15**

The operationalised dependent variable in this case would be

**A.** the number of words recalled by both groups.

**B.** the percentage recall for each of the ordered words.

**C.** the order that the words were presented.

**D.** whether the participants had immediate recall versus a delay in recall with a counting task prior to recalling the words.

**Question 16**

It would be expected that

**A.** both groups would demonstrate both a primacy and a recency effect.

**B.** both groups would demonstrate a primacy effect, but not a recency effect.

**C.** the control group would demonstrate both a primacy and a recency effect, but the experimental group would only demonstrate a recency effect, with no primacy effect.

**D.** the control group would demonstrate both a primacy and a recency effect, but the experimental group would only demonstrate a primacy effect, with no recency effect.

**Question 17**

Each year on the VCE Psychology exam, a C+ is the most frequently occurring examination grade.

This is an example of which statistic?

**A.** mean

**B.** mode

**C.** median

**D.** an inferential statistic

**Question 18**

The ICD-10

**A.** is a dimensional approach to the classification of a mental illness.

**B.** examines the transaction between the coping resources of an individual and the demands placed on the individual that can result in a stressful appraisal.

**C.** is a system of classification of both mental illness and physical diseases.

**D.** is a system of classification published by the American Psychiatric Association (APA) that is only applicable in the diagnosis of mental illness based on the reported symptoms.

**Question 19**

As a result of both synaptogenesis and synaptic pruning, humans have the highest number of synaptic connections at which of the following stages of life?

**A.** birth

**B.** childhood

**C.** early adulthood

**D.** old age

**Question 20**

In terms of eustress and distress,

**A.** both trigger activity in the sympathetic nervous system.

**B.** both trigger activity in the parasympathetic nervous system.

**C.** eustress triggers activity in the sympathetic nervous system, while distress triggers activity in the parasympathetic nervous system.

**D.** distress triggers activity in the sympathetic nervous system, while eustress triggers activity in the parasympathetic nervous system.

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

Three years ago, Clara was walking with her friend Bonnie to the train station after school and could clearly hear the loud 'dinging' of the boom gates. Bonnie raced across the train tracks and was clipped by the train, becoming seriously injured. Now whenever Clara hears the 'dinging' sound of boom gates, her heart races and she tenses up.

**Question 21**

Bonnie eventually recovered from her injuries and learned to obey the boom gate signals whenever she arrived at a level crossing.

Bonnie has learned this through

**A.** classical conditioning.

**B.** operant conditioning.

**C.** trial-and-error learning.

**D.** observational learning.

**Question 22**

Which part of Clara's brain is responsible for her fear conditioning of the 'dinging' sound of the boom gates?

**A.** amygdala

**B.** corpus callosum

**C.** hippocampus

**D.** pineal gland

**Question 23**

Which division of Clara's nervous system is responsible for her fear response to the sound of the 'dinging' of the boom gates?

**A.** somatic

**B.** central

**C.** parasympathetic

**D.** sympathetic

**Question 24**

Clara's heart racing and body tensing up to the sound of the 'dinging' gates is an example of

**A.** distress.

**B.** eustress.

**C.** HPA axis activity.

**D.** a fight-flight response.

**Question 25**

Prior to the accident, the sound of the 'dinging' of the boom gates to Clara would be a/an

**A.** unconditioned stimulus.

**B.** unconditioned response.

**C.** neutral stimulus.

**D.** conditioned stimulus.

*Use the following information to answer Questions 26–29.*

Bennetswood Secondary College (BSC) has only recently become a coeducational school. The current gender proportions are 80% male students and 20% female students. The school is an optional 'bring your own device' (BYOD) school. Students can choose to bring a computer or tablet to school. The English faculty is concerned that students' literacy skills will be adversely affected as a result of the excessive computer/tablet use.

The school organises a one-year study involving the Year 7 to 10 students. A sample of 120 students will be used in the study, which is 80% male and 20% female (with each student in the school having an equal chance of being selected for the sample). All participants will complete a literacy test prior to the start of the year and then a similar literacy test at the end of the year. The level of change over the year will be compared between the two groups to determine if the use of the devices diminishes literacy skills.

**Question 26**

Which research design is BSC using?

**A.** independent-groups

**B.** repeated-measures

**C.** matched-participants

**D.** a combination of repeated-measures and matched-participants

**Question 27**

Which method of sampling is being used by BSC?

**A.** stratified random

**B.** convenience

**C.** random

**D.** controlled

**Question 28**

A potential extraneous variable in this experiment is

**A.** an order effect.

**B.** the small sample size.

**C.** the age of the participants.

**D.** participant-related variables.

**Question 29**

In order to make an experimental conclusion,

**A.** the mean for both groups must be determined.

**B.** a larger sample size needs to be tested.

**C.** an inferential statistic needs to be determined.

**D.** a descriptive statistic needs to be calculated.

**Question 30**

The researchers noted that the BYOD users were significantly more adept on their keyboards – in terms of speed and accuracy of typing with both hands – in comparison to the non-BYOD users.

Typing skills, in this case, rely largely on the functionality of the

**A.** left motor cortex.

**B.** right visual cortex.

**C.** left and right motor cortices.

**D.** left and right visual cortices.

*Use the following information to answer Questions 31–33.*

Fifteen-year-old Courtney brought home her interim report after the first six weeks of Year 10. Her effort ratings in five out of her eight subjects were identified as 'poor'. Her parents decided to confiscate Courtney's iPhone for six weeks until she could demonstrate that her work ethic in class was much higher, as would be indicated on her second interim report card. Courtney's thirteen-year-old sister Sophie, who is in Year 8, does not get an interim report card, but she decides she must work harder in class so that she does not lose her iPhone when her mid-year report comes out at the end of the first semester.

**Question 31**

In this case, Courtney's parents are trying to reduce her lazy work ethic in class by using

**A.** positive reinforcement.

**B.** negative reinforcement.

**C.** positive punishment.

**D.** negative punishment.

**Question 32**

Courtney's parents are using operant conditioning, as opposed to classical conditioning, because

**A.** Courtney is learning passively.

**B.** Courtney's work ethic in class will be involuntary from now on.

**C.** Courtney's operant response follows the discriminative stimulus.

**D.** an increase in Courtney's work ethic would be her conditioned response.

**Question 33**

Sophie's decision to increase her work ethic in this case indicates she has learned through

**A.** classical conditioning.

**B.** trial-and-error learning.

**C.** operant conditioning.

**D.** observational learning.

*Use the following information to answer Questions 34–38.*

A research investigation was conducted on the sleep patterns of stressed adolescents. The aim of the study was to determine if stress affected both the quality and duration of sleep of the experimental group (stressed adolescents) versus the proportion of sleep for the control group (non-stressed adolescents). Both groups of adolescents were required to spend two nights in a sleep laboratory in order to measure the quantity and duration of sleep.

**Question 34**

During REM sleep, a thermometer would be expected to indicate a/an

**A.** lower and more stable body temperature in comparison to the body temperature during NREM sleep.

**B.** more variable body temperature, which is affected more by the environment during NREM sleep.

**C.** consistently high and stable body temperature in comparison to the temperature during NREM sleep.

**D.** identical body temperature to the body temperature during NREM sleep.

**Question 35**

The control group would be expected to have approximately what proportion of REM sleep per night in comparison to their total sleep?

**A.** 10%

**B.** 20%

**C.** 40%

**D.** 50%

**Question 36**

The experimental findings indicated that the experimental (stressed) group of adolescents were taking longer to go to sleep than the control (non-stressed) group of adolescents.

This would be indicated on an EEG by the experimental group experiencing

**A.** sleep spindles for the first time in the night earlier than the control group.

**B.** significantly less sleep spindles in comparison to the control group over the course of the night.

**C.** significantly more sleep spindles in comparison to the control group over the course of the night.

**D.** sleep spindles for the first time in the night later than the control group.

**Question 37**

When comparing the cognition and perception of the adolescents when they are in a wakeful state versus during sleep, it would be expected that during

**A.** sleep, perceptions and cognition would be distorted in comparison to a wakeful state.

**B.** a wakeful state, perceptions and cognition would be distorted in comparison to during sleep.

**C.** sleep, the adolescent would experience perceptual distortions, but sleep would have no impact on cognition.

**D.** sleep, the adolescent would experience cognitive distortions, but sleep would have no impact on perception.

**Question 38**

Which of the following would be the most likely biological explanation for the difficulties the experimental group had going to sleep?

**A.** a lack of cortisol in the body due to the effects of stress

**B.** excessive cortisol levels in the body due to the effects of stress

**C.** a lack of glutamate in the brain

**D.** excessive melatonin levels in the brain

*Use the following information to answer Questions 39 and 40.*

Carl was driving home from work when he turned on his indicator for several seconds before changing lanes. The driver of the car behind him was furious because he believed he was cut off, and as a result, he started beeping his horn, flashing his lights and making rude gestures to Carl. Carl became anxious and emotional. This experience caused him to remember an earlier road-rage incident from several years ago which he had tried to forget, but once again recalled aspects of.

**Question 39**

In this case, up until recently, Carl had not recalled his earlier road-rage incident as a result of

**A.** retrieval failure.

**B.** motivated forgetting.

**C.** interference.

**D.** decay.

**Question 40**

The latest road-rage incident had triggered the retrieval of the earlier memory of the separate road-rage incident due to

**A.** state-dependent cues.

**B.** context-dependent cues.

**C.** recognition.

**D.** relearning.

*Use the following information to answer Questions 41–45.*

Elliot is 80 years old and in recent months has shown the early signs of suffering from Alzheimer's disease. His wife died six months ago, and due to arthritis in his hip, he has difficulty walking. Elliot is very lonely without his wife and has turned to alcohol to help him relax at night, despite not drinking alcohol regularly when his wife was alive. He has realised that he can no longer care for himself and is evaluating who he can turn to that might be able to help him with his day-to-day living.

**Question 41**

According to the Lazarus and Folkman Transactional Model of Stress and Coping, Elliot's evaluation of external coping options, in the form of people who might be able to help with his care, is an example of a/an

**A.** emotion-based coping strategy.

**B.** problem-based coping strategy.

**C.** primary appraisal.

**D.** secondary appraisal.

**Question 42**

According to the Lazarus and Folkman Transactional Model of Stress and Coping, Elliot turning to alcohol is

**A.** an emotion-based coping strategy.

**B.** a problem-based coping strategy.

**C.** an indication that he is not stressed.

**D.** the result of a secondary appraisal.

**Question 43**

Which of the following indicates that Elliot might be suffering from a mental illness?

**A.** his initial grief from his wife dying

**B.** his ongoing pain from the arthritis in his hip

**C.** his dependence on alcohol

**D.** the Alzheimer's disease symptoms

**Question 44**

Which lobe of Elliot's cerebral cortex has Alzheimer's disease most likely initially affected?

**A.** frontal lobe

**B.** parietal lobe

**C.** occipital lobe

**D.** temporal lobe

**Question 45**

Which of Elliot's memory stores would be least affected by Alzheimer's disease?

**A.** short-term memory

**B.** working memory

**C.** procedural memory

**D.** episodic memory

*Use the following information to answer Questions 46–48.*

Use your knowledge of Sperry and Gazzaniga's findings on hemispheric specialisation via their research with split-brain patients to answer the following questions.

**Question 46**

The right hemisphere is the dominant hemisphere for

**A.** facial recognition.

**B.** language.

**C.** logical thought.

**D.** behavioural actions.

**Question 47**

When a simple object is flashed via a tachistoscope to the left visual field of a split-brain patient, the patient

**A.** cannot recognise it.

**B.** can recognise it, but not name it.

**C.** can only name it if they can view it with their left eye.

**D.** can name it if they view it with either eye.

**Question 48**

Sperry and Gazzaniga's findings of the function of the corpus callosum were that

**A.** it is the major speech centre of the brain.

**B.** it enables visual and verbal information to be integrated between the hemispheres.

**C.** a split corpus callosum results in major cognitive impairments.

**D.** a split corpus callosum is the major cause of aphasia.

*Use the following information to answer Questions 49–52.*

Melanie and Neale are the proud parents of their young daughter Jayde, whose language skills are developing rapidly.

**Question 49**

Jayde's production of her first words is an indication of

**A.** learned behaviour.

**B.** reflexive behaviour.

**C.** maturation.

**D.** a fixed action pattern.

**Question 50**

The formation of the language pathways of Jayde's brain is an indication of

**A.** developmental plasticity during the sensitive periods of learning.

**B.** developmental plasticity during the critical periods of learning.

**C.** adaptive plasticity during the sensitive periods of learning.

**D.** adaptive plasticity during the critical periods of learning.

**Question 51**

In terms of the speech areas of her brain, Jayde's

**A.** Broca's area is largely responsible for formulating a sentence in her mind, as well as the production of this sentence.

**B.** Wernicke's area is largely responsible for formulating a sentence in her mind, as well as the production of this sentence.

**C.** Broca's area is largely responsible for formulating a sentence in her mind and her Wernicke's area is responsible for the production of this sentence.

**D.** Wernicke's area is largely responsible for formulating a sentence in her mind and her Broca's area is responsible for the production of this sentence.

**Question 52**

Jayde's Broca's area is closest to which of the following primary cortices?

**A.** auditory

**B.** visual

**C.** motor

**D.** somatosensory

*Use the following information to answer Questions 53–55.*

Thirty-year-old Don suffered extensive damage to his parietal lobe. A neurosurgeon conducts a series of tests to determine the impact of damage to the different parts of Don's parietal lobe.

**Question 53**

Which of the following tests could be used to evaluate damage to Don's left parietal lobe?

**A.** asking Don to draw a clock face to determine if he might ignore stimuli (the numbers) on the left side of a clock

**B.** touching the left side of Don's body and asking if he felt anything

**C.** touching the right side of Don's body and asking if he felt anything

**D.** asking Don to perform some basic movements to see if he has difficulty moving either side of his body

**Question 54**

Which of the following tests could be used to evaluate damage to the association areas in Don's parietal lobe?

**A.** asking Don to draw a clock face to determine if he might ignore stimuli (the numbers) on the left side of the clock

**B.** touching the left side of Don's body and asking if he felt anything

**C.** touching the right side of Don's body and asking if he felt anything

**D.** asking Don to perform some basic movements, to see if he has difficulty moving either side of his body

**Question 55**

After multiple occupational therapy sessions over time, Don was able to regain a great deal of the lost functionality from his parietal lobe.

This is as a result of which of the following forms of brain plasticity?

**A.** synaptogenesis

**B.** rerouting

**C.** proliferation

**D.** migration

*Use the following information to answer Questions 56–58.*

The coaches of the Surrey Hills Netball Club instructed their players that in the event of an injury, they should follow the 'RICE' (rest, ice, compress, elevate) approach.

**Question 56**

The use of the word RICE makes it easier for coaches to remember the four instructions for treating injured players because the coaches have

**A.** used an acrostic.

**B.** used a mnemonic.

**C.** used maintenance rehearsal.

**D.** chunked the four words.

**Question 57**

New coaches memorising RICE and what it stands for are using which form of encoding?

**A.** structural

**B.** phonemic

**C.** semantic

**D.** visual

**Question 58**

Which lobe of the coaches' cerebral cortex is largely responsible for the encoding of what RICE stands for?

**A.** frontal

**B.** parietal

**C.** occipital

**D.** temporal

*Use the following information to answer Questions 59 and 60.*

Xavian's Year 8 Health teacher will give her a lunchtime detention in the library if she does not complete her weekly homework. Her Health teacher is the only teacher who takes this approach, so Xavian always makes sure she has completed her Health homework, but is often late completing homework in her other subjects.

**Question 59**

Xavian's prompt completion of her Health homework is an example of stimulus

**A.** discrimination which has been operantly conditioned.

**B.** discrimination which has been classically conditioned.

**C.** generalisation which has been operantly conditioned.

**D.** generalisation which has been classically conditioned.

**Question 60**

According to the three-phase model of operant conditioning, completing the homework is the

**A.** consequence.

**B.** behaviour.

**C.** generalised stimulus.

**D.** antecedent.

*Use the following information to answer Questions 61 and 62.*

Sammy's symptoms from the head trauma he suffered in a car accident indicate that he is suffering from anterograde amnesia.

**Question 61**

Which of the following theories best explains Sammy's difficulty remembering conversations that he has had with people since his accident?

**A.** consolidation theory

**B.** interference theory

**C.** retrieval failure theory

**D.** decay theory

**Question 62**

Despite this, Sammy's ability to form which type of memories would be the least affected by his condition?

**A.** explicit

**B.** semantic

**C.** episodic

**D.** procedural

*Use the following information to answer Questions 63–65.*

Trish found out last month that her partner has an aggressive form of cancer. Trish decided to quit her job and care for her partner, which she found to be a very stressful experience. As a result of her ongoing stress, Trish's cortisol levels have dramatically increased via the activation of her HPA axis.

**Question 63**

Which of the following components of the HPA axis is directly responsible for the release of cortisol?

**A.** hypothalamus

**B.** pituitary gland

**C.** amygdala

**D.** adrenal gland

**Question 64**

The initial release of cortisol is an indication

**A.** of an allostatic response.

**B.** that Trish has reached allostatic load.

**C.** that Trish has reached allostatic overload.

**D.** that Trish is mentally ill.

**Question 65**

Which of the following strategies would most rapidly reduce Trish's high cortisol levels?

**A.** social support

**B.** physical exercise

**C.** biofeedback

**D.** relaxation

**END OF SECTION A**

## SECTION B – SHORT-ANSWER QUESTIONS

**Instructions for Section B**

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

**Question 1** (5 marks)

As a result of a traumatic accident, Gwyneth has an intense fear of cars. Consequently she goes to great lengths to avoid being a passenger in a car. Whenever Gwyneth is close to getting in a car, her fight-flight response is activated.

**a.** Explain how the activation of Gwyneth's fight-flight response will affect her digestion and heart rate. 2 marks

**b.** Using the language of classical conditioning, explain how Gwyneth's therapist may use graduated exposure to overcome her fear of cars. 3 marks

**Question 2** (4 marks)

Veronica is going for her driver's licence. Her driving instructor gives her a series of instructions during her 30-minute driving test.

Describe how each of the **four** components of her working memory will help Veronica during the driving test.

**Question 3** (4 marks)

Describe how an EEG and a heart rate monitor can be used to determine if a sleeper is in a light or a deep sleep.

**Question 4** (2 marks)

Explain why there is a proportional difference in the cortical representation in the primary motor cortex of the hands compared to the elbow.

**Question 5** (2 marks)
In terms of trial-and-error learning, what is meant by the 'law of effect'?

**Question 6** (3 marks)

**a.** Distinguish between the two forgetting theories: retrieval-failure and the decay theory. 2 marks

**b.** Explain the cause of retrieval-failure. 1 mark

**Question 7** (5 marks)
Nicole has just given birth to her first child and is currently stressed.

**a.** Explain how each of the **three** elements of the biopsychosocial framework may have contributed to Nicole's stressed state. 3 marks

**b.** Despite her stressed state, provide **two** reasons why Nicole would not be diagnosed with a mental illness. 2 marks

**Question 8** (2 marks)
Explain the function of the synapse in learning.

**Question 9** (3 marks)
Using an example, explain how behaviour that has been operantly conditioned can be extinguished.

**Question 10** (3 marks)
Whilst walking her dog, Laura witnessed an accident between a pedestrian and a cyclist at a pedestrian crossing on Beach Road. Laura was interviewed by the police at the scene of the accident. Following the death of the pedestrian, the cyclist was charged with manslaughter. As a result of this, Laura was required to testify in court several months later.

Explain how Laura's recall of the accident may have changed in the time between her initial report to the police and her testimony in court.

**Question 11** (2 marks)
Zach has recently experienced a stroke that has affected a significant section of his temporal lobe.

Identify **two** symptoms of damage to the association areas in Zach's temporal lobe.

**Question 12** (7 marks)
Dan had a Physics exam and then a Chemistry exam on two consecutive days. Dan spent all of his spare time in the lead up to the first exam revising Physics. Once he completed his Physics exam, Dan then spent most of that night studying for his Chemistry exam.

**a.** Describe **two** psychological effects that a night without any sleep may have on Dan's performance in the Chemistry exam. 2 marks

**b.** During the Chemistry exam, Dan experienced a microsleep.
Describe how this affected him. 2 marks

**c.** Describe how Dan studying for two sciences may/may not have affected the **two** types of interference. 3 marks

**Question 13** (4 marks)

Each night when Eliza comes home from work, she goes to her garage with a bowl of cat food for her pet cat, Kip. As Eliza opens the garage roller door, Kip responds by purring excitedly in anticipation of being fed.

Using the language of classical conditioning, describe how Kip has been conditioned by Eliza in this case.

**Question 14** (3 marks)

Using the language of operant conditioning, describe how airport security personnel could use shaping to train sniffer dogs to identify luggage containing drugs.

**Question 15** (2 marks)

Adele is an engineering student who rents a small unit with friends 1 km from campus. She is busy studying for her exams next month and has worked out that she has just enough money to get by until then. Adele has just learned that her unit has been sold and that she has thirty days to vacate. Adele is not sure if she will have enough money or time to find another unit before then.

According to the Lazarus and Folkman Transactional Model of Stress and Coping, identify and describe **two** possible primary appraisals.

**Question 16** (2 marks)

Describe **two** differences between the fight-flight response and the Lazarus and Folkman Transactional Model of Stress and Coping as a means of responding to a stressor.

**Question 17** (3 marks)

Maureen is a healthy elderly lady who is still physically and mentally active.

**a.** Describe how ageing will affect Maureen's recall and recognition. 2 marks

**b.** Describe a biological cause of any age-related memory decline that Maureen may experience. 1 mark

**Question 18** (2 marks)
Ebbinghaus' research on the forgetting curve demonstrated that around 56% of material learned was lost after the first hour.

Describe **two** features of the rate of forgetting after the first hour.

**Question 19** (2 marks)
Describe **two** characteristics of sleep spindles.

**END OF SECTION B**

## SECTION C – RESEARCH SCENARIO

**Instructions for Section C**

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

Your responses may include diagrams, charts and tables.

Dr Werdna aimed to investigate the effectiveness of aerobic exercise in reducing age-related memory decline by increasing the size of the hippocampus. Previous research indicates that the hippocampus reduces in size at a rate of approximately 1% per year from the age of 65 onwards. It was theorised that aerobic exercise can reverse this trend and increase the size of the hippocampus for the elderly. For the purpose of the experiment, aerobic exercise was defined as an activity that resulted in an elevated heart rate (between 100 to 130 beats per minute [bpm]) that was sustained for 30 or more minutes.

Dr Werdna advertised for volunteers aged between 70 and 80 years to participate in a one-year research investigation via various media platforms.

All participants were screened and cleared of symptoms of dementia prior to the commencement of the study, with 124 participants accepted for the experiment.

Using random allocation, the participants were evenly split into two groups. One group served as a control group and were instructed to complete a series of stretching exercises that would not significantly increase their heart rate. The other half of the participants were given 'Fitbits' (watches that displayed their heart rates during exercise) and were instructed to complete four aerobic exercise sessions per week in which their heart rates had to remain between 100 to 130 bpm for 30 minutes, by either riding a stationary bike, running, walking briskly or participating in a fitness class. The participants were subsidised for any expenses incurred during the year-long experiment.

Using neuroimaging equipment, the size of the hippocampus was measured both before and after the experiment. The change in the size of the hippocampus is summarised in the table below.

**Table 1** Hippocampus size experiment results

| | **Stretching group** | **Aerobic exercise group** |
|---|---|---|
| **Average change in volume of the hippocampus over the one-year study** | –0.9% | +1.1% |

The level of significance was set at $p < 0.05$.

A statistical test was conducted based on the data and $p < 0.008$.

**Question 1** (3 marks)

Write a research hypothesis.

**Question 2** (2 marks)
Identify the control group in the experiment and explain the purpose of having a control group.

**Question 3** (10 marks)
Write a discussion section for this experiment following the usual conventions.

In your response, interpret the results in relation to the role of the hippocampus in specific facets of memory.

**END OF QUESTION AND ANSWER BOOKLET**

**Extra space for responses**

Clearly number all responses in this space.