

Victorian Certificate of Education
2020

SUPERVISOR TO ATTACH PROCESSING LABEL HERE

STUDENT NUMBER Letter

PSYCHOLOGY
Written examination

Thursday 12 November 2020

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	7	7	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 space 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.

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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

Which of the following correctly identifies the specialised structure and corresponding function at any given synapse?

	Structure	Function
A.	pre-synaptic neuron	releases neurotransmitters from vesicles
B.	synaptic gap	electrical charge transmits the neural message
C.	receptor site	neurotransmitters are stored
D.	post-synaptic neuron	reuptake of neurotransmitters occurs

Question 2

Which statement about conscious or unconscious responses by the nervous system is correct?

- A. A conscious response by the nervous system is involuntary and goal-directed.
- B. A conscious response by the nervous system is voluntary and attention is given to the stimulus.
- C. An unconscious response by the nervous system is voluntary and regulated by the autonomic nervous system.
- D. An unconscious response by the nervous system is unintentional and is always regulated by the autonomic nervous system.

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Use the following information to answer Questions 3 and 4.

Jacob is a paramedic attending to a patient who has been unconscious for at least 30 minutes. Jacob records his observations of the patient on a clipboard.

Question 3

Which of the following identifies what is happening to Jacob at the neural level as he picks up his clipboard?

	Response	Post-synaptic neuron
A.	muscles contract	post-synaptic dendrites receive the message
B.	spinal reflex initiated	post-synaptic axon terminals send the message
C.	muscles relax	post-synaptic axon terminals receive the message
D.	spinal reflex initiated	post-synaptic dendrites send the message

Question 4

While Jacob is checking the patient's pulse, the patient suddenly wakes up and yells loudly, startling Jacob.

Which immediate physiological changes would Jacob experience when he is startled?

- A.** constriction of airways and bladder relaxation
- B.** increase in salivation and release of adrenaline
- C.** release of cortisol and increased release of glucose
- D.** increase in adrenaline and reduced movement in the large intestine

Question 5

Which one of the following accurately describes characteristics of a single neuron?

- A.** Dendrites 'grow' whereas axon terminals are 'pruned'.
- B.** Myelin coating the axon terminals improves signal transmission.
- C.** Dendrites fulfil their role in neural transmission before axon terminals.
- D.** Axon terminals fulfil their role in neural transmission before dendrites.

Question 6

Which of the following identifies changes that occur in both neurotransmitters and motor responses due to Parkinson's disease?

	Neurotransmitter	Motor response
A.	increase in dopamine	seizure
B.	increase in glutamate	anxiety
C.	decrease in dopamine	rigidity
D.	decrease in gamma-amino butyric acid (GABA)	tremor

Question 7

To treat the motor symptoms of Parkinson's disease, a doctor is likely to administer a drug that

- A. inhibits the binding of receptors.
- B. inhibits the lock-and-key process.
- C. mimics the activity of a neurotransmitter.
- D. promotes reuptake on the post-synaptic neuron.

Question 8

Vladimir is experiencing stress in response to news he has received.

The stress Vladimir is experiencing is more likely to be eustress if Vladimir has

- A. increased arousal momentarily, decreased motivation and an elevated heart rate.
- B. increased alertness momentarily, increased motivation and an elevated heart rate.
- C. heightened arousal for several hours and increased motivation, and he feels overwhelmed.
- D. elevated alertness for several hours and increased cortisol levels, and he feels confident he can manage the news.

Question 9

One limitation of Selye's General Adaptation Syndrome as a scientific model for stress is that it

- A. has stages that are specific and time dependent.
- B. takes into account individual differences in physiological responses to a stressor.
- C. cannot be researched experimentally due to the subjective nature of the stress response.
- D. assumes shock and counter shock are separate processes even though they can occur simultaneously.

Question 10

Which one of the following is the most accurate description of the role of cortisol in the stress response, according to Selye's General Adaptation Syndrome?

- A. stops the immune system from functioning
- B. increases glucose in the bloodstream and reduces inflammation
- C. reactivates functions that are non-essential in a fight-flight response
- D. provides the initial alert about a perceived threat, through the release of adrenaline

Question 11

Which of the following identifies a difference between long-term potentiation and long-term depression?

	Long-term potentiation	Long-term depression
A.	results in a change in excitability of the post-synaptic neuron	does not involve an increase in excitability of the post-synaptic neuron
B.	occurs at the synapse	does not occur at the synapse
C.	involves the neurotransmitter glutamate	involves the neurotransmitter GABA
D.	changes are long-lasting	changes are not long-lasting

Question 12

Caitlin is teaching her dog Ziggy to sit when she instructs him to do so. She rewards Ziggy by giving him a treat every time he sits when she says the word 'sit'. Caitlin has noticed that Ziggy will also sit when she says the words 'lit', 'pit' and 'fit'.

Ziggy is demonstrating

- A.** stimulus generalisation as an element of operant conditioning.
- B.** stimulus discrimination as an element of operant conditioning.
- C.** stimulus generalisation as an element of classical conditioning.
- D.** stimulus discrimination as an element of classical conditioning.

Question 13

Bernard was about to sit on a bench at the beach when he noticed that he felt happy and had been unconsciously smiling. He realised that this feeling was probably associated with his girlfriend, whom he often brings to this bench to watch the sunset.

During the process of conditioning Bernard's response, the

- A.** unconditioned stimulus is the bench.
- B.** unconditioned stimulus is his girlfriend.
- C.** association is between the sunset and his girlfriend.
- D.** association is between his feelings and his girlfriend.

Use the following information to answer Questions 14 and 15.

Hannah is a university student who has recently signed a lease to move into a rental property in an apartment block. Hannah enjoys the freedom of having her own apartment. Since moving into her new apartment, Hannah has hosted loud parties most weekends. This has resulted in her neighbours making a formal complaint to her landlord. Hannah's landlord has sent her an official letter stating that her lease will be terminated if she continues to have loud parties.

Question 14

If Hannah reduces the number of loud parties in response to the contents of the letter, which principle of operant conditioning is being demonstrated?

- A. response cost, because Hannah's neighbours are upset by her loud parties
- B. negative reinforcement, because the contents of the letter achieved the desired response
- C. response cost, because having her lease terminated would result in Hannah losing her apartment
- D. negative reinforcement, because the formal complaint by the neighbours is an unpleasant consequence

Question 15

Which one of the following actions is most likely to reinforce quiet and considerate behaviour from Hannah?

- A. the police being called when she has a loud party
- B. her neighbours not reacting when she has a loud party
- C. her neighbours waiting outside as guests arrive for a party
- D. being given compliments by her neighbours when she has a quiet party

Question 16

Which one of the following accurately names and explains how an ethical principle was violated in the 'Little Albert' experiment?

- A. use of deception, because Little Albert was not informed of the nature of the experiment
- B. informed consent, because Little Albert's mother was not present at the start of the experiment
- C. withdrawal rights, because Little Albert left the experiment with a previously non-existent fear
- D. role of the experimenter, because Little Albert's conditioned fear response was not extinguished

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Use the following information to answer Questions 17–20.

Mr Wallace is a Geography teacher at a high school. He is interested in finding out whether Year 9 students or Year 10 students are faster at learning the names of capital cities. One class at each year level is shown a presentation with each of the selected 20 countries and their capital cities on separate slides. Students are instructed to silently memorise the name of each country's capital city. At the end of the presentation, each student is then provided with a list of countries only, in the same order as presented. Students are asked to write the name of the correct capital city beside the name of as many countries as possible. Mr Wallace then records how many correct pairs of capital cities and countries each student gets, and calculates the mean for each class.

Question 17

Which two factors make it more likely that students will correctly match capital cities to countries?

- A. recency effect and the use of elaborative rehearsal
- B. primacy effect and the use of maintenance rehearsal
- C. serial position effect and the use of elaborative rehearsal
- D. serial position effect and the use of maintenance rehearsal

Question 18

Which one of the following best describes the type of research conducted by Mr Wallace?

- A. observational study
- B. cross-sectional study
- C. repeated measures design
- D. matched participants design

Question 19

Which of the following procedures were used in Mr Wallace's research?

- A. convenience sampling and random allocation
- B. random allocation and standardised procedures
- C. convenience sampling and standardised procedures
- D. random sampling and non-standardised procedures

Question 20

Which measure of retention was being tested by Mr Wallace?

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

Question 21

According to the Atkinson-Shiffrin multi-store model of memory, which process determines whether information moves from short-term memory to long-term memory?

- A. encoding
- B. rehearsal
- C. consolidation
- D. selective attention

Question 22

Which one of the following statements about memory is correct?

- A. The duration of short-term memory can be increased by chunking.
- B. The greatest number of items that can be held in short-term memory is nine.
- C. The capacity of short-term memory can be increased by using maintenance rehearsal.
- D. Short-term memory receives information from both sensory memory and long-term memory.

Question 23

Urbach-Wiethe disease is a rare genetic disorder. Some patients who suffer from Urbach-Wiethe disease may experience lack of fear and may reach out to touch a venomous snake despite remembering that it is dangerous to do so.

Which region(s) of the brain is likely to be affected by Urbach-Wiethe disease?

- A. amygdala
- B. cerebellum
- C. hippocampus
- D. hippocampus and amygdala

Question 24

Which one of the following is a characteristic of Alzheimer's disease?

- A. The hippocampus is the last area of the brain to be affected.
- B. It initially affects short-term memory more than long-term memory.
- C. It is caused by an increase in the level of the neurotransmitter dopamine.
- D. It involves neurofibrillary tangles, a build-up of abnormal protein outside the neurons in the brain.

Question 25

Which one of the following is most likely to be experienced following brain trauma that results in a diagnosis of anterograde amnesia?

- A. poor recall of memories
- B. difficulty forming new memories
- C. loss of both explicit and implicit memories
- D. an inability to recall events prior to the damage

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Question 26

Open-ended questioning techniques are less likely to be fallible than the interviewing techniques highlighted in Loftus's research because

- A. they improve memory of emotional events.
- B. memory reconstruction of events will not occur.
- C. they avoid leading questions that could introduce false information.
- D. more information about an event is likely to be elicited from an eyewitness.

Question 27

Consciousness is

- A. individual and continuously changing.
- B. stored in an individual's long-term memory.
- C. directly observed through the behaviours of individuals.
- D. objective and can be measured directly using tools such as an electroencephalograph, electromyograph or electro-oculograph.

Question 28

Terence is looking for his car keys.

Which one of the following characteristics demonstrates that Terence's state of consciousness is closer to normal waking consciousness than altered states of consciousness?

- A. His emotional reactions are likely to be amplified.
- B. He is not aware of the time taken to look for his keys.
- C. He keeps seeing his keys when they are not there.
- D. His mind shifts between his thoughts and his environment.

Question 29

Amanda has a new job as an air traffic controller. She often finds her shifts highly stressful as she must ensure successful coordination of multiple aircraft simultaneously.

Which one of the following best indicates Amanda's level of consciousness during a shift?

- A. controlled processing with restricted content
- B. highly focused awareness with decreased content limitations
- C. normal waking consciousness, which dulls reception of sensory stimuli
- D. increased arousal, allowing for continued divided attention to manage the multiple aircraft

Question 30

Angela has been learning to play the guitar for four years. At first, she had to concentrate very hard and could not sing at the same time. In the last year, she has been able to focus on her singing while she plays.

For Angela, the process of playing the guitar was

- A. at all times an automatic process as the skills required were physical, not cognitive.
- B. at all times a controlled process as the task of playing the guitar requires a lot of skill.
- C. at first a controlled process in which high levels of awareness and mental effort were necessary.
- D. at first an automatic process in which high levels of awareness and mental effort were necessary.

Question 31

According to the restoration theory of sleep, which one of the following best explains the difference between an infant's sleep and an older child's sleep?

- A. Older children need more food to eat and therefore they have less time for sleep than infants.
- B. Infants undergo more rapid brain development and therefore they experience more REM sleep than older children.
- C. Older children exert more physical energy during the day and therefore they experience more REM sleep than infants.
- D. Infants have access to safe and stable places to sleep and therefore they experience more sleep overall than older children.

Question 32

Sleep changes as we age.

Which one of the following statements best describes a noticeable change that occurs?

- A. The time spent sleeping overall increases as we age.
- B. The proportion of time spent in NREM sleep increases as we age.
- C. As we progress over time from infancy to old age, the proportion of time spent in stages 1 and 2 of NREM sleep significantly decreases.
- D. The proportion of time spent in REM sleep significantly decreases from infancy and then remains steady as we continue ageing.

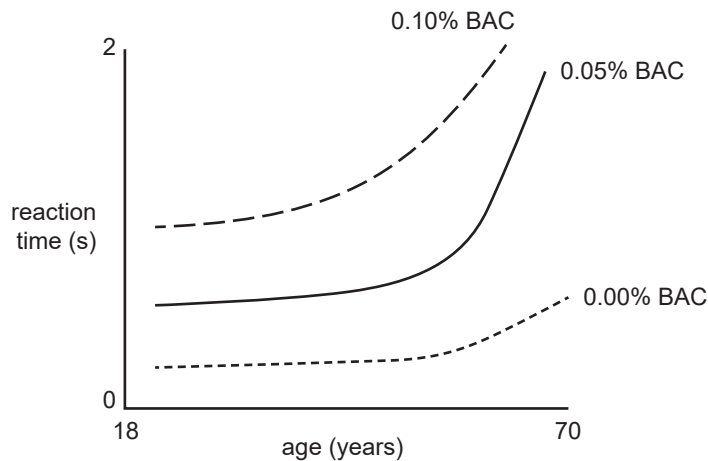
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Use the following information to answer Questions 33–37.

Parminder compared the effects of consumption of alcohol on reaction times in people at various stages of life. His stratified sample included participants aged 18 to 70 years. In the repeated measures experiment, participants consumed one standard drink of alcohol at half-hourly intervals until they reached 0.10% blood alcohol concentration (BAC). Participants completed a series of computer-based tests for reaction times at BACs of 0.00%, 0.05% and 0.10%.

Additionally, once participants reached 0.10% BAC, Parminder asked all participants to write down on a lined piece of paper their immediate feelings, thoughts and memories, and to provide an estimate of how long they thought the tests ran for.

The graph below represents reaction time, in seconds, versus age, with the lines representing the trend of results for each level of BAC.



Question 33

The graph above demonstrates that

- A. an altered state of consciousness is achieved.
- B. the higher the BAC, the greater the reaction time.
- C. an improvement in reaction times occurs as age increases.
- D. reaction times decrease significantly in both the 0.05% and 0.10% BAC conditions.

Question 34

Which of the following includes both an independent variable and a dependent variable for Parminder's study?

	Independent variable	Dependent variable
A.	age	reaction time
B.	reaction time	BAC
C.	cognitive performance	amount of alcohol consumed
D.	amount of alcohol consumed	BAC

Question 35

Parminder believed when the participants were in the 0.10% BAC condition, they achieved an altered state of consciousness at the end of the study.

The most likely indication of participants being in an altered state of consciousness at the end of the study would be if they

- A. reported being in control of their emotions.
- B. recalled their stream of thoughts during the study.
- C. remembered the conversations of passers-by outside the laboratory.
- D. estimated the study going for a shorter or longer time than it did.

Question 36

Which of the following accurately describes the two types of data Parminder was gathering during the testing period and after the last test?

- A. subjective and qualitative
- B. self-report and qualitative
- C. objective and quantitative
- D. quantitative and qualitative

Question 37

In a second study, not involving alcohol, with different participants, Parminder examined the effects on reaction time of being awake for 24 hours.

The results from Parminder's second study were likely similar to which one of the following results from his first study?

- A. the 0.10% BAC condition, sleep affected
- B. the 0.05% BAC condition, mood affected
- C. the 0.10% BAC condition, cognition affected
- D. the 0.05% BAC condition, concentration affected

Question 38

Which one of the following represents a quantitative measure of sleep that would indicate whether someone has moved during their sleep?

- A. an electroencephalograph, which indicates a deep sleep
- B. an electromyograph, which indicates changes in muscle tone
- C. a video recording, which provides visual evidence of movement
- D. an electro-oculograph, which records changes in eye movements indicating stages of sleep

Question 39

The mean is a measure of central tendency often used in psychological research.

The mean can be a misleading representation of data if

- A. the frequency of each score has not been calculated.
- B. the range of the scores is much greater than anticipated.
- C. it contains outliers, very small or large values in the scores that are not typical.
- D. there is not an equal number of scores whose values lie above and below its value.

Question 40

Which of the following accurately describes the impact on mental health of both external factors and resilience?

	External factors	Resilience
A.	The effect depends on the number and the nature of the external factors.	Growth can occur even though setbacks occur.
B.	External factors will not have an impact on the development of a mental health problem.	Resilience allows an individual to ‘bounce back’.
C.	Internal factors are likely to have a bigger impact than external factors.	The number of setbacks is likely to determine the level of resilience.
D.	Social factors are likely to have a greater impact than emotional factors.	External factors do not influence resilience.

Question 41

Participants involved in research into mental health are informed that a placebo will be used.

Which additional piece of information is most likely to be provided to these participants?

- A.** which condition they are in
- B.** that they could be in either the control group or the experimental group
- C.** that they should continue taking any other medications they have been prescribed
- D.** misleading information about the research in order to prevent the participants’ expectations from affecting the results

Question 42

Which of the following accurately categorises both a contributing factor in the development of a specific phobia and an evidence-based intervention used to treat a specific phobia?

	Contributing factor	Evidence-based intervention
A.	the stress response (biological)	exercise (social)
B.	classical conditioning (biological)	challenging unrealistic thoughts (psychological)
C.	catastrophic thinking (psychological)	psychoeducation (social)
D.	stigma around seeking treatment (psychological)	breathing retraining (biological)

Use the following information to answer Questions 43–45.

Theodore lost his job two years before he intended to retire and it had a negative impact on his mood and ability to cope. He did not pay two electricity bills despite having sufficient funds. He became withdrawn while at his golf club and soon stopped playing. When he also started complaining of sleeping problems, his daughter encouraged him to see his family doctor with her.

Question 43

Theodore might be showing signs of a mental health problem because

- A. not paying bills indicates a mental health problem.
- B. both internal and external factors are contributing to his behaviour.
- C. internal factors rather than external factors are influencing his behaviour.
- D. his behaviour is uncharacteristic and has had a negative impact on his wellbeing.

Question 44

To try to improve Theodore's resilience, the doctor decided to focus on biological, psychological and social factors. Which of the following is a combination of the most likely strategies the doctor would initially encourage or use?

	Biological	Psychological	Social
A.	prescribing medication	challenging Theodore's negative thought patterns	reminding Theodore about his supportive family
B.	getting Theodore's friends to bring him meals	getting Theodore to join the seniors' club	getting Theodore to start an exercise program
C.	organising genetic testing	getting Theodore to make lists of the things he needs to do	taking Theodore to a nutritionist
D.	organising nutritious meals	challenging Theodore's negative thinking about the future	getting Theodore's friends to visit him regularly

Question 45

Theodore's unemployment was making him feel stressed. He applied for jobs advertised in the newspaper, but this did not result in employment. He went to see a careers counsellor, who suggested some further strategies for finding new employment.

Which one of the following statements applies to the coping strategy used by Theodore when he saw a careers counsellor?

- A. It is an approach strategy that does not demonstrate coping flexibility.
- B. It has context-specific effectiveness and demonstrates coping flexibility.
- C. It has context-specific effectiveness and will help him avoid stressful situations.
- D. Given the difficulty older people have finding a job, it demonstrates coping inflexibility.

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Use the following information to answer Questions 46–48.

Tuan migrated to Australia to undertake a university degree and lived in a share house with other students. He managed his money according to methods used in his birthplace, but he found it difficult to pay his bills on time. When his housemate asked for Tuan's rent money, Tuan's heart felt like it was pounding. Whenever he saw his housemate afterwards, Tuan would experience the same physiological sensation. When he started working, Tuan found he experienced an upset stomach and a pounding heart if someone at work suggested a different approach to his. He even started to experience these symptoms when he was in new social situations with friends. It was not long until he began to lie awake at night thinking about all of the things that were likely to go wrong the next day. While discussing his symptoms with his doctor, the doctor suggested Tuan had a mental health problem.

Question 46

Which of the following most accurately describes the type of stress Tuan was experiencing with his housemate and at work?

	With his housemate	At work
A.	acculturative stress	daily pressures
B.	chronic stress	distress
C.	daily pressures	acculturative stress
D.	distress	major stress

Question 47

Tuan's doctor diagnosed him with anxiety.

The doctor was likely to arrive at this conclusion because

- A.** Tuan is fearful when the outcome is not predictable.
- B.** Tuan's stress is ongoing and consistent with his normal behaviour.
- C.** Tuan's symptoms reveal that he is highly aroused and feels he cannot cope.
- D.** external factors, such as Tuan's housemate and his work colleagues, have contributed to his symptoms.

Question 48

Tuan's memory of a conversation with his housemate about managing money is a very vivid memory for him.

A physiological explanation for this is

- A.** the presence of his housemate was accompanied by strong emotions.
- B.** the hippocampus released noradrenaline in the consolidation of this event.
- C.** his heart was pounding, thus increasing the vividness of his memory of this event.
- D.** the amygdala was activated by adrenaline in the processing of his memory of this event.

Question 49

Which of the following correctly describes cognitive behaviour therapy and systematic desensitisation?

	Cognitive behaviour therapy	Systematic desensitisation
A.	requires the development of a hierarchy	requires the development of a hierarchy
B.	involves the use of classical conditioning	does not involve the use of classical conditioning
C.	focuses on challenging negative thought patterns	does not focus on challenging negative thought patterns
D.	is not likely to involve breathing retraining	is not likely to involve breathing retraining

Question 50

One of the strengths of using secondary data from the internet for psychological research is that secondary sources will

- A. have satisfied ethical guidelines.
- B. have already been published and so the data is likely to be reliable and valid.
- C. provide large reserves of data and be representative of the general population.
- D. provide access to volumes of data that the researcher may not be able to gather.

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**END OF SECTION A
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SECTION B**Instructions for Section B**

Answer **all** questions in the spaces provided.

Question 1 (4 marks)

Outline two differences between the sympathetic nervous system response and the spinal reflex.

Difference 1 _____

Difference 2 _____

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SECTION B – continued
TURN OVER

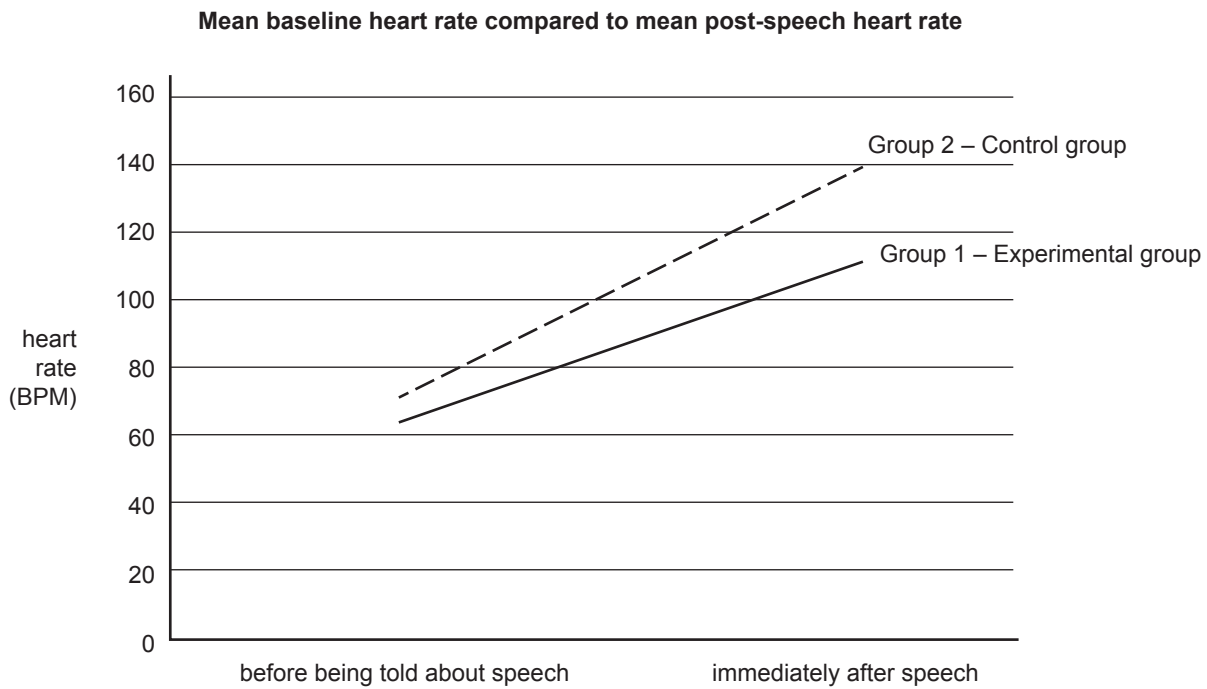
Question 2 (15 marks)

For his Psychology practical investigation, Peter decided to examine whether information about the positive effects of stress could affect stress levels during public speaking. His participants were 20 newly appointed volunteer leaders at a local organisation. Peter randomly assigned participants to one of two groups.

Participants in the experimental group were told they would be recorded giving a five-minute speech one week later and were shown a brief presentation outlining how stress can improve performance. They were told not to discuss this presentation with participants in the other group.

Participants in the control group were only told they would be giving a five-minute speech one week later and that their speech would be recorded.

The heart rate of participants in both groups was measured prior to them being told about the five-minute speech, in order to provide a baseline, and one week later, immediately after giving the five-minute speech. Means for the two measurements for each group were calculated. The results are shown in the graph below.



a. Write a possible research hypothesis for Peter’s experiment.

3 marks

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- b. In terms of the nervous system, why would heart rate be used as a measure in this experiment? 3 marks

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c. Using Lazarus and Folkman’s Transactional Model of Stress and Coping, identify the most likely secondary appraisal made by participants in the experimental group and by participants in the control group. Justify your response with reference to the graph on page 20 and the independent variable. 6 marks

- Group 1 – Experimental group

Secondary appraisal _____

Justification _____

- Group 2 – Control group

Secondary appraisal _____

Justification _____

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- d. At the conclusion of his practical investigation, Peter realises that, entirely by chance, seven participants allocated to the experimental group were members of the region's high-performing basketball team whereas the control group contained only one participant who was an athlete.

Explain the problem created by this uneven allocation of athletes between groups, identifying the type of variable involved.

3 marks

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SECTION B – continued
TURN OVER

Question 3 (12 marks)

When Raafe learnt to type when he was a child, he used only the index finger on each hand to develop his skills. As an adult, Raafe applied for a job as an administrative assistant and needed to learn a technique called touch-typing, which uses all fingers on both hands. His touch-typing skills would be tested as part of the job selection process.

- a. Explain how long-term depression was involved when Raafe learnt the new touch-typing technique. 3 marks

- b. With reference to the lock-and-key process, explain the role of glutamate in learning touch-typing. 4 marks

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- c. Raafe was often hungry when he was practising for the touch-typing test because he usually practised just before his evening meal. Once he had mastered touch-typing, Raafe found that he could type more quickly and accurately when he was hungry.

Explain why Raafe’s touch-typing improved when he was hungry.

3 marks

- d. In which type of long-term memory is the skill of typing encoded and how might Raafe’s behaviour demonstrate that the skill of typing is encoded in this type of memory?

2 marks

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Question 4 (7 marks)

Advertisers often use learning principles when promoting products. An advertisement for a new soft drink features people having a good time while consuming the product. This is intended to make potential customers experience positive emotions when thinking about the soft drink.

- a. What type of conditioning is used to generate positive emotions towards the new soft drink? Give two reasons to justify your response. 3 marks

Type of conditioning _____

Reason 1 _____

Reason 2 _____

- b. The next advertising campaign for the soft drink used a celebrity rather than an unknown person. Identify two different processes involved in observational learning that demonstrate the advantage of using a celebrity to advertise the soft drink. Justify your response for each process. 4 marks

Process 1 _____

Justification _____

Process 2 _____

Justification _____

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Question 5 (14 marks)**Predicting the body clock of shiftworkers**

Australian researchers led by Doctor Julia Stone from Monash University have developed a model that makes predictions about a person's body clock based on non-invasive measurements. The usual procedure for tracking the body clock is taking blood tests that measure melatonin. In the research, in addition to measuring melatonin levels, doctors and nurses wore a wrist band that measured their physical activity and the amount of light they were exposed to over a range of day and night shifts as well as on their days off. The research demonstrated that the model provides an accurate prediction of a person's body clock shift, verified by the melatonin levels recorded.

This research could result in the development of a device that could provide shiftworkers with information about their body clock and thus help them manage the alignment of the body clock and the work schedule. Given that the impact of shiftwork can be much harder to manage than the impact of jet lag, this is welcome news.

References: JE Stone et al., 'Application of a limit-cycle oscillator model for prediction of circadian phase in rotating night shift workers', *Scientific Reports*, 9:11032, 30 July 2019, <<https://doi.org/10.1038/s41598-019-47290-6>>; J Elder, 'Keeping shift workers alert on the job: New study finds how to predict a person's body clock', *The New Daily*, 2 August 2019, <<https://thenewdaily.com.au/life/wellbeing/2019/08/02/body-clock-shift-workers/>>

- a. The article uses the term 'body clock'.

Using appropriate psychological terminology, explain what the authors mean when they refer to the term 'body clock'.

2 marks

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b. Why are levels of melatonin measured in this research?

3 marks

c. Using examples, identify how the affective and behavioural functioning of doctors and/or nurses in a hospital setting may be impacted by partial sleep deprivation.

4 marks

Affective functioning _____

Behavioural functioning _____

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d. Explain how the device mentioned in the article on page 27 could be used with bright light therapy to help doctors and nurses adjust to shiftwork in a hospital setting.

3 marks

e. Why is it often much harder to realign the sleep-wake cycle in individuals doing shiftwork than in individuals experiencing jet lag?

2 marks

Question 6 (8 marks)

When she turned four, Maxine received a medium-sized red box out of which popped a clown figure making a loud noise. When the box opened, Maxine ran away from it, towards her parents, screaming in fear. Her parents comforted her by playing with her. As a teenager, Maxine still runs away whenever she sees a similar box and her parents continue to comfort her. Maxine’s parents have decided to consult a psychologist with Maxine to try to manage her phobia.

- a. In terms of operant conditioning, outline how Maxine’s parents’ response could be considered to be perpetuating her phobia of red boxes. 3 marks

- b. The psychologist discussed with Maxine and her parents the option of using a benzodiazepine agent to manage Maxine’s phobia.

How could a benzodiazepine agent help manage Maxine’s phobia? 3 marks

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- c. The psychologist also indicated that memory bias may be contributing to Maxine's phobia.

Explain how memory bias could be a contributing factor in Maxine's phobia.

2 marks

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SECTION B – continued
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