psyched

Unit 3 Trial Exam 2021 – Assessment Guide

Section A – Multiple-choice Questions

VCAA Key Knowledge	Question	Answer guide
The role of neurotransmitters in the transmission of neural information between neurons (lock-and-key process) to produce excitatory effects (as with glutamate) or inhibitory effects (as with gamma amino butyric acid [GABA])	**Question 1** Which of the following statements about neurotransmitters is incorrect? **A.** neurotransmitters bind to receptor sites on the post-synaptic neuron **B.** glutamate is the primary excitatory neurotransmitter **C.** neurotransmitters are chemical messengers **D.** neurotransmitters act as the lock in the lock-and-key process	*D* *Neurotransmitters are the 'key' in the lock-and-key process as they have a specific molecular shape that allows the neurotransmitter to bind to the receptor site on the post-synaptic neuron.*

Use the following information to answer Questions 2 and 3.
Georgia was walking towards the pool when she stood barefoot on a sharp object. She immediately pulled her foot away.

The distinction between conscious and unconscious responses by the nervous system to sensory stimuli, including the role of the spinal reflex	**Question 2** Which of the following sequences most accurately represents the sequence of information transmission that occurred when Georgia pulled her foot away? **A.** receptors in the sole of her foot → spinal cord → sensory areas of her brain **B.** receptors in the sole of her foot → spinal cord → muscles in her foot and leg **C.** sensory areas of the brain → spinal cord → muscles in her foot and leg **D.** receptors in the sole of her foot → sensory areas in the brain → muscles in her foot and leg	*B* *As the response of Georgia withdrawing her foot is a spinal reflex, receptors in the sole of her foot send sensory information to her spinal cord, which then processes that information and sends a motor message to the muscles in her foot and leg to withdraw from the sharp object.*

The distinction between conscious and unconscious responses by the nervous system to sensory stimuli, including the role of the spinal reflex	**Question 3** What evidence supports the notion that Georgia's response was unconscious? **A.** her response involved awareness **B.** it was a voluntary response **C.** it was an involuntary response **D.** her response was goal directed	*C* *Georgia's reflex response was involuntary as it did not require conscious awareness.*

Use the following information to answer Questions 4 and 5.

Billy was swimming at the beach when he noticed a shadow approaching. He immediately felt anxious as he was unsure if it was something dangerous.

The roles of different divisions of the nervous system (central and peripheral nervous systems and their associated sub-divisions) in responding to, and integrating and coordinating with, sensory stimuli received by the body

Question 4

The dominant division of Billy's autonomic nervous system in this scenario is the

A. central nervous system.
B. peripheral nervous system.
C. sympathetic nervous system.
D. parasympathetic nervous system.

C *The sympathetic nervous system is the branch of the autonomic nervous system that prepares the body to deal with a threat.*

The roles of different divisions of the nervous system (central and peripheral nervous systems and their associated sub-divisions) in responding to, and integrating and coordinating with, sensory stimuli received by the body

Question 5

Which physiological changes are likely to occur if Billy frantically swims towards the shore?

A. a relaxed bladder and a slowed heart rate
B. constricted bronchi and an accelerated heart rate
C. constricted bronchi and constricted pupils
D. dilated bronchi and dilated pupils

D *The sympathetic nervous system is responsible for activating the body in order to deal with a threat, which would involve dilated pupils (to enable the threat to be seen easier) and dilated bronchi in the lungs (to enable more oxygen and energy to be metabolised to deal with the threat). A relaxed bladder, slowed heart rate, constricted bronchi, and constricted pupils are signs of parasympathetic nervous system dominance.*

The multi-store model of memory (Atkinson-Shiffrin) with reference to the function, capacity and duration of sensory short-term and long-term memory

Question 6

Nick was walking into the shop to pick up a few items when his phone rang – his wife was calling. He answered and said that he would call her back as soon as he was finished shopping. A few moments after he hung up the phone, he ran into a friend; they started talking and decided to get a coffee together. When he returned home over an hour later, his wife was angry that he had not called her back.

According to the Atkinson-Shiffrin multi-store model of memory, the information about calling his wife back entered Nick's _____ memory; but did not pass into his _____ memory.

A. sensory; long-term
B. short-term; long-term
C. sensory; short-term
D. long-term; short-term

B *According to the Atkinson and Shiffrin multi-store model of memory, this information would have entered his short-term memory, but due to the distraction of running into his friend, the information was not sufficiently encoded into his long-term memory. This explains why he forgot to call his wife back.*

Use the following information to answer Questions 7 and 8.

Tammy was taking notes for her friend who was away from class.

The role of the neuron (dendrites, axon, myelin and axon terminals) as the primary cell involved in the reception and transmission of information across the synapse (excluding details related to signal transduction)

Question 7

When Tammy writes, neural messages are transmitted from her brain to the muscles in her hand. Which of the following correctly lists the types of messages involved?

A. chemical messages around neurons, as well as chemical messages between neurons
B. electrical messages within neurons, as well as electrical messages between neurons
C. electrical messages within neurons, as well as chemical messages between neurons
D. electrical messages between neurons, as well as chemical messages within neurons

C *Neural transmission involves an electrochemical message; an electrical message within neurons and a chemical message between neurons.*

The role of the neuron (dendrites, axon, myelin and axon terminals) as the primary cell involved in the reception and transmission of information across the synapse (excluding details related to signal transduction)

Question 8

In her notes, Tammy was writing down the different roles of each of the structures in a neuron. The role of the dendrite is to

A. carry information down the neuron.
B. release neurotransmitters.
C. store neurotransmitters.
D. receive neural messages.

D *The role of the dendrite is to receive the neural message from an adjacent neuron.*

Use the following information to answer Questions 9-11.

Amelia is studying for her upcoming maths exam. She needs to learn some algebraic formulas, as she missed a few lessons on algebra.

The role of neurotransmitters and neuro-hormones in the neural basis of memory and learning (including the role of glutamate in synaptic plasticity and the role of adrenaline in the consolidation of emotionally arousing experiences)

Question 9

It is likely that the neurotransmitter dominating Amelia's neural pathways as she is learning the new algebraic formulas is

A. GABA.
B. glutamate.
C. cortisol.
D. adrenaline.

B *Glutamate is the main excitatory neurotransmitter and is essential for learning/long-term potentiation.*

The factors influencing a person's ability and inability to remember information, including context and state dependent cues, maintenance and elaborative rehearsal and serial position effect	**Question 10** Amelia decides to use mind maps to revise the other topics in the exam, which enables her to visually represent the relationships between key concepts. She has found that it is a useful way to help her recall information when completing assessment tasks throughout the term. Amelia likely finds this method of learning to be the most effective due to **A.** reconstructive memory. **B.** maintenance rehearsal. **C.** elaborative rehearsal. **D.** state dependent cues.	*C* *When Amelia creates mind maps, she is utilising elaborative rehearsal – this involves linking new information to previously-learned information that is stored in long-term memory.*

Methods to retrieve information from memory or demonstrate the existence of information in memory, including recall, recognition, relearning and reconstruction	**Question 11** Amelia realises that some of the formulas she learnt in maths last year are also being tested in the upcoming exam. She finds that she is able to write out a formula she learnt last year more quickly than expected. Which of the following methods of retrieval does Amelia demonstrate? **A.** relearning **B.** reconstruction **C.** cued recall **D.** recognition	*A* *Relearning is a method of retrieval that measures how much faster Amelia relearns previously-learnt material, such as the formulas from her previous year.*

Use the following information to answer Questions 12 and 13.

John decided to investigate the impact that stress has on memory recall. He thought that stress could be induced by providing a shorter time limit to memorise words.

In the first condition, the participants learnt a list of 20 words (presented on a piece of paper) in 45 seconds; in the second condition, the participants had a different list of 20 words, but they only had 15 seconds to learn the words from the printed list before writing down as many as they could remember. He had informed the participants that the more words they could recall, the higher their pay would be to participate in the study.

The results are shown below:

	Condition 1 (45 seconds)	Condition 2 (15 seconds)
Mean words recalled	11.4	7.1

The role of neurotransmitters and neuro-hormones in the neural basis of memory and learning (including the role of glutamate in synaptic plasticity and the role of adrenaline in the consolidation of emotionally arousing experiences).	**Question 12** Which neurohormone would likely be detected in higher amounts in Condition 2, compared to Condition 1? **A.** adrenaline **B.** cortisol **C.** glutamate **D.** GABA	*A*	*Adrenaline is a neurohormone that is released during times of stress, such as when the participants only had a short amount of time to learn the list of words in Condition 2.*

The multi-store model of memory (Atkinson-Shiffrin) with reference to the function, capacity and duration of sensory short-term and long-term memory	**Question 13** Rather than stress causing the effect of the result in Condition 2 (with 7.1 words recalled on average), a confounding variable could be **A.** the limited duration of sensory memory. **B.** the limited capacity of short-term memory. **C.** the limited duration of long-term memory. **D.** the limited capacity of long-term memory.	*B*	*The limited capacity of short-term memory may have been a confounding variable in John's study, because the number of items it can hold is 7±2. This means that participants may have only been able to recall an average of seven words in Condition 2, regardless of how much stress they experienced. It is unclear whether stress or the limited capacity of short-term memory can account for the mean words recalled of 7.1 in Condition 2.*

The multi-store model of memory (Atkinson-Shiffrin) with reference to the function, capacity and duration of sensory short-term and long-term memory	**Question 14** With regard to the Atkinson–Shiffrin model of memory, which of the following statements is incorrect? **A.** sensory memory has a greater capacity than short-term memory **B.** sensory memory has a shorter duration than short-term memory **C.** iconic and echoic memory are the only types of sensory memory **D.** sensory memory holds sensory information in its raw form	*C*	*Sensory memory holds information briefly from each of our physiological senses in a raw form, not only visual (iconic) and auditory (echoic) information.*

Use the following information to answer Questions 15 and 16.

Linda was at a dinner party where they served oysters. She loves oysters, so had a few. Afterwards, she felt ill and has never been able to eat an oyster again.

Classical conditioning as a three-phase process (before conditioning, during conditioning and after conditioning) that results in the involuntary association between a neutral stimulus and unconditioned stimulus to produce a conditioned response, including stimulus generalisation, stimulus discrimination, extinction and spontaneous recovery

Question 15

Which classical conditioning terms match the following elements from Linda's learning?

	Oysters	Feeling ill
A.	unconditioned stimulus	conditioned stimulus
B.	unconditioned response	conditioned response
C.	neutral stimulus	conditioned stimulus
D.	neutral stimulus	unconditioned response

D *Learning via classical conditioning results from the pairing of a neutral stimulus (e.g., oysters) with an unconditioned stimulus. The unconditioned stimulus leads to an unconditioned response (e.g., feeling ill).*

Classical conditioning as a three-phase process (before conditioning, during conditioning and after conditioning) that results in the involuntary association between a neutral stimulus and unconditioned stimulus to produce a conditioned response, including stimulus generalisation, stimulus discrimination, extinction and spontaneous recovery

Question 16

Linda could demonstrate stimulus generalisation if she showed which of the following responses?

A. feeling nauseated at similar types of seafood
B. not feeling nauseated at similar types of seafood
C. feeling nauseated only to oysters
D. not feeling nauseated to any food

A *Stimulus generalisation occurs when the conditioned response is also exhibited when similar stimuli (e.g., seafood or other shellfish) to the original conditioned stimulus (e.g., oysters), are presented.*

The reconstruction of memories as evidence for the fallibility of memory, with reference to Loftus' research into the effect of leading questions on eye-witness testimonies

Question 17

David was walking down the road when he witnessed an assault on an elderly person. When the police came, they asked him some questions about the attack. Which of the following could be considered a leading question?

A. "Where were you when you witnessed the assault?"
B. "What was worn by the person who assaulted the elderly person?"
C. "How tall was the young man who assaulted the elderly person?"
D. "When did the assault occur?"

C *Leading questions are questions that are asked in a certain way that suggest a certain answer, such as when the police officer asked David how tall the young man who attacked the elderly person was, as this implies it was a young man.*

Use the following information to answer Questions 18 and 19.

Tash is an elite gymnast and is attempting to be accepted into the next Olympic squad. The upcoming trials are causing Tash to feel very stressed as she feels under prepared.

Context-specific effectiveness, coping flexibility and use of particular strategies (exercise and approach and avoidance strategies) for coping with stress	**Question 18** If Tash were to use an approach strategy to reduce the stress that she is experiencing, which of the following may be an appropriate example? A. speaking to a more experienced gymnast for advice B. speaking to her friend about their plans on the weekend C. going shopping to buy a new outfit D. all of the above	*A*	*An approach strategy is one that actively confronts and deals directly with the stressor (such as speaking to a more experienced gymnast for advice). Speaking to them would be considered an approach strategy where she would be directly dealing with the stressor in a constructive way, allowing Tash to cope more effectively in the situation.*

Context-specific effectiveness, coping flexibility and use of particular strategies (exercise and approach and avoidance strategies) for coping with stress	**Question 19** Tash would be said to have a high-level of coping flexibility if she displayed which of the following characteristics? A. an ability to recognise that her coping strategy is ineffective; to discontinue this ineffective coping strategy; and not implement any other coping strategy B. an ability to recognise that her coping strategy is ineffective; to discontinue this ineffective coping strategy; and to then implement an alternative coping strategy C. an ability to implement a strategy that she knows has worked in the past D. an ability to implement a strategy that meets the demands of the stressor she is currently experiencing	*B*	*Coping flexibility would be demonstrated when Tash is able to recognise that her coping strategy is ineffective; discontinues this ineffective coping strategy; and then implements an alternative coping strategy suitable for the situation.*

Use the following information to answer Questions 20 and 21.

Sue is studying Year 12 Psychology.

Observational learning as a method of social learning, particularly in children, involving attention, retention, reproduction, motivation and reinforcement	**Question 20** Sue was learning about the different types of conditioning in her Psychology class. Sue learnt that vicarious conditioning involves the individual learning by A. pairing two stimuli together. B. receiving a positive consequence. C. receiving a negative or positive consequence. D. observing someone else receiving a consequence for their behaviour.	*D*	*Vicarious conditioning involves observing someone else receiving a consequence for their behaviour. This is an example of observational learning, where one learns through watching someone else's behaviour.*

The factors influencing a person's ability and inability to remember information, including context and state dependent cues, maintenance and elaborative rehearsal and serial position effect	**Question 21** After learning about memory in class, Sue has decided that when she sits the Psychology exam at the end of the year, she will take some deep breaths to calm herself down, much in the same way she would normally feel in Psychology class. Sue is attempting to manipulate which influence on memory? A. maintenance rehearsal B. elaborative rehearsal C. context dependent cues D. state dependent cues	*D*	*The internal (psychological and physiological) state that we are in (state dependent cues) can prompt the retrieval of memories formed in the same state. This is why Sue wants to mimic a calm demeanour that she would normally feel in Psychology class – so as to act as a retrieval cue when she completes the exam at the end of the year.*

Use the following information to answer Questions 22 and 23.

Marcus always fights with his younger brother on family weekend trips away. As a result, his parents have had enough and decide to take away his phone for the weekend. On the next family weekend trip, Marcus and his brother do not fight.

Operant conditioning as a three-phase model (antecedent, behaviour, consequence) involving reinforcers (positive and negative) and punishment (including response cost) that can be used to change voluntary behaviours, including stimulus generalisation, stimulus discrimination and spontaneous recovery (excluding schedules of reinforcement)	**Question 22** Marcus has learned to stop fighting with his brother through which type of learning? A. classical conditioning B. observational learning C. operant conditioning D. social learning	*C*	*Operant conditioning involves the association of a behaviour with a consequence. In this example, Marcus learns to stop fighting his brother (a behaviour) in order to not have his phone taken away (a consequence).*

Operant conditioning as a three-phase model (antecedent, behaviour, consequence) involving reinforcers (positive and negative) and punishment (including response cost) that can be used to change voluntary behaviours, including stimulus generalisation, stimulus discrimination and spontaneous recovery (excluding schedules of reinforcement)	**Question 23** According to this scenario, Marcus would demonstrate extinction if he showed which of the following responses? **A.** Marcus starts to fight with his brother again **B.** Marcus decides he does not mind if his phone is taken away **C.** Marcus stops talking to his brother **D.** Marcus buys another phone without telling his parents	*A*	*Extinction is when the learned behaviour (Marcus not fighting with his brother) is no longer shown.*

Observational learning as a method of social learning, particularly in children, involving attention, retention, reproduction, motivation and reinforcement	**Question 24** Aurora has watched her older sister play a complex piece on the piano many times, and although she would like to play the piece herself, she feels she does not have the same ability as her older sister. Because of this, she does not attempt to play the piece. With regards to observational learning, Aurora's decision not to play the piece is most influenced by **A.** motivation. **B.** reproduction. **C.** reinforcement. **D.** attention.	*B*	*The third stage in observational learning is 'reproduction.' It involves the learner being mentally and physically able to reproduce the behaviour. Aurora does not feel she has the required ability to be able to reproduce the behaviour of playing a complex piano piece.*

Use the following information to answer Questions 25 and 26.

Alvin was recently involved in a car accident where his car was side-swiped at an intersection. Although he was not severely hurt, Alvin was badly frightened by the incident and keeps having flash-backs every time he gets into a car.

Interactions between specific regions of the brain (cerebral cortex, hippocampus, amygdala and cerebellum) in the storage of long-term memories, including implicit and explicit memories	**Question 25** Alvin's memory of the accident was consolidated by the **A.** hippocampus. **B.** substantia nigra. **C.** cerebellum. **D.** cerebral cortex.	*A*	*This event would have triggered the activation of the amygdala in his brain (which is responsible for fear). This would lead to his hippocampus being signalled to strengthen the consolidation of the event (car crash), and hence, the strong memory of the incident.*

Models of stress as a biological process, with reference to Selye's General Adaptation Syndrome of alarm reaction (shock/counter shock), resistance and exhaustion, including the 'fight-flight-freeze' response and the role of cortisol	**Question 26** Which of the following physiological responses would have been suppressed by the activation of Alvin's fight-flight-freeze response at the time of the incident? **A.** heart rate **B.** sweat gland activity **C.** bowel activity **D.** sugar and fat conversion	*C*	*At the time of the incident, Alvin's bowel activity (digestion) would have been suppressed, as the resources involved in this would be diverted to more essential physiological systems to deal with the threat.*

Use the following information to answer Questions 27 and 28.
Watson and Rayner's work with Little Albert demonstrated that a fear response could be learnt.

The 'Little Albert' experiment as illustrating how classical conditioning can be used to condition an emotional response, including ethical implications of the experiment	**Question 27** In the Little Albert study, the fact that the potential risks of the study were probably not fully explained to Little Albert's mother breaches the ethical principle of **A.** informed consent. **B.** withdrawal rights. **C.** confidentiality. **D.** voluntary participation.	*A*	*Watson and Rayner should have fully informed Little Albert's mother (as Little Albert was too young to consent) about the true nature of the study, its aims and procedures, and potential risks to his wellbeing. As they did not do this, informed consent was breached.*

The 'Little Albert' experiment as illustrating how classical conditioning can be used to condition an emotional response, including ethical implications of the experiment	**Question 28** In the Little Albert study, what was the unconditioned stimulus? **A.** a loud banging noise **B.** fear to the loud banging noise **C.** a white rat **D.** fear to the white rat	*A*	*An unconditioned stimulus is a stimulus that naturally produces the unconditioned response. In the Little Albert experiment, a loud banging noise was the stimulus that naturally produced fear.*

Use the following information to answer Questions 29 and 30.
Xavier is trying really hard to remember a series of quotes for his English essay by reciting them over and over again.

Interactions between specific regions of the brain (cerebral cortex, hippocampus, amygdala and cerebellum) in the storage of long-term memories, including implicit and explicit memories	**Question 29** Which of Xavier's memory stores is least likely to be involved in this process? **A.** short-term memory **B.** declarative memory **C.** episodic memory **D.** semantic memory	*C*	*Episodic memory is least likely to be involved in the process of him reciting quotes, because episodic memory records autobiographical episodes we experience.*

The factors influencing a person's ability and inability to remember information, including context and state dependent cues, maintenance and elaborative rehearsal and serial position effect	**Question 30** By reciting the quotes over and over again, Xavier is utilising the process of **A.** maintenance rehearsal. **B.** elaborative rehearsal. **C.** state dependent cues. **D.** context dependent cues.	*A*	*Maintenance rehearsal is the process of repeating information over and over again, as seen in Xavier reciting the quotes for English.*

Use the following information to answer Questions 31-33.

Twin sisters Kristy and Hayley have just found out their mother has been diagnosed with Alzheimer's disease. The sisters both handled the news very badly and worried about how they would be able to look after their mother.

Sources of stress (eustress and distress) including daily pressures, life events, acculturative stress, major stress and catastrophes that disrupt whole communities	**Question 31** Identify the source of stress the twins would have experienced when they found out about their mother's diagnosis. **A.** daily pressure **B.** life event **C.** acculturative stress **D.** catastrophe	*B*	*The source of stress for the twins Kristy and Hayley would be due to a life event of being told of their mother's diagnosis.*

Models of stress as a psychological process, with reference to Richard Lazarus and Susan Folkman's Transactional Model of Stress and Coping (stages of primary and secondary appraisal)	**Question 32** In terms of primary appraisal within the Transactional Model of Stress and Coping, the twins would likely consider their mother's diagnosis as **A.** positive/benign. **B.** a challenge. **C.** harm/loss. **D.** a threat.	*D*	*The twins' primary appraisal of their mother's diagnosis would be highly-stressful and potentially a threat, given the likely consideration of their mother's future suffering and whether the twins would be able to look after her.*

The effects of brain trauma on areas of the brain associated with memory and neurodegenerative diseases, including brain surgery, anterograde amnesia and Alzheimer's disease	**Question 33** Alzheimer's disease is thought to be due to the death of brain-cells, caused by **A.** amyloid plaques **B.** amyloid tangles **C.** tau protein **D.** tau plaque	*C*	*Neurofibrillary tangles are thought to occur when tau protein accumulates within neurons, leading to cell death.*

Interactions between specific regions of the brain (cerebral cortex, hippocampus, amygdala and cerebellum) in the storage of long-term memories, including implicit and explicit memories

Question 34

With regards to implicit and explicit memories, which of the following is correct?

	Implicit memory	Explicit memory
A.	stored in the amygdala	formed in the hippocampus
B.	stored in the amygdala	stored in the cerebral cortex
C.	may be formed in the cerebellum	formed in the hippocampus
D.	may be formed in the cerebellum	stored in the hippocampus

C *Implicit memories (such as procedural memory) may be formed in the cerebellum (as well as other parts of the brain), while explicit memories are formed in the hippocampus.*

Models of stress as a biological process, with reference to Selye's General Adaptation Syndrome of alarm reaction (shock/counter shock), resistance and exhaustion, including the 'fight-flight-freeze' response and the role of cortisol

Question 35

Paul was walking to the shops late one night when a person with a mask jumped out in front of him, holding a knife. Paul found himself unable to move.

When a person is put under sudden and extreme stress such as this, it is possible that they will show what is known as a

A. countershock response.
B. fight response.
C. flight response.
D. freeze response.

D *A freeze response occurs when an organism is unable to move, due to a major and often overwhelming threat.*

Section B – Short Answer and Extended Response Questions

VCAA Key Knowledge	Question	Answer guide

Ella was preparing dinner and while chopping carrots, she accidently cut deeply into her finger. She instantly felt faint and like she was going to pass out. After a few minutes, she calmed down and walked to the bathroom to grab a bandage.

Models of stress as a biological process, with reference to Selye's General Adaptation Syndrome of alarm reaction (shock/counter shock), resistance and exhaustion, including the 'fight-flight-freeze' response and the role of cortisol	**Question 1a** (2 marks) Describe the shock sub-stage of Selye's General Adaptation Syndrome in relation to Ella.	**Answer:** • *The shock sub-stage of the General Adaptation Syndrome involves a decrease in Ella's resistance to stress (associated with cutting her finger).* • *This was shown when Ella instantly felt faint (perhaps due to a drop in blood pressure from the initial shock) when she cut her finger.* **Marking protocol:** One mark for each of the above points.

Models of stress as a biological process, with reference to Selye's General Adaptation Syndrome of alarm reaction (shock/counter shock), resistance and exhaustion, including the 'fight-flight-freeze' response and the role of cortisol	**Question 1b** (2 marks) Describe the changing role of cortisol as Ella progresses through the alarm reaction and resistance stages of Selye's General Adaptation Syndrome.	**Answer:** • *In the alarm reaction stage, Ella's cortisol levels would have started to rise in order to increase arousal to respond to the stressor of cutting her finger.* • *During the resistance stage, Ella's cortisol levels would be sustained at a heightened level to maintain an increased ability to resist/respond to the stressor.* **Marking protocol:** One mark for each of the above points.

The distinction between conscious and unconscious responses by the nervous system to sensory stimuli, including the role of the spinal reflex	**Question 1c** (3 marks) When assessing her cut finger, Ella was astounded, and blinked in disbelief at how much blood there was. Explain how eye-blinking can be both a conscious and an unconscious response, and the type of response Ella has made.	**Answer:** • *Eye blinking is usually something that an individual does involuntarily and automatically without thought, and therefore, it is generally considered an unconscious response.* • *That being said, an individual can choose to control it (for example, deliberately blinking every few seconds); thus, the eye blinking may become a conscious response.* • *Ella's blinking in astonishment at all of the blood from her cut finger appeared to be an unconscious response, because it appears to have happened automatically, without thought.* **Marking protocol:** One mark for each of the above points.

Jenni and Sue are cousins in their late sixties. At family gatherings each month, they love to reminisce about their holidays they had together as kids, particularly about an enjoyable trip to New York which was over 50 years ago. Although they do not remember many of the details, Jenni remembers Sue falling over while ice skating, but Sue insists that it was Jenni who frequently fell over.

The reconstruction of memories as evidence for the fallibility of memory, with reference to Loftus' research into the effect of leading questions on eye-witness testimonies	**Question 2a** (3 marks) With regard to the reconstructive nature of memory, suggest why Jenni and Sue's memories are different.	**Answer:** • *If Jenni and Sue recalled the memories of their trip several times, it is possible that extra details were added each time (e.g., from their friends and family, or through leading questions).* • *Furthermore, any missing aspects of their memory might be confabulated/incorrectly completed to make the memory seem more plausible to them.* • *This misinformation is then added to their original memory of the trip, causing Jenni's and Sue's reconstructed memories of their New York trip to be different. (This suggests that one, or both, of them has an inaccurate recall.)* **Marking protocol:** One mark for each of the above points.

Late in their New York trip, the cousins witnessed a shooting in the street. Sue was terrified and did not want to leave the hotel after the incident; however, it did not seem to bother Jenni.

Models of stress as a psychological process, with reference to Richard Lazarus and Susan Folkman's Transactional Model of Stress and Coping (stages of primary and secondary appraisal)	**Question 2b** (2 marks) With reference to the Lazarus and Folkman Transactional Model of Stress and Coping, distinguish between the primary appraisals of Jenni and Sue.	**Answer:** • *Sue had likely made a primary appraisal of witnessing the shooting as being stressful and a threat, because she believed in potential harm coming to her if it were to occur again, which is why she did not want to leave the hotel.* • *On the other hand, Jenni had likely made a primary appraisal of the situation as being irrelevant / benign / not being stressful to her.* **Marking protocol:** One mark for each of the above points.

The role of neurotransmitters and neuro-hormones in the neural basis of memory and learning (including the role of glutamate in synaptic plasticity and the role of adrenaline in the consolidation of emotionally arousing experiences) *Interactions between specific regions of the brain (cerebral cortex, hippocampus, amygdala and cerebellum) in the storage of long-term memories, including implicit and explicit memories*	**Question 2c** (3 marks) Even though Sue is now 67-years-old, she still remembers many details about the traumatic shooting event. In terms of a neurohormone and brain regions, explain why Sue would have an enhanced consolidation of this event, compared to other parts of her trip.	**Answer:** • *As she witnessed a traumatic incident, Sue would have experienced a release of the neurohormone adrenaline (given the activation of her sympathetic nervous system), unlike during other parts of her trip. This neurohormone enhances the consolidation of long-term memories of emotionally arousing experiences.* • *This would have triggered the activation of the amygdala in her brain (which is responsible for fear).* • *Then, her hippocampus would have been signalled to strengthen the consolidation of the event (shooting); hence, Sue has a strong memory of the incident many years later.* **Marking protocol:** One mark for each of the above points.

Kelly has recently moved out of home and has a new job. She decides to go and see her doctor as she has been experiencing high levels of stress and is finding it difficult to sleep at night. The doctor says that he can give her some medication to help her feel calmer and less stressed.

The role of neurotransmitters in the transmission of neural information between neurons (lock-and-key process) to produce excitatory effects (as with glutamate) or inhibitory effects (as with gamma amino butyric acid [GABA])	**Question 3a** (4 marks) With reference to the lock-and-key process, describe how medication that produces neurotransmitters that imitate GABA may help Kelly reduce the high level of activation of her nervous system once an action potential reaches the axon terminal.	**Answer:** • *When an action potential reaches the axon terminal of a pre-synaptic neuron, neurotransmitters that imitate GABA would be released into the synaptic gap/cleft.* • *The receptor sites act in the same way as a 'lock' that can be affected by the specific 'key' of a neurotransmitter.* • *When the neurotransmitter reaches the post-synaptic neuron, it then binds with the specific receptor site which matches/complements the chemical shape of the neurotransmitter.* • *The neurotransmitter may then exert its inhibitory effects (making the post-synaptic neuron less ready to 'fire'/generate an action potential), which should help Kelly to reduce her nervous system arousal.* **Marking protocol:** One mark for each of the above points.

Sources of stress (eustress and distress) including daily pressures, life events, acculturative stress, major stress and catastrophes that disrupt whole communities)	**Question 3b** (3 marks) Explain the difference between life events and daily pressures. Which of these did Kelly experience?	**Answer:** • *Life events are significant occurrences that forces an individual to adjust their life to manage new circumstances. Life events do not occur in everyday life (in some cases, they may only be experienced once in a lifetime [e.g., moving out of home]).* • *Conversely, daily pressures are the stressful experiences that a person is likely to encounter often and can be considered to be a part of everyday life (e.g., forgetting your keys).* • *For Kelly, both moving out of home and starting a new job are life events.* **Marking protocol:** One mark for each of the above points.

Operant conditioning as a three-phase model (antecedent, behaviour, consequence) involving reinforcers (positive and negative) and punishment (including response cost) that can be used to change voluntary behaviours, including stimulus generalisation, stimulus discrimination and spontaneous recovery (excluding schedules of reinforcement)	**Question 3c** (4 marks) Kelly continues to take the medication whenever she feels stressed. Identify the three phases of operant conditioning as they relate to this scenario, using key terms to describe the reason for Kelly's continued use of the medication.	**Answer:** • *Antecedent – Kelly feeling stressed.* • *Behaviour – taking the medication.* • *Consequence – Kelly feeling calmer/less stressed.* • *This consequence increases her future behaviour of taking the medication whenever she feels stressed; hence, it can be seen as a form of negative reinforcement.* **Marking protocol:** One mark for each of the above points.

A neuropsychologist performed several memory tests to assess whether a patient who had sustained a brain injury in a cycling accident was suffering from amnesia.

The effects of brain trauma on areas of the brain associated with memory and neurodegenerative diseases, including brain surgery, anterograde amnesia and Alzheimer's disease	**Question 4a** (3 marks) Describe the likely effect of damage to the hippocampus on both implicit and explicit memories that were formed before and after the accident.	**Answer:** • *Damage to the patient's hippocampus would be unlikely to lead to difficulties in retrieving both explicit and implicit memories formed before the accident.* • *Furthermore, the brain trauma would be unlikely to lead to difficulties in forming new implicit memories after the accident.* • *However, it would likely lead to difficulties in forming new explicit memories after the accident.* **Marking protocol:** One mark for each of the above points.

Methods to retrieve information from memory or demonstrate the existence of information in memory, including recall, recognition, relearning and reconstruction	**Question 4b** (2 marks) One of the tests carried out involved 20 different flash cards with different shapes and colours on them. The neuropsychologist showed the patient the cards in a set order and then shuffled them before asking the patient to put them back in the original order. Identify and describe the method of retrieval that the neuropsychologist was testing.	**Answer:** • *Reconstruction.* • *By shuffling the flash cards and asking the patient to put them in the original order, the patient would be using their memory of the original card order to reconstruct/reproduce the original stimulus of the cards in the same order.* OR • *Serial recall.* • *The patient would be required to use serial recall because memory retrieval of the sequence of the cards is tested by this task (i.e., the cards need to be recalled serially/in their original order).* **Marking protocol:** One mark for each of the above points. Note: Reconstruction is likely to be a better answer, as participants were given the cards to re-order and form the original stimulus. In a traditional serial recall task, participants may be provided with a sequence of items to remember, then recall those items in the order of presentation with minimal cues (e.g., verbally recalling the cards in their original sequence, without the use of the cards).

Five years ago, Jarrad learnt to play the guitar. Back then, he used to enjoy playing in a band with a group of school friends in his garage each weekend, and after a lot of practice, he was able to play a range of songs on his guitar effortlessly. At a recent weekend away with his old school friends, he picks up a guitar but has trouble remembering how to play the songs that he used to play in the band.

Neural plasticity and changes to connections between neurons (including long-term potentiation and long-term depression) as the fundamental mechanisms of memory formation that leads to learning	**Question 5a** (2 marks) Describe the role of both long-term potentiation (LTP) and long-term depression (LTD) in Jarrad being able to play a range of songs on his guitar effortlessly, and then many years later, being unable to remember how to play the songs that he had learnt.	**Answer:** • *Long-term potentiation would have occurred when Jarrad practised playing guitar regularly, as it would have strengthened the neural pathways that are involved in playing the guitar. (This would make it easier for him to play a range of songs on his guitar effortlessly.)* • *Long-term depression would likely be the reason why Jarrad is unable to remember how to play the songs he had learnt many years later. The neural pathways involved in playing the guitar songs would have weakened (due to repeated low intensity stimulation of the post-synaptic neuron).* **Marking protocol:** One mark for each of the above points.

The factors influencing a person's ability and inability to remember information, including context and state dependent cues, maintenance and elaborative rehearsal and serial position effect	**Question 5b** (2 marks) Jarrad wanted to relearn the songs he used to play in the band, so he approached a guitar teacher to help him regain his skill. His teacher suggests that he practises in his garage, where Jarrad originally learnt the band songs. Explain how practising in his garage may assist Jarrad in retrieving the memory of the songs that he used to play in the band.	**Answer:** • *The teacher is suggesting that Jarrad use context dependent cues to assist his memory.* • *Being in the same environment may act as a retrieval cue for memories formed in that context, making it easier for Jarrad to retrieve the memory of the songs that he used to play in the band.* **Marking protocol:** One mark for each of the above points.

Harry thinks his mother is in the early stages of Parkinson's disease. She is 67-years-old, and over the past few months, Harry has begun to notice some small hand tremors and slowness in her movement.

Harry searches for a pamphlet that explains the symptoms of Parkinson's disease, as well as its neurological basis and possible treatments. He hopes that this will encourage his mother to approach their family doctor.

The effects of chronic changes to the functioning of the nervous system due to interference to neurotransmitter function, illustrated by the role of dopamine in Parkinson's disease

Context-specific effectiveness, coping flexibility and use of particular strategies (exercise and approach and avoidance strategies) for coping with stress

Question 6 (10 marks)
Write a section of an information pamphlet that explains the chronic changes to the functioning of the nervous system as a result of Parkinson's disease.

Include explanations of the interference to neurotransmitter function, symptoms, risk factors, and possible treatments and help to support people with Parkinson's disease.

Also, assess the accuracy of Harry's belief that his mother has the early stages of Parkinson's disease.

Sample answer:

Interference to neurotransmitter function

- *Parkinson's disease is a neurodegenerative disease that is characterised by a progressive and irreversible (and therefore, chronic) decline in the structure and function of neurons, particularly in the substantia nigra in the brain (part of the central nervous system), which normally contains a high number of neurons that produce dopamine. Hence, this results in a reduction of dopamine-producing neurons.*
- *Because someone with Parkinson's disease has fewer dopamine-producing neurons, they then have less of the neurotransmitter dopamine.*
- *Dopamine normally helps an individual with motor control and coordination, such as producing smooth bodily movements. Therefore, a dopamine deficiency leads to insufficient neural messages being sent to the brain areas that control motor coordination, causing disruption to bodily movement.*

Symptoms

- *Parkinson's disease is primarily classified as a 'movement disorder' and a diagnosis is based on the presence of a number of movement abnormalities; however, it also impairs other functions. This contributes to disability and a loss of independence.*
- *It is a progressive disease of the nervous system which is characterised by a decline in both motor and non-motor functions that worsen over time. The symptoms can vary between individuals and in severity at different times of day.*
- *The motor symptoms associated with Parkinson's disease include resting tremor (which involves involuntary shaking); slowness of voluntary movement (bradykinesia), which can affect critical aspects of daily living (such as walking, chewing, swallowing, and clearly articulating speech) and also contributes to a lack of facial expression; akinesia (i.e., a loss of movement or difficulty initiating movement); muscle rigidity; postural instability; and shuffling gait.*
- *The non-motor symptoms associated with Parkinson's disease include a decrease in or the loss of one's sense of smell (anosmia); sweating and increased sensitivity to temperature (hot and/or cold intolerance); mental health problems (such as anxiety and depression); impaired cognitive functioning; and sleep disturbances.*

Risk factors

- *Parkinson's disease is idiopathic; it has no known cause. However, age and genetic factors may increase the risk of developing Parkinson's disease.*
- *Age is a major risk factor, because Parkinson's disease is most commonly found in adults over the age of 50. The risk increases with age.*
- *There may also be genetic risk factors, but a genetic link has not been fully established. Having a close relative with Parkinson's disease may increase the chance of someone developing Parkinson's disease; however, in many people with Parkinson's disease, there is no family history of Parkinson's disease.*

Possible treatments and help

- *While there is no cure for Parkinson's disease, there are a range of treatments that act to reduce the symptoms that one experiences. Some treatments involve a medication that is converted into dopamine to act on receptor sites of the post-synaptic neuron, while others mimic the effects of dopamine itself. This then reduces motor symptoms.*
- *Support for people diagnosed with Parkinson's disease comes in many forms; focussing on approach strategies may be beneficial (such as seeing a doctor), as they have a higher likelihood of effective coping in the long term, compared to avoidance strategies.*

- *Although Harry's mother does not appear to have any of the non-motor symptoms of Parkinson's disease (such as anosmia, which often precedes the onset of motor symptoms), Harry's belief that his mother has the early stages of Parkinson's disease can be supported by the notion that her age is within the high-risk bracket (50 years and over) and that her symptoms correspond to the motor symptoms of resting tremor and bradykinesia.*

Marking protocol:

This question is marked holistically out of a total 10 marks.
Outstanding responses will:
- Demonstrate an understanding of the causes and symptoms of Parkinson's disease.
- Identify and discuss possible treatments and coping advice.
- Evaluate the accuracy of Harry's belief based on information provided in the scenario.
- Ensure that the response relates to the information provided and is not a generic answer.

Above is an example of a response that would achieve 10 marks.

The following dot points list the criteria that are outlined in the 2017-2022 VCE Psychology exam specifications for the marking of 10-mark questions. In terms of this criteria, a 10-mark answer would:

• identification and explanation of formal psychological terminology relevant to the question	Explicitly explain the causes and symptoms of Parkinson's disease.
• use of appropriate psychology terminology	Use key terms from the study design relevant to the question.
• discussion of relevant psychological information, ideas, concepts, theories and/or models and the connections between them	Outline the connection between the causes and symptoms. Possibly link the ideas of coping strategies to the scenario.
• analysis and evaluation of data, methods and scientific models	Evaluate the accuracy of Harry's belief.
• drawing of evidence-based conclusions and explanation of limitations of conclusions	Draw on the information provided in the scenario to make conclusions.

psyched

VCE PSYCHOLOGY
Written Examination
ANSWER SHEET – 2021

STUDENT NAME:

Use a **PENCIL** for **ALL** entries. For each question, shade the box which indicates your answer.
Marks will **NOT** be deducted for incorrect answers.
NO MARK will be given if more than one answer is completed for any question.
If you make a mistake, **ERASE** the incorrect answer – **DO NOT** cross it out.

1	A	B	C	**D**	19	A	**B**	C	D
2	A	**B**	C	D	20	A	B	C	**D**
3	A	B	**C**	D	21	A	B	C	**D**
4	A	B	**C**	D	22	A	B	**C**	D
5	A	B	C	**D**	23	**A**	B	C	D
6	A	**B**	C	D	24	A	**B**	C	D
7	A	B	**C**	D	25	**A**	B	C	D
8	A	B	C	**D**	26	A	B	**C**	D
9	A	**B**	C	D	27	**A**	B	C	D
10	A	B	**C**	D	28	**A**	B	C	D
11	**A**	B	C	D	29	A	B	**C**	D
12	**A**	B	C	D	30	**A**	B	C	D
13	A	**B**	C	D	31	A	**B**	C	D
14	A	B	**C**	D	32	A	B	C	**D**
15	A	B	C	**D**	33	A	B	**C**	D
16	**A**	B	C	D	34	A	B	**C**	D
17	A	B	**C**	D	35	A	B	C	**D**
18	**A**	B	C	D					