

Victorian Certificate of Education
2019

SUPERVISOR TO ATTACH PROCESSING LABEL HERE

STUDENT NUMBER

Letter

PSYCHOLOGY
Written examination

Thursday 31 October 2019

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

Writing time: 9.15 am to 11.45 am (2 hours 30 minutes)

QUESTION AND ANSWER BOOK

Structure of book

Section	Number of questions	Number of questions to be answered	Number of marks
A	50	50	50
B	8	8	70
			Total 120

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

Materials supplied

- Question and answer book of 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

Which one of the following describes the role of myelin in neuronal communication?

- A. Coat and insulate the neuron.
- B. Detect information from other neurons.
- C. Store the neurotransmitters that are made by the axon.
- D. Transmit electrical impulses away from the axon terminals.

Question 2

When someone pricks their finger and immediately withdraws it, their response demonstrates

- A. the adaptive nature of the human nervous system.
- B. how the spinal cord makes decisions about movement.
- C. the conscious response involved in the coordination of the reflex.
- D. the role of the brain in the responses of the autonomic nervous system.

Question 3

What would be the impact on the transmission of neuronal messages if there was evidence of the thinning of dendrite branches?

- A. The neuron would not function properly and could die because dendrites provide energy for the cell.
- B. Electrical messages may become weaker because dendrites conduct electrical energy away from the cell body.
- C. Fewer neurotransmitters may be released into the synapse because dendrites contain vesicles holding neurotransmitters.
- D. The likelihood of the post-synaptic neuron being activated may decrease because dendrites receive the neurotransmitters from the synapse.

Use the following information to answer Questions 4–6.

Masako was anxious about and excited to be competing in the last baseball game before the finals. If her team won, it would progress to the finals. Masako was new to the sport and doubted her abilities but had practised a lot and carefully listened to her coach's tips. She had also decided that this game would help increase her skills. When it came time for Masako to bat, she was concentrating so closely on the ball that she blocked out the crowd cheering her on.

Question 4

Masako was most likely experiencing eustress because

- A. she was doubting her abilities.
- B. she felt excited about progressing to the finals if her team won.
- C. the stress of doing a good job interfered with her concentration.
- D. she felt nervous about not having much experience playing baseball.

Question 5

Which of the following identifies the functioning of Masako's autonomic nervous system and a resulting physiological response when she was preparing to bat?

	Autonomic nervous system functioning		Physiological response
	Parasympathetic nervous system	Sympathetic nervous system	
A.	active	inactive	decreased salivation
B.	non-dominant	dominant	increased blood pressure
C.	inactive	dominant	movement of skeletal muscles
D.	inactive	active	constricted pupils

Question 6

According to Lazarus and Folkman's Transactional Model of Stress and Coping, an example of Masako undertaking primary appraisal would be if she thought

- A. of the crowd cheering her on.
- B. of the tips given to her by her coach.
- C. of the situation as good practice for the finals.
- D. that she had practised enough to hit the ball a long way.

Question 7

One limitation of Lazarus and Folkman's Transactional Model of Stress and Coping is that the model

- A. fails to explain the outcome if coping resources are inadequate.
- B. does not account for the different interpretations of events by individuals.
- C. does not recognise that the individual and the environment both play a role in the stress response.
- D. is unable to be researched experimentally because primary and secondary appraisals often occur simultaneously.

Question 8

Which one of the following best describes the lock-and-key process in synaptic transmission?

- A. The pre-synaptic neuron releases specific neurotransmitters into the synapse.
- B. Neurotransmitters only affect post-synaptic sites that have the same molecular shape.
- C. Neurohormones bind to the receptor sites on the dendrites of the post-synaptic neurons.
- D. Each neurotransmitter has a unique molecular structure that fits into the complementary, chemically distinct receptor site.

Question 9

Jamie is experiencing a constant state of stress and has also caught a cold.

Which of the following most accurately identifies the stage of Selye's General Adaptation Syndrome that Jamie is in and the reason that supports this stage?

	Stage	Reason
A.	shock	Jamie's immune system is immobilised so his body can fight the stressor.
B.	resistance	Continued cortisol release weakens Jamie's immune system, resulting in his body being unable to fight the cold.
C.	exhaustion	Jamie's body's resources are depleted, resulting in vulnerability to a range of serious physical disorders.
D.	resistance	Increased adrenaline in Jamie's bloodstream results in his body becoming susceptible to illnesses.

Use the following information to answer Questions 10–13.

Ravi conducted research to find out whether the coping strategy people used would affect their baseline levels of stress. Twenty participants were exposed to simulations of two different stressful scenarios. In the morning, the participants were told to use an avoidance strategy while exposed to the first simulation and, in the afternoon, they were told to use an approach strategy while exposed to the second simulation. An electroencephalograph (EEG) and electromyograph (EMG) were used to measure levels of arousal before and during the simulations. Higher levels of arousal indicated greater stress.

Readings from the EEG and EMG were quantified as stress level scores from 0 to 10. A change score was calculated by subtracting the pre-simulation stress level score from the during-simulation stress level score.

Question 10

The dependent variable was operationalised as the

- A. coping flexibility of the strategy.
- B. stress level score calculated from EEG and EMG measurements.
- C. levels of arousal during the simulations as measured by the EEG and EMG.
- D. change score calculated as the difference between pre-simulation and during-simulation stress level scores.

Question 11

Which one of the following was a confounding variable in Ravi's research?

- A. using the same participants in both conditions, as there may be practice effects
- B. using only 20 participants, as this does not allow for generalisation of the results
- C. telling participants to use a particular coping strategy, as this may bias participants
- D. using only one strategy in each condition, as this does not allow for coping flexibility

Question 12

Physiological measurements of arousal were made before and during the simulations.

This allowed Ravi to

- A. detect changes in levels of arousal.
- B. compare the differences in strategies.
- C. check the reliability of the measurements.
- D. eliminate participants whose levels of stress have not changed.

Question 13

Ravi hypothesised that an avoidance strategy would be more likely to result in a bigger increase in levels of stress.

Which of the following supports Ravi's hypothesis?

	Mean change score for avoidance strategy	Mean change score for approach strategy
A.	+2.2	+6.2
B.	+6.2	+1.5
C.	-2.2	-3.2
D.	+2.2	-1.5

Question 14

Memory of the word 'happiness' will be

- A. consolidated and stored in the hippocampus.
- B. processed in the hippocampus and stored in the amygdala.
- C. consolidated by the hippocampus and stored in the cerebral cortex.
- D. attached to relevant emotional memories by the amygdala and stored in the cerebellum.

Question 15

Five-year-old Frank does not put his rubbish in the bin even though he has watched his parents do so many times. He has also reminded his younger sister to put her rubbish in the bin.

In terms of observational learning, Frank will be most likely to put his rubbish in the bin if he

- A. has the motivation to put rubbish in the bin.
- B. is developmentally ready to put rubbish in the bin.
- C. pays more careful attention to his parents' behaviour.
- D. develops a mental representation of putting rubbish in the bin.

Use the following information to answer Questions 16–18.

The 'Little Albert' experiment presents an example of how classical conditioning can be used to condition an emotional response.

Question 16

The conditioning of Little Albert's fear response required neural changes.

Which neurochemical and change to connections between neurons are most likely to be involved in the neural changes?

Neurochemical		
	Type	Name
A.	neurohormone	adrenaline
B.	neurotransmitter	glutamate
C.	neurotransmitter	dopamine
D.	neurohormone	gamma-amino butyric acid (GABA)
		Change to connections
		long-term potentiation
		long-term depression
		long-term depression
		long-term potentiation

Question 17

For Little Albert to develop a classically conditioned emotional response, the

- A. neutral stimulus must elicit an unconscious response.
- B. conditioned stimulus must be an unpleasant stimulus.
- C. response to the unconditioned stimulus must be learnt.
- D. unconditioned response must be an unconscious response.

Question 18

One ethical concern relevant for the classical conditioning of emotional responses, including the ‘Little Albert’ experiment, is that classical conditioning

- A. involves deception, which is not justified.
- B. indicates a lack of respect for the participant.
- C. can result in psychological harm for the participant.
- D. can lead to withdrawal before debriefing has been conducted.

Question 19

Bruce’s teacher, Mrs Seymour, wanted to test Bruce’s memory ability. She presented Bruce with photographs in a particular order. After her presentation, Mrs Seymour shuffled the photographs and asked Bruce to rearrange the photographs in the order in which they had been presented.

Bruce could demonstrate his memory of the correct order of the photographs by using

- A. relearning.
- B. recognition.
- C. reconstruction.
- D. the serial position effect.

Question 20

James suffered a severe head injury in a fall from his horse. He was diagnosed with anterograde amnesia.

The most likely memory problem James would experience would be the inability to remember

- A. what caused his fall.
- B. how to ride his horse.
- C. which friend visited him in hospital.
- D. which song he was listening to before his fall.

Question 21

Molly is a 74-year-old woman who lives on her own. Lately, her family has noticed that she has become particularly forgetful. She has also recently decided to donate her daughter’s childhood rock collection to a charity store because she read a news article explaining the environmental effects of climate change.

It is most likely that Molly

- A. is experiencing anxiety as a result of living alone.
- B. has a neurodegenerative disease and impaired reasoning.
- C. is using an approach strategy to deal with an external stressor.
- D. has Alzheimer’s disease and is exhibiting signs of poor self-efficacy.

Question 22

Loftus's research into the effect of leading questions on eyewitness testimony found that

- A. exposure to leading questions changed stored memories of events.
- B. leading questions after the event do not affect the fallibility of memory.
- C. leading questions can provide context cues that improve recollection of events.
- D. manipulation of memory is possible because of the reconstructive nature of memory.

Use the following information to answer Questions 23–25.

Dimitri conducted a repeated measures experiment. He used lists of 15 four-letter words as the stimuli.

In the first condition, after a list of 15 words was presented, a beep signalled the end of the list and the time for participants to start writing the words down using free recall.

In the second condition later that day, using a different list of words, Dimitri added a distractor task for 30 seconds before the beep signalled that participants were to start writing down the words they remembered.

Question 23

Which one of the following identifies an independent variable in this experiment?

- A. the four-letter words used as stimuli
- B. the number of words presented prior to recall
- C. the number of words remembered in each serial position
- D. the use or absence of the 30-second distractor task prior to recall

Question 24

The results that would be expected from this experiment are that there would be a

- A. primacy effect and a recency effect in both conditions.
- B. primacy effect in the first condition but not in the second.
- C. recency effect in both conditions and a primacy effect in the first.
- D. primacy effect in both conditions and no recency effect in the second.

Question 25

Would Dimitri need to counterbalance the experiment?

- A. No, because he controls the order of the conditions.
- B. No, because he used a different list of words in the second condition.
- C. Yes, because the order of the condition might affect the number of words recalled.
- D. Yes, because the number of words recalled might be affected by the order of the words.

Question 26

Miran was on the couch at home, reading the newspaper. After some time, his mobile phone began to ring. At first, Miran did not notice his phone ringing and, by the time he eventually did, he had missed the call.

Miran did not immediately notice his phone ringing because, for him, reading the newspaper

- A. is a controlled process with content limitations.
- B. requires selective attention and automatic processing.
- C. is a controlled process requiring low levels of awareness.
- D. requires increased mental effort to allow it to occur automatically.

Question 27

Ruby was in hospital for a minor surgical procedure that required a general anaesthetic. Once the procedure was completed, Ruby was transferred to the recovery ward, where the effects of the anaesthetic began to wear off.

Which one of the following most likely indicates that Ruby was experiencing a change in self-control as a result of being in an altered state of consciousness when she was first transferred to the recovery ward?

- A. not remembering her name when asked
- B. slurring her speech when asked her name
- C. fearing that she is paralysed when she is unable to feel her legs
- D. startling when the nurses tried to check the details on her identity bands

Question 28

Alex was waiting at the hairdresser's for his appointment. As time passed, Alex considered the traffic conditions outside and whether he would get home in time to watch his favourite TV show, noticed the peculiar smell in the salon, and wondered whether he would have time for a run later on.

Alex's state of consciousness could best be described as

- A. focused awareness.
- B. normal waking consciousness.
- C. an induced altered state of consciousness.
- D. a naturally occurring altered state of consciousness.

Use the following information to answer Questions 29–32.

Phoenix and her friends drove to a music festival in Byron Bay. They arrived the night before the festival and they all slept in Phoenix's small car for the night. Phoenix and her friends all experienced very disturbed sleep.

Question 29

What behavioural effect may Phoenix and her friends experience the next day due to being partially sleep deprived?

- A. an inability to sit still while listening to the music
- B. a lack of interest in making conversation with each other
- C. being unable to remember the names of all the bands that they were listening to
- D. feeling particularly hungry and wanting to visit a food truck for burgers and chips

Question 30

At one point Phoenix was unable to remember the hair colour of the lead singer of her favourite band.

Sleep deprivation is likely to contribute to her poor memory because

- A. sleep deprivation can result in poor cognitive functioning.
- B. affective functioning is compromised by sleep deprivation.
- C. music festivals have a compounding effect on sleep deprivation.
- D. the hallucinatory effects of sleep deprivation will cause memory problems.

Question 31

Phoenix and her friends stayed up watching bands all night. The next morning, Phoenix wanted to drive her car home, despite having not slept for the entire previous night or day. Her friends urged her not to drive because of the effect that sleep deprivation may have on her concentration.

The most accurate information to support the concern of Phoenix's friends is that a full night's sleep deprivation is equivalent to a blood alcohol concentration (BAC) of

- A. 0.10 and her eyelids might droop.
- B. 0.05 and she might have slower reaction times.
- C. 0.10 and she might not stay within her lane on the road.
- D. 0.05 and she might find it difficult to maintain the speed at which she is travelling.

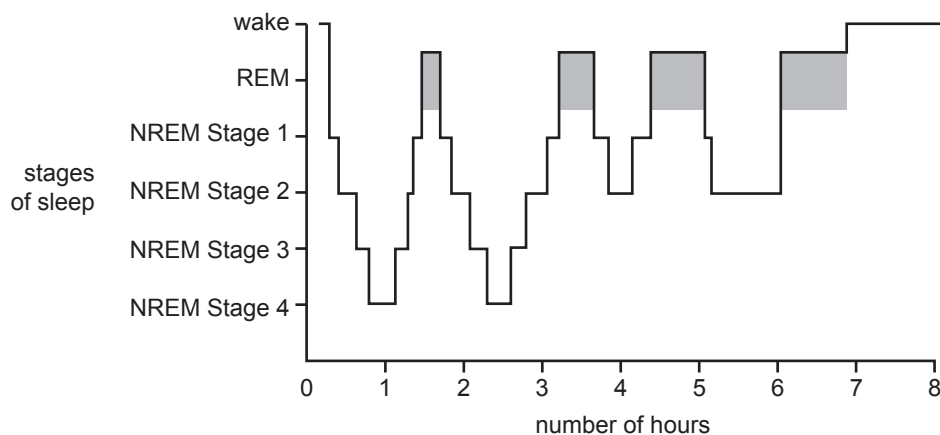
Question 32

In her sleep-deprived state, Phoenix's brain waves would be similar to those of an individual who has been administered a depressant.

Compared to her consciousness when she began driving to the music festival, by the third day, Phoenix would most likely have

- A. lower levels of alertness and more beta waves.
- B. higher levels of alertness and more alpha waves.
- C. higher amplitude and lower frequency brain waves.
- D. lower amplitude brain waves and fewer beta waves.

Question 33



Dr Abdulla is a sleep researcher. He has collected data from four healthy participants: a child, an adolescent, an adult and an elderly person. Dr Abdulla forgot to label the hypnograms so he decided to try to identify them by considering the typical sleep patterns for each life stage.

The hypnogram shown above is likely to belong to which participant?

- A. the adolescent, because adolescents go to sleep later at night
- B. the adult, because adults have four to five sleep cycles per night
- C. the child, because children spend 20 per cent of their sleep in REM
- D. the elderly person, because elderly people wake frequently during the night

Question 34

An individual's bodily functions follow naturally occurring and predictable rhythms.

Which one of the following is true of the rhythm that individuals usually have while sleeping?

- A. an ultradian rhythm within a circadian rhythm
- B. a circadian rhythm that occurs throughout the night
- C. an ultradian rhythm that lasts approximately eight hours
- D. a circadian rhythm that matches the core body temperature rhythm

Question 35

Which one of the following supports the evolutionary theory of sleep?

- A. Cats sleep for long periods to prevent muscle damage.
- B. Sleep enhances the alertness of dogs when they are awake.
- C. Animals afflicted with viruses are likely to sleep more than usual.
- D. Large prey animals sleep for longer periods than small prey animals.

Use the following information to answer Questions 36–39.

Cora, a university student, conducts an experiment in a classroom to test the effectiveness of bright light therapy on adolescent boys with a circadian phase disorder. She recruits nine 16-year-old boys from a suburban boys' school to participate in her experiment. Cora measures daytime sleepiness every morning for three days using the Karolinska Sleepiness Scale, which gives a score out of 9, with higher scores indicating greater sleepiness. On the fourth day, Cora asks the boys to wear bright light therapy glasses for two hours every morning from the time they wake up. After one week of using the bright light therapy glasses, Cora measures the adolescents' daytime sleepiness for another three days.

Question 36

Which one of the following is a possible hypothesis for this experiment?

- A. Participants will not show symptoms of circadian phase disorder after wearing the bright light therapy glasses.
- B. Participants will show an improvement in the symptoms of their circadian phase disorder after wearing the bright light therapy glasses.
- C. Participants will show lower levels of sleepiness after wearing the bright light therapy glasses compared to before they started wearing the glasses.
- D. Participants will show higher levels of sleepiness after wearing the bright light therapy glasses compared to before they started wearing the glasses.

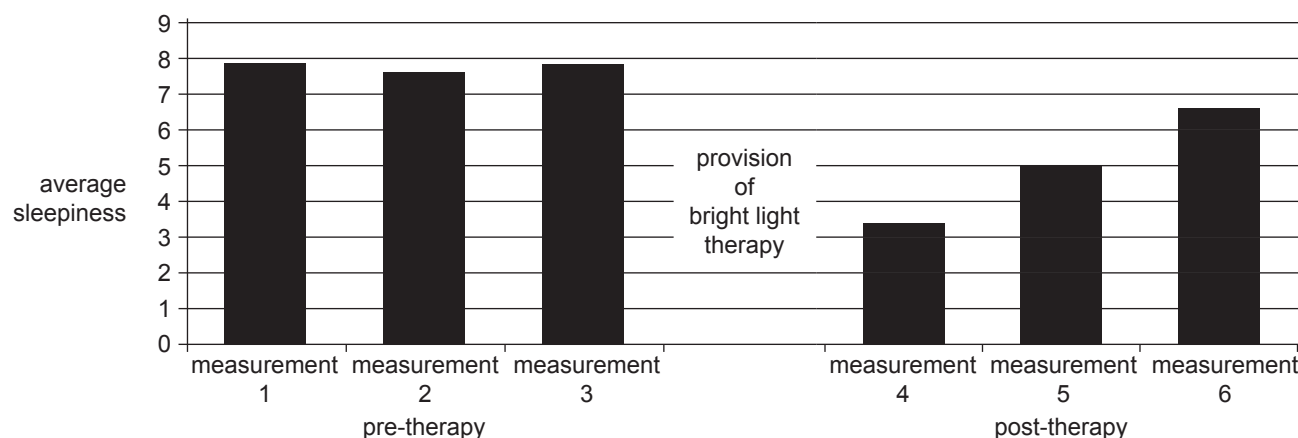
Question 37

Before commencing this experiment, Cora is ethically required to collect informed consent from

- A. the adolescents.
- B. a parent/guardian.
- C. the adolescents and their teachers.
- D. the adolescents and their parent/guardian.

Question 38

The graph below represents Cora's results.



Based on these results, is a week of bright light therapy likely to be recommended for adolescents with a circadian phase disorder?

- A. No, because bright light therapy had no effect on participants' levels of sleepiness.
- B. Yes, because bright light therapy had an immediate effect on participants' levels of sleepiness.
- C. Yes, because there is a clear pattern of improvement in the levels of sleepiness experienced by participants.
- D. No, because despite an initial improvement in levels of sleepiness, participants' levels of sleepiness began to return to baseline levels.

Question 39

If Cora were to replicate the experiment, what could she do to improve the likelihood of being able to generalise her results?

- A. Conduct the experiment in a controlled sleep clinic.
- B. Use both male and female adolescents in the sample.
- C. Use a control group to control for extraneous variables.
- D. Include a larger sample of adolescent boys from both suburban and rural schools.

DO NOT WRITE IN THIS AREA

Question 40

Which one of the following does **not** explain why stigma is viewed as a social risk factor in the development and progression of a mental illness?

- A. People with a mental illness avoid seeking support.
- B. People with a mental illness perceive themselves as different.
- C. People with a mental illness perceive having a mental illness as shameful.
- D. Stigma supports negative stereotypes about mental illness in the community.

Question 41

Sasha, a university student who also works part-time in a cafe, is placed at 'X' on the mental health continuum based on her mental health status.

Which one of the following scenarios most likely reflects Sasha's current situation?

- A. Sasha has been experiencing a consistently low mood, she is not engaged in her course and has not attended lectures for the past few months.
- B. Sasha deferred her course because she could not manage both work and study. This has resulted in sleeping problems for the last few weeks.
- C. Sasha is coping with the workload at university and is happy to have met someone she is interested in, but she is stressed about her decision to transfer to another course next year.
- D. Sasha needs a driver's licence to travel to university but she keeps failing her licence test. This is really frustrating her but she continues to take driving lessons and books another test.

Use the following information to answer Questions 42–45.

Over a few months, Marguerite experienced significant issues with her boss at work. Marguerite is usually very optimistic and positive but her problems with her boss were making her very unhappy. She could not think of any solution. Marguerite discussed the situation with her partner, who had noticed a significant change in her attitude. Her partner suggested that she join him at the gym to help manage her stress.

Question 42

Marguerite's current attitude would be considered a psychological risk factor because

- A. it is influenced by her workplace.
- B. it is based on her belief about the outcome.
- C. she is expressing her concerns to her partner.
- D. her emotions about the situation are caused by neurohormones.

Question 43

Which of the following identifies the internal and external factors interacting to put Marguerite's mental health at risk?

	Internal	External
A.	physical health	family relationships
B.	genetic predisposition to anxiety	lack of solutions
C.	emotional state	interactions with her boss
D.	low self-esteem	conflict resolution skills

Question 44

An appropriate coping strategy that Marguerite could use, that has context-specific effectiveness, would be to

- A. exercise to help her cope.
- B. set a meeting time to speak to her boss directly about the issue.
- C. change the subject when her partner begins to discuss the issue.
- D. apply a coping strategy that she used successfully to deal with a difficult teacher in the past.

Question 45

What type of factor would the suggestion from Marguerite's partner be considered to be?

- A. protective, because exercise may reduce her cortisol levels
- B. predisposing, because exercise may decrease her endorphin levels
- C. precipitating, because exercise may bring about biological change
- D. perpetuating, because Marguerite and her partner may continue to attend the gym in the future

DO NOT WRITE IN THIS AREA

Use the following information to answer Questions 46–49.

Eleanor's family goes to the beach once a year for their family holiday. One year, Eleanor, five, and her sister Janet, seven, were playing when their father scared the girls by pretending to be a sea monster covered in seaweed. Janet laughed at their dad for being silly but Eleanor got a dreadful fright. Two days later, the girls had an argument and Janet threw seaweed at Eleanor, who covered her face with her hands and became distressed. The following year, Eleanor cried each time the family discussed going back to the beach for a holiday. Her mother was concerned about her behaviour and a consultation with a psychologist revealed that Eleanor had developed a phobia of seaweed.

Question 46

Eleanor got such a dreadful fright when she saw her father pretending to be a sea monster that she felt transfixed and unable to move or act.

Which of the following identifies what was initially released into Eleanor's bloodstream at the time of the incident and its function?

	Released into bloodstream	Function
A.	glutamate	Help Eleanor form a fearful memory.
B.	GABA	Return Eleanor's body to homeostasis.
C.	cortisol	Energise Eleanor's body to be able to deal with the sudden threat.
D.	adrenaline	Activate various organs in the body for the 'fight-flight-freeze' response.

Question 47

Which one of the following best describes the effect of long-term potentiation in the development of Eleanor's phobia?

- A. The memories of her experiences with seaweed have the potential to affect her in the long-term.
- B. The memories of her holidays at the beach have been encoded into her episodic long-term memory.
- C. The neural signals representing the connection between the seaweed and her fear of it have been strengthened.
- D. The neural signals that fired when she experienced the sensation of being hit with seaweed have continued to fire in the long-term.

Question 48

Which one of the following describes the likely role of memory bias in the development of Eleanor's phobia?

- A. Eleanor is unable to recall the events accurately due to a fallible memory system.
- B. Each time Eleanor thinks of the events, they seem more threatening than they actually were.
- C. Eleanor's encoding of the events at the beach has been distorted by Janet's retelling of the story.
- D. Each time Eleanor talks about the events that happened at the beach, she incorporates new information.

Question 49

Which of the following identifies the most appropriate two strategies that Eleanor's family could use to help reduce Eleanor's cognitive biases regarding seaweed?

	Strategy 1	Strategy 2
A.	Teach Eleanor relaxation techniques to use when she feels anxious.	Remind Eleanor of a funny event at the beach.
B.	Encourage Eleanor to think positively.	Discourage Eleanor from avoidance behaviour.
C.	Provide evidence of times Eleanor enjoyed the beach.	Assist Eleanor in replacing negative thoughts with positive thoughts.
D.	Help Eleanor learn about mental illness.	Talk to Eleanor about positive experiences at the beach.

Question 50

Xuan is a researcher who wants to gather subjective and descriptive data from people who have been diagnosed with a mental illness in order to understand what living with a mental illness is like.

Which of the following identifies the type of data Xuan is collecting, the best method for collecting this data and the best sample size?

	Type of data	Data collection method	Sample size
A.	qualitative	interviews	small
B.	quantitative	interviews	large
C.	qualitative	questionnaire	large
D.	quantitative	online questionnaire with rating scales	small

**END OF SECTION A
TURN OVER**

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SECTION B**Instructions for Section B**

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

Question 1 (5 marks)

Finn was standing near a camp fire with his friends when he noticed the fire becoming hotter against the skin of his legs. To avoid getting burnt by the growing flames, he took a step away from the camp fire.

The human nervous system has two major divisions.

Identify the subdivision of **one** of these major divisions that activates Finn's responses and outline how the subdivision is involved in Finn's responses.

DO NOT WRITE IN THIS AREA

SECTION B – continued
TURN OVER

Question 2 (8 marks)

When Elliot heard that his father, Bob, was experiencing muscle rigidity and balance problems, Elliot was concerned that his father was developing Parkinson's disease. Elliot took Bob to the doctor, where Bob was diagnosed with Parkinson's disease. Soon after the diagnosis, Bob's symptoms increased. This became a significant source of stress for Elliot.

- a. With reference to the neurotransmitter involved, explain why Bob was experiencing the symptoms of muscle rigidity and balance problems.

3 marks

- b. Why could Bob's diagnosis of Parkinson's disease be considered a life event for Elliot?

2 marks

DO NOT WRITE IN THIS AREA

- c. Identify and outline a type of strategy that Elliot could use to maintain his resilience following his father's diagnosis of Parkinson's disease.

3 marks

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SECTION B – continued
TURN OVER

Question 3 (8 marks)**Snake avoidance training saves dogs' lives**

by Kwan Pelucci

Veterinary surgeon Margie Grey is a strong advocate of training dogs to avoid snakes. 'Snake avoidance training saves dogs' lives', said Dr Grey. To prevent dogs from being bitten, she regularly engages an animal trainer specialising in reptiles to work with her clients and their dogs. The methods the trainer uses are described below.

During the training sessions, the dogs wear a collar that delivers a low-level electric shock sent by a remote transmitter held by the animal trainer.

Over two or more sessions, each dog is exposed to a range of non-venomous snakes and trained to avoid these snakes. The animal trainer uses two different training methods in each session.

The first method involves conditioning the dogs to associate snakes with the electric shock delivered through their collar.

The second method involves giving the dogs a treat each time the dogs choose not to approach a snake.

Dr Grey said that even though the first part of the training uses an electric shock, she trained her own dogs using this method because she knows the treatment saves dogs' lives.

- a. In terms of classical conditioning, describe how the animal trainer creates an association between the neutral stimulus and the unconditioned stimulus to develop a conditioned response.

3 marks

- b. Operant conditioning was also used in this training.

Name the antecedent, the subsequent behaviour and the type of consequence in the training sessions. 3 marks

Antecedent _____

Behaviour _____

Type of consequence _____

- c. Provide two reasons why the animal trainer would use a negative stimulus in the first training method. 2 marks

1. _____

2. _____

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Question 4 (12 marks)

Dr Somandi is a sleep specialist who has two new patients.

His first patient is Claire. She is a healthy, 62-year-old woman who has difficulty falling asleep. Dr Somandi suggests that Claire would benefit from cognitive behavioural therapy to treat her insomnia. He refers her to a psychologist for this treatment.

Dr Somandi's second patient is Jack, a healthy eight-year-old boy. Jack's mother suspects that Jack is experiencing sleepwalking episodes. Dr Somandi admits Jack to a sleep clinic to further investigate Jack's sleep patterns.

- a. Other than when the sleep disturbances occur, outline a key difference between Claire's insomnia and Jack's sleepwalking. 2 marks

- b. How could cognitive behavioural therapy be used to treat Claire's insomnia? 3 marks

DO NOT WRITE IN THIS AREA

- c. The psychologist wants to collect data about Claire's insomnia.

Name a subjective reporting method that Claire could use and outline the qualitative information that this method could provide about Claire's insomnia.

2 marks

Reporting method _____

Qualitative information _____

- d. Identify the stage(s) of sleep during which sleepwalking typically occurs and describe the likely impact on Jack's daytime functioning according to the restoration theory of sleep.

3 marks

Stage(s) _____

Impact _____

- e. Why would video recording, rather than electromyograph (EMG), be a more appropriate method for monitoring Jack in the sleep clinic?

2 marks

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Question 5 (8 marks)

Year 12 student Steph was concerned about the possible adverse impacts that staying up late to study might have on the ability of drivers who are on their learner permit or probationary driver licence to accurately perceive visual stimuli while driving. To investigate this, Steph conducted research as described below.

Participants

Twenty people over the age of 18 from Steph's school community volunteered to participate.

Method

Day 1 – Participants experienced one night of natural sleep and completed a computer-based visual perception test at 9 am the following morning. The test involved identifying 30 letters of varying sizes displayed for brief periods.

Day 2 – Participants were required to sleep for only four hours in total over a 24-hour period and completed a similar computer-based visual perception test at 9 am the following morning.

Results

The results were recorded and collated as the mean percentage of letters accurately identified by participants under each set of conditions.

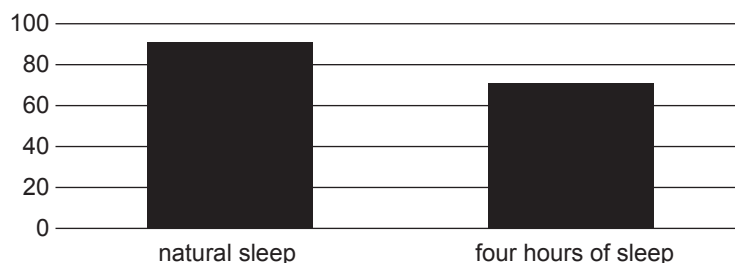


Figure 1

- a. What would be an appropriate label for the vertical axis of Figure 1?

1 mark

- b.** Steph chose not to include adolescents under the age of 18 in her research because they might be experiencing a circadian phase disorder.

- i.** Identify and describe the likely circadian phase disorder experienced by adolescents under the age of 18.

2 marks

- ii.** Predict the effect that the circadian phase disorder identified in **part b.i.** would have on the results of Steph's research if adolescents under the age of 18 were added to the sample. Justify your response.

2 marks

- c.** Suggest a conclusion for Steph's research.

3 marks

Question 6 (9 marks)

Psychiatrists in the Hopewell Flats area wanted to educate the public about issues related to mental health in order to help people identify when they should seek treatment. The psychiatrists prepared a pamphlet that included a number of scenarios, such as the one below.

When Ambreen was a young child, she developed a fear of the dark. She started using a night light as a child and continued to use one as an adult. When Ambreen was 20 years old, she moved into a share house with new housemates. Her housemates noticed after a few months that Ambreen always watched movies with the lights on and would not leave the share house in the evening, even to visit friends. One night, the power went out in the share house while Ambreen was home alone. Several hours later, her housemates returned home from a party to find Ambreen sitting on the couch in a highly distressed state.

- a. In terms of reinforcement, why might Ambreen still be using a night light?

3 marks

- b. Is Ambreen likely to be suffering from a phobia or from anxiety? Justify your response by comparing phobia and anxiety in relation to Ambreen.

3 marks

DO NOT WRITE IN THIS AREA

- c. The pamphlet also outlined the way evidence for an intervention is scientifically gathered.

A double-blind, placebo-controlled study is used to investigate the effects of short-acting, anti-anxiety benzodiazepine agents. Participants are assigned either to the benzodiazepine agent or to the placebo. Before the study begins, participants are fully informed of confidentiality, voluntary participation and withdrawal rights.

Explain why a placebo is needed in this type of study and how the researcher would satisfy ethical considerations resulting from the use of a placebo.

3 marks

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SECTION B – continued
TURN OVER

Question 7 (10 marks)

Six people were selected to undertake intense training in order to travel to Mars in 2030 to start a human colony on the planet. The training process is very rigorous as the astronauts must be able to cope with a variety of stressful situations during the journey to Mars and when they arrive on the planet. Prior to selection, a team of psychologists interviewed potential astronauts carefully to find out if they would be able to cope with the demands of the mission.

- a. In terms of biological risk factors, explain the concept of cumulative risk and why it would be important for the psychologists to investigate this in the potential astronauts.

3 marks

- b. Identify **one** characteristic of good mental health that the psychologists might be looking for in the potential astronauts and how this characteristic might be observed in their behaviour during the interview process.

2 marks

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- c. It is planned that the psychologists will observe the astronauts throughout the mission to investigate the effects of space travel on the astronauts' mental health.

Why would an observational study be used for this investigation rather than an experiment?

2 marks

- d. Justin was very keen to go to Mars in 2030 but thought that stress management may be a problem for him. He missed the first deadline for applications because he spent too much time trying to decide if he could cope with the demands of the mission. The second deadline is in two months.

- i. Identify Justin's current stage of the transtheoretical model of behaviour change.

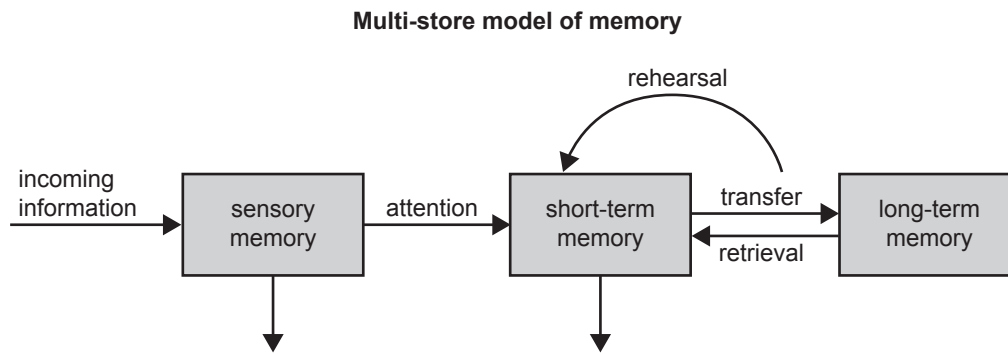
1 mark

- ii. Outline what Justin would need to do to reach the next stage of the transtheoretical model of behaviour change.

2 marks

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Question 8 (10 marks)



Source: adapted from P Shrestha, 'Types of Memory', in *Psychestudy*, 17 November 2017, <www.psychestudy.com/cognitive/memory/types>

The multi-store model of memory was first proposed by Atkinson and Shiffrin (1968). Current textbooks portray the model using a simplified diagram similar to the one above.

Discuss how the Atkinson-Shiffrin multi-store model of memory and other concepts, theories and/or evidence can be used together to explain the formation and retrieval of the memories of a person's first day at secondary school.

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SECTION B – Question 8 – continued
TURN OVER

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