

2019 Units 3&4 Trial Exam Assessment Guide

Section A

VCAA Key Knowledge

Question

Answer guide

Use the following information to answer Questions 1 and 2.

Tom was driving home from dinner when he was pulled over by the police to have a random breath test. He started to panic as he had consumed two glasses of wine over dinner.

changes in levels of alertness as indicated by brain waves patterns (beta, alpha, theta, delta) due to drug induced altered states of consciousness (stimulants and depressants)

Question 1

As Tom is under the influence of a depressant, his brain wave activity would likely _____ in frequency and _____ in amplitude in comparison to normal waking consciousness.

- A. decrease; increase
- B. increase; decrease
- C. increase; increase
- D. decrease; decrease

A *Alcohol is a known depressant that slows down bodily processes. Depressants reduce alertness and thus brain activity. Reducing the activity of the brain would decrease the frequency and increase the amplitude of brain waves, given a reduction in beta and increase in alpha, theta and delta brain waves.*

the effects on consciousness (cognition, concentration and mood) of one night of full sleep deprivation as a comparison with effects of legal blood-alcohol concentrations

Question 2

If Tom's blood-alcohol concentration (BAC) was recorded at 0.05%, his driving performance would most likely be _____ that of someone who had been awake for a 24-hour period.

- A. better than
- B. worse than
- C. equal to
- D. none of the above

A *Having a BAC of 0.05% would be 'better than' that of someone who has had sustained wakefulness for a 24-hour period. Research shows that sustained wakefulness for 24-hour period would lead to cognitive deficits (such as an inability to concentrate while driving) equivalent to a BAC reading of 0.10%.*

Use the following information to answer Questions 3-7.

Felicity was driving her fiancé Mark from Melbourne to Adelaide to visit both of their families to celebrate their recent engagement. They were driving for two hours along a 100km/hour zone on an empty freeway and talking about their wedding plans.

changes in a person's psychological state due to levels of awareness, controlled and automatic processes, content limitations, perceptual and cognitive distortions, emotional awareness, self-control and time orientation

Question 3

Felicity is an experienced driver who received her full driver licence ten years ago. For Felicity, driving along the empty freeway is probably a(n)

- A. controlled process allowing divided attention.
- B. controlled process requiring selective attention.
- C. automatic process allowing divided attention.
- D. automatic process requiring selective attention.

C *Once a task has been well-learned, it can become an automatic process that requires less conscious effort so that you can divide your attention, such as talking in the car while driving.*

consciousness as a psychological construct that varies along a continuum, broadly categorised into normal waking consciousness and altered states of consciousness (naturally occurring and induced)

Question 4

Felicity was talking nonstop about wedding plans while Mark was sitting in the passenger seat gazing out of the window, not paying attention to his surroundings. Felicity suddenly says, "Mark, are you listening to me?", as he hadn't been responding to any of her questions. Mark had probably been

- A. in normal waking consciousness (daydreaming).
- B. in an altered state of consciousness (daydreaming).
- C. in an altered state of consciousness (controlled processing).
- D. in normal waking consciousness (controlled processing).

B *An altered state of consciousness is any state that is different to that of normal waking consciousness. As Mark was gazing out the window and not listening to Felicity, it is likely he is daydreaming, which is an altered state of consciousness where we shift our attention to internal thoughts and feelings.*

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

Question 5

As they approach Adelaide, a car cuts in front and suddenly brakes while turning off the freeway. Felicity is forced to brake and swerve around the car to avoid a collision. These actions would be made possible by Felicity's _____, which are part of the _____ nervous system.

- A. sensory neurons; central
- B. motor neurons; somatic
- C. sensory neurons; somatic
- D. motor neurons; autonomic

B *Our somatic nervous system is a network of nerves that is part of the peripheral nervous system that carries information to and from our central nervous system (CNS). Performing an action such as swerving the car uses motor neurons that carry the message from the CNS to the skeletal muscles.*

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 6

Mark witnesses the close encounter and noticed that his heart started to pound rapidly in his chest. His physiological response to the near-accident would most likely be controlled by the

- A. sympathetic division of the autonomic nervous system.
- B. parasympathetic division of the autonomic nervous system.
- C. somatic division of the peripheral nervous system.
- D. sensory-motor division of the peripheral nervous system.

A *In a stressful situation, the sympathetic division of the autonomic nervous system is activated to prepare the body for action, and in doing so, many physiological responses are activated, such as the increase in heart rate that Mark experienced.*

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 7

According to the General Adaptation Syndrome, Mark's body would have first gone into shock and then countershock after the close encounter. During the countershock phase, a physiological response that Mark may have experienced would be

- A. his blood pressure decreasing.
- B. piloerection/goose bumps (where small bumps appear on the skin's surface as the hairs move upright).
- C. an increase in salivation.
- D. his pupils constricting.

B *The countershock phase of the alarm stage involves activation of the sympathetic nervous system to increase the body's resistance to a stressor. This causes a number of physiological responses that Mark may have experienced, such as piloerection or goose bumps. This occurs as an involuntary response when a person is scared/under threat.*

Use the following information to answer Questions 8-12.

Marcelle had been struggling with her sleep for many months; she had been averaging only four to five hours of sleep each night and felt very fatigued. Recently, this had started to affect her performance at work, so she decided to book an appointment with a sleep psychologist. The sleep psychologist arranged for Marcelle to spend a night in a sleep laboratory to help her diagnose any underlying sleep issues.

the measurement of physiological responses to indicate different states of consciousness, including electroencephalograph (EEG), electromyograph (EMG), electro-oculograph (EOG) and other techniques to investigate consciousness (measurement of speed and accuracy on cognitive tasks, subjective reporting of consciousness, including sleep diaries, and video monitoring)

Question 8

In the sleep laboratory, Marcelle was connected to an electromyograph (EMG). During rapid eye movement (REM) sleep, the EMG would show

- A. low levels of electrical activity in the muscles that move the eyes.
- B. low levels of electrical activity in the muscles of the body.
- C. high levels of electrical activity in the muscles that move the eyes.
- D. high levels of electrical activity in the muscles of the body.

B *An EMG is a device that detects, amplifies and records electrical activity of the muscles in the body. The device is able to indicate the presence and strength of muscle activity (movement) and muscle tone (tension) in a person's body while they sleep. As Marcelle was in REM sleep, she would be experiencing muscle atonia/cataplexy, so very low levels of electrical activity would be detected.*

the distinction between dyssomnias (including sleep-onset insomnia) and parasomnias (including sleep walking) with reference to the effects on a person's sleep-wake cycle

Question 9

The sleep psychologist determined that Marcelle was experiencing a dyssomnia rather than a parasomnia. This is because she was

- A. having difficulty with sleep onset.
- B. experiencing abnormal behaviour during sleep.
- C. having nightmares.
- D. sleepwalking.

A *A parasomnia is a specific event that occurs during sleep. On the other hand, a dyssomnia is an abnormality of the processes underlying the sleep-wake cycle and timing of sleep, which is why having difficulty getting to sleep would be indicative of a dyssomnia.*

the effects of partial sleep deprivation (inadequate sleep either in quantity or quality) on a person's affective (amplified emotional responses) behavioural and cognitive functioning

Question 10

After only four to five hours of sleep, it is likely that Marcelle would

- A. find the task of writing a work presentation easier than usual.
- B. find the task of proof-reading a work presentation easier than usual.
- C. find it easier to problem-solve at work.
- D. find it difficult to decide what her work presentation's format should be.

D *Sleep deprivation leads to a range of cognitive effects. Our ability to think clearly tends to reduce and we have difficulty making decisions, which would cause Marcelle to find it difficult to decide on what her presentation's format should be.*

the effects of partial sleep deprivation (inadequate sleep either in quantity or quality) on a person's affective (amplified emotional responses) behavioural and cognitive functioning

Question 11

Which of the following would not indicate reduced behavioural functioning due to Marcelle's partial sleep deprivation?

- A. slowed reaction time
- B. clumsiness
- C. an emotional outburst
- D. a microsleep

C *Experiencing partial sleep deprivation can compromise our affective, behavioural and cognitive functioning. Our brain's ability to process emotional information and regulate our emotions is compromised when sleep deprived, which could lead to emotional outbursts. An emotional outburst or amplified emotional response could indicate reduced affective functioning. Behavioural effects are those that influence an aspect of our actions, such as slowed reaction time.*

the influence of biological risk factors including genetic vulnerability to specific disorders, poor response to medication due to genetic factors, poor sleep and substance use

Question 12

In terms of Marcelle's inability to get adequate sleep, this would primarily be a _____ risk factor in her developing a mental disorder.

- A. biological
- B. psychological
- C. social
- D. protective

A *Poor sleep is linked to a range of mental disorders. It may contribute to the mental disorder itself or the mental disorder may be the cause of poor sleep. Having poor sleep is primarily a biological risk factor as sleep is a biological process.*

Use the following information to answer Questions 13-16.

For many months, Belinda had been working long hours in the hope that she would be given a promotion. She was ecstatic when she received a call the following week to congratulate her on her new promotion.

Sources of stress (eustress and distress) including daily pressures, life events, acculturative stress, major stress and catastrophes that disrupt whole communities

Question 13

Finding out about her promotion would likely put Belinda in a state of _____, which is a _____ psychological response to a stressor.

- A. eustress; negative
- B. eustress; positive
- C. distress; negative
- D. distress; positive

B *Belinda finding out about her promotion would likely put her in a positive psychological state as she had been working towards this for many months. This response to a stressor is known as eustress.*

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 14

In terms of Lazarus and Folkman's Transactional Model of Stress and Coping, Belinda's initial reaction of excitement would be a result of her _____ of the situation, as she perceived getting a promotion as a _____.

- A. primary appraisal; challenge
- B. secondary appraisal; threat
- C. primary appraisal; threat
- D. secondary appraisal; challenge

A *The Lazarus and Folkman model suggests that a person's experience of stress is based on an interpretation of the stressor by the individual. It first involves a primary appraisal where an individual judges the significance and potential stressfulness of a situation, followed by a secondary appraisal of the coping resources available. Belinda's interpretation of obtaining the promotion (as part of her primary appraisal) was likely perceived as a challenge, as she worked hard to gain the promotion for personal growth.*

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 15

When she received the call, Belinda would have shown high levels of physiological arousal due to her excitement; afterwards, her bodily processes would return to their normal levels of functioning. This return to physiological balance is achieved by the

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

A *The fight–flight–freeze response is an involuntary physiological response to a stressor that causes high levels of arousal due to the activation of the sympathetic nervous system. The parasympathetic nervous system then returns the body to homeostasis/balance.*

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

Question 16

To cope with the long hours and stress of her busy workload, Belinda decided to take up running as a form of exercise and stress release. Which of the following is not a benefit of exercise?

- A. physical exercise can increase the efficiency of the cardiovascular system, aiding in a person's general strength and stamina for encountering future stressors
- B. physical exercise can promote the release of glutamate into the body which can increase a person's mood and general sense of wellbeing
- C. physical exercise can provide a needed distraction from the stressor for a period of time to allow the person to focus their attention on something else
- D. physical exercise can aid in stress reduction by using the excess stress hormones that have been secreted into the bloodstream

B *Physical exercise can promote the release of beta-endorphins, which can promote a general sense of wellbeing. Glutamate is an excitatory neurotransmitter which makes a post synaptic neuron more readily to fire.*

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 17

Veronica was reminiscing about her thirteenth birthday pool party. Which type of long-term memory is most likely to be involved when she recalls this party?

- A. semantic
- B. implicit
- C. episodic
- D. procedural

C *Our episodic memory involves memories of personal experiences. It would allow Veronica to recall her thirteenth birthday pool party.*

Use the following information to answer Questions 18-22.

Tom is a 14-year-old who has just started Year 10 and plays football at a state level. His workload has increased dramatically since last year, and he is finding it hard to keep on top of his school work and sporting commitments. He stays up late to finish his school work after training each night, but even when he goes to bed at 10pm, he still finds that he lies awake for hours trying to get to sleep.

the differences in sleep across the lifespan and how these can be explained with reference to the total amount of sleep and changes in a typical pattern of sleep (proportion of REM and NREM)

Question 18

As an adolescent, what is the desired amount of sleep Tom should be having each night?

- A. 7 hours
- B. 9-10 hours
- C. 12 hours
- D. 6 hours

B *Research shows that adolescents should have approximately 9-10 hours of sleep per night. As Tom is 14 years old, he is considered an adolescent, and should be sleeping for around nine hours a night for optimal performance.*

sleep as a regular and naturally occurring altered state of consciousness that follows a circadian rhythm and involves the ultradian rhythms of REM and NREM Stages 1-4 sleep excluding corresponding brain wave patterns and physiological responses for each stage

Question 19

Which of the following sleep stages would you expect Tom to follow when he first went to sleep?

- A. NREM stage 1, NREM stage 2, NREM stage 3, NREM stage 4, REM
- B. REM, NREM stage 1, NREM stage 2, NREM stage 3, NREM stage 4, REM
- C. NREM stage 1, NREM stage 2, NREM stage 3, NREM stage 4, NREM stage 3, NREM stage 2, REM
- D. NREM stage 1, NREM stage 2, NREM stage 3, NREM stage 4, NREM stage 3, NREM stage 2, NREM stage 1, REM

C *The typical sequence that Tom would experience would be NREM followed by REM. You cycle through the different NREM stages from stage 1 through to 4, and then back up to 2, as we typically only experience NREM stage 1 as a transition into deeper stages of sleep.*

theories of the purpose and function of sleep (REM and NREM) including restoration theory and evolutionary (circadian) theory

Question 20

Gaining the desired number of hours of sleep is important for Tom's physical and mental health. The restoration theory of sleep suggests that sleep is essential for all but which of the following functions?

- A. replenishing bodily resources
- B. allowing the body to repair
- C. memory formation
- D. conserving energy

D *The restoration theory of sleep proposes that sleep aids in the body to recover from physical and mental wear and tear from the day. On the other hand, the evolutionary theory describes the purpose of sleep as a mechanism to enhance survival, such as conserving energy.*

changes to a person's sleep-wake cycle and susceptibility to experiencing a circadian phase disorder, including sleep-wake shifts in adolescence, shift work and jet lag

Question 21

It is common for young people to experience an adolescent sleep-wake shift. Tom reports having trouble falling asleep for several hours after going to bed at 10pm. A sleep-wake shift is caused by the delayed secretion of the hormone _____ by around _____ hours.

- A. melatonin; five
- B. melatonin; two
- C. endorphin; five
- D. endorphin; two

B *Sleep-wake shift is thought to be caused by the delayed secretion of the hormone melatonin by one to two hours in adolescence.*

the typical characteristics of a mentally healthy person, including high levels of functioning, social and emotional well-being and resilience to life stressors

Question 22

Although Tom is experiencing poor sleep, he is still a mentally healthy person. Which of the following characteristics can be attributed to a person such as Tom, with a high level of functioning?

- A. avoiding extracurricular activities at school
- B. being socially disconnected from his peers
- C. holding negative feelings about himself
- D. participating fully in both school and leisure activities

D *A person who is said to be mentally healthy will tend to show both high levels of social and emotional wellbeing. This means that Tom is likely to participate socially in school and leisure activities.*

Use the following information to answer Questions 23-26.

Amelia was involved in a car accident on her way to the shops, with both cars badly damaged in the collision. Amelia knocked her head on the front dashboard when the cars collided. She was unconscious for a short time before an ambulance arrived and follow up brain scans showed some minor signs of brain damage. During Amelia's recovery in hospital she experienced some memory problems.

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 23

Amelia suffered anterograde amnesia due to the accident. Which of the following is she likely to have experienced?

- A. difficulty forming new long term memories
- B. difficulty forming new short term memories
- C. difficulty retrieving old long term memories
- D. difficulty retrieving old short term memories

A *Anterograde amnesia is a condition whereby a person cannot form new long-term, explicit memories.*

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

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 24

Anterograde amnesia is often associated with damage to the

- A. amygdala.
- B. cerebral cortex.
- C. hippocampus.
- D. cerebellum.

C *Anterograde amnesia is often caused by head trauma where the brain tissue is injured from the brain impacting against the skull, which may have occurred when Amelia was thrown forward and knocked her head on the dashboard. It is specifically found to be associated with damage to the hippocampus in the region of the medial temporal lobe.*

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 25

After the incident, there was a dispute with the drivers as to who was at fault. The police called Amelia a few days later to hear her recollection of the incident. She was unable to recall the exact details of the accident. One of the officers decided to take her back to the scene of the accident to act as a

- A. context cue.
- B. state dependent cue.
- C. content cue.
- D. none of the above

A *A context cue is any environmental cue that assists in the retrieval of a memory formed in that particular situation/environment. The police officer taking Amelia back to the scene of the accident is an example of using context cues, as going back to the environment where the incident occurred can act as a retrieval cue to assist her recovering that memory.*

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 26

One month later, Amelia was required to attend court to provide evidence in relation to the car accident. When questioned by a lawyer, some of her responses were different to the statements provided to the police at the time of the accident. The difference in responses is possibly due to

- A. the reconstructive nature of memory.
- B. leading questions asked by the lawyer or police officer.
- C. what Amelia had since read and heard about the accident.
- D. all of the above.

D *Our memory is not an exact replica of events. A process of reconstruction occurs as we retrieve a stored memory. All these factors have the potential to contribute to the reconstruction of Amelia's memory of the incident, which may explain why her memory of the event differed from the initial statements provided to the police.*

Use the following information to answer Questions 27-30.

Simon teaches Spanish at a secondary school. In December, he was unexpectedly informed that he would not have a job at the school the following year, as his contract would not be renewed. Simon was devastated by this news as it would cause him to be denied a home loan that he had just applied for.

Sources of stress (eustress and distress) including daily pressures, life events, acculturative stress, major stress and catastrophes that disrupt whole communities

Question 27

The termination of Simon's work contract would most likely be considered which of the following sources of stress?

- A. distress
- B. acculturative stress
- C. a life event
- D. a catastrophe

C *A life event is a stressor that causes a change to our circumstances where we must adapt. For Simon, losing his job was a life event as it caused him to adapt to a new circumstance and in turn, he would have to make a long term adjustment, such as finding a new job.*

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 28

In terms of Lazarus and Folkman's Transactional Model of Stress and Coping, the damage that would occur from losing his job, such as his home loan application being denied in future, would be appraised by Simon as

- A. a threat.
- B. harm/loss.
- C. a challenge.
- D. irrelevant.

A *Simon would determine the situation as stressful and as a threat. This is because he would assess the damage that will result from losing his job, which could mean not being approved on his home loan application.*

the influence of psychological risk factors

the distinction between predisposing risk factors, precipitating risk factors, perpetuating risk factors and protective factors

Question 29

According to the biopsychosocial model, stress is an example of a _____ risk factor experienced by Simon when losing his job. It contributes to the susceptibility and possible onset of a mental disorder, which is known as a _____ risk factor.

- A. psychological; precipitating
- B. psychological; perpetuating
- C. biological; precipitating
- D. biological; perpetuating

A *Stress is primarily classified as a psychological risk factor to developing a mental illness. It may also be a precipitating risk factor meaning that it contributes to the susceptibility and possible onset of a mental disorder.*

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

Question 30

Which of the following would not be considered an approach strategy for Simon after he lost his job?

- A. making a list of appropriate jobs that he is going to apply for
- B. seeing a careers advisor to get advice about finding a new job
- C. denying that he had lost his job
- D. looking at losing his job as an opportunity to retrain and start a new career

C *An approach strategy involves a person actively dealing with the stressor in a constructive way to help minimise the long-term persistence of the stressor. On the other hand, an avoidance strategy involves a person disengaging with the stressor and its effects which can prevent them from responding to stressors in a more constructive way, meaning that the stressor is more likely to persist. Denying that you lost your job would be considered avoidance.*

Use the following information to answer Questions 31-33.

George was sitting in his Psychology class learning about the functioning of the human nervous system. He was carefully taking notes so that he could review them before a test next week.

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 31

George wrote down in his notebook that the lock and key model was an analogy for the process of neural transmission. He wrote down that the lock represents the _____ and the key represents the _____.

- A. neurotransmitter; dendrite on the postsynaptic neuron
- B. dendrite on the postsynaptic neuron; neurotransmitter
- C. neurotransmitter; postsynaptic neuron's receptor site
- D. postsynaptic neuron's receptor site; neurotransmitter

D *A neurotransmitter is released from the presynaptic neuron and sent across the synaptic gap to bind to specific receptor sites on the postsynaptic neuron. The neurotransmitter has a distinct chemical shape and is like a key that opens a specific lock (the receptor site).*

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 32

He also recorded that the synapse was

- A. the synaptic gap between two neurons.
- B. a combination of the synaptic gap and the axon terminals.
- C. a combination of the synaptic gap, the axon terminals of the presynaptic neuron and the dendrites of the postsynaptic neuron.
- D. a combination of the synaptic gap, the axon terminals of the postsynaptic neuron and the dendrites of the presynaptic neuron.

C *The place where communication occurs between adjacent neurons is known as the synapse. It is made up of not only the synaptic gap but also the axon terminals of the presynaptic neuron and the dendrites of the postsynaptic neuron.*

Methods to retrieve information from memory or demonstrate the existence of information in memory, including recall, recognition, relearning and reconstruction

Question 33

The questions in the multiple-choice section of the class test would utilise which method of retrieval?

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

C *Recognition involves identifying the correct information amongst alternatives which what is a multiple-choice question on a test is modelled on.*

Use the following information to answer Questions 34-39.

Ted is 35-years-old and works as a builder. When he was seven-years-old, he was playing frisbee with his brother in the back garden when the frisbee accidentally went into the next-door-neighbour's garden. Ted climbed over the fence to retrieve it, but when he was climbing over the fence, he was ferociously attacked by the neighbour's dog. He sustained severe injuries to his body, which required surgery and prolonged hospitalisation.

Since this incident, Ted cannot even look at a dog of any breed without getting extremely frightened. If a dog comes close to Ted, he will freeze and is unable to move until the dog is taken away. When walking down the street, Ted will purposely cross to the other side of the road if he sees a dog walking towards him, even if the dog is with its owner and the dog is on a lead. He has stopped going to parks, as the possible encounter with a dog is just too terrifying for him.

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 34

Tom being attacked by the dog when he was seven was a/an

- A. neutral stimulus.
- B. unconditioned stimulus.
- C. unconditioned response.
- D. conditioned stimulus.

B *Classical conditioning involves the association between the neutral stimulus (NS) followed by the unconditioned stimulus (UCS). The UCS is the stimulus which produces an automatic/innate response. In the case of Tom being attacked by the dog, this was the UCS as it naturally produced fear which is the unconditioned response (UCR).*

the relative influences of contributing factors to the development of specific phobia with reference to: gamma amino butyric acid (GABA) dysfunction, the role of stress response and long-term potentiation (biological); behavioural models involving precipitation by classical conditioning and perpetuation by operant conditioning, cognitive bias including memory bias and catastrophic thinking (psychological); specific environmental triggers and stigma around seeking treatment (social)

Question 35

Classical conditioning in this case has acted as a _____ factor in the acquisition of Tom's phobia of dogs.

- A. precipitating
- B. perpetuating
- C. protective
- D. predisposing

A *The behavioural model states that a phobia can be learnt through experience. A phobia is said to be precipitated by classical conditioning, meaning the process of classical conditioning contributes to the onset of a phobia. The naturally occurring fear response (UCR) to being attacked by a dog eventually becomes a conditioned fear response (CR) to the sight of a dog, which caused Tom to develop a phobia of all dogs.*

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 36

Which of the following is a neurohormone that would have enhanced his memory of the trauma during the attack?

- A. gamma amino butyric acid (GABA)
- B. acetylcholine
- C. dopamine
- D. adrenaline

D *Adrenaline is a neurohormone that plays an important role in the enhanced consolidation of long-term memories that are emotionally arousing in nature. Significant stress-inducing events (such as being attacked by the neighbour's dog) are unpleasant experiences that are emotionally arousing, that typically leave memories that are long lasting and vivid.*

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 37

Given that Tom is now afraid of all dogs, and not just the dog that originally attacked him, which process of classical conditioning is Tom demonstrating?

- A. extinction
- B. spontaneous recovery
- C. stimulus discrimination
- D. stimulus generalisation

D *Stimulus generalisation involves the learner producing the conditioned response (CR) to another similar stimulus to that of the original conditioned stimulus (CS). Tom is not only afraid of the dog that attacked him (CS) but all dogs in general.*

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 38

Tom crossing the road whenever he sees a dog coming, to remove any chance of an encounter with a dog, would be a form of

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

A *Operant conditioning is a three-phase model that proposes that behaviour is guided by the consequence that follows. Negative reinforcement is a type of consequence which involves the removal of an unpleasant stimulus which increases the likelihood of that behaviour occurring again. The fact that Tom crosses the road to avoid dogs, which to him is an unpleasant stimulus, increases the likelihood that he will continue to do so in the future.*

evidence-based interventions and their use for specific phobia with reference to: the use of short-acting anti-anxiety benzodiazepine agents (gamma-amino butyric acid [GABA] agonists) in the management of phobic anxiety and relaxation techniques including breathing retraining and exercise (biological); the use of cognitive behavioural therapy (CBT) and systematic desensitisation as psychotherapeutic treatments of phobia (psychological); psychoeducation for families/supporters with reference to challenging unrealistic or anxious thoughts and not encouraging avoidance behaviours (social).

Question 39

Evidence-based interventions are the preferred treatments for people with specific phobias. Which of the following is not a biological evidence-based intervention that a psychologist may suggest to Tom?

- A. benzodiazepines
- B. breathing retraining
- C. exercise
- D. systematic desensitisation

D *An evidenced based intervention is one that is research-based and found to be effective. A biological intervention is any intervention that targets the physiological symptoms of the phobia. The use of benzodiazepines, breathing retraining and exercise are all biological interventions, whereas systematic desensitisation is a psychological intervention.*

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 40

We are consciously aware of stimuli that are in our _____ memory, as it is sometimes referred to as our mental workspace for storing information that we are currently aware of.

- A. implicit
- B. echoic
- C. short-term
- D. long-term

C *Our short-term memory is often referred to as 'working memory' or our mental workspace which stores the information we are currently conscious of.*

Use the following information to answer Questions 41-44.

Sarah recently had a medical check-up with her doctor, which showed that she had high cholesterol. The doctor told her that she needed to live a healthier lifestyle, by changing her diet and exercising more frequently. She knew she had to make a change but could not afford to attend exercise classes, so instead, she decided to watch yoga videos on the internet and research online healthy eating plans.

models of behaviour change with reference to the transtheoretical model including the stages of pre-contemplation, contemplation, preparation, action and maintenance/relapse

Question 41

Which of the following identifies the stage of the transtheoretical model demonstrated by Sarah in her use of the internet to research yoga and healthy eating plans?

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

C *The transtheoretical model is a model which describes the processes involved in making behavioural change. The preparation stage involves the person intending to make the change, such as Sarah researching yoga exercises and healthy eating plans.*

Observational learning as a method of social learning, particularly in children, involving attention, retention, reproduction, motivation and reinforcement

Question 42

Sarah could describe all the yoga exercises in detail. However, despite her attempts, she could not successfully perform the yoga poses due to her physical inflexibility. Which aspect of observational learning did Sarah most likely not achieve?

- A. attention
- B. retention
- C. reproduction
- D. motivation

C *In observational learning, learning occurs through watching other people's actions (and the consequences of those actions) to use as a guide for our own behaviour. The reproduction stage involves the learner having the capability to reproduce the observed behaviour. Even though Sarah paid attention to the videos online and retained the information about the yoga moves, she was still physically unable to perform this behaviour.*

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

Question 43

Sarah had worked hard to eat nutritious food and exercise regularly for over three months, and had successfully reduced her high cholesterol levels. However, a month later, Sarah had gone back to her old ways and became stressed that she may be becoming unhealthy again. She did not ask her friends for advice because she was too ashamed to ask for help. Sarah's strategy for coping was likely

- A. avoidance, as she did not confront the problem.
- B. approach, as she confronted the problem.
- C. emotion focused, as she confronted the problem.
- D. problem focused, as she did not confront the problem.

A *There are many different strategies for coping with stress. An avoidance strategy is employed when an individual does not make an attempt to actively confront the stressor, as in the case of Sarah not seeking advice or support from her friends.*

models of behaviour change with reference to the transtheoretical model including the stages of pre-contemplation, contemplation, preparation, action and maintenance/relapse

Question 44

Which stage of the transtheoretical model are people, such as Sarah, most likely to experience a relapse?

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

C *The transtheoretical model is a model which describes the processes involved in a person making a behavioural change. The action stage involves the person having made the change and adopted the new behaviour in the short term. It is prone to what is known as a relapse where the person returns to the initial problem behaviour; in Sarah's case, eating badly and not exercising frequently.*

The 'Little Albert' experiment as illustrating how classical conditioning can be used to condition an emotional response, including ethical implications of the experiment

Question 45

In the classic study, Watson and Rayner demonstrated that an emotional response can be conditioned. In their experiment with 'Little Albert' the conditioned stimulus was

- A. a laboratory rat.
- B. a toy train.
- C. a loud noise.
- D. fear.

A *In Watson and Rayner's experiment with 'Little Albert' they used a laboratory rat that was initially a neutral stimulus, but after conditioning became the conditioned stimulus that produced the conditioned response of fear.*

Use the following information to answer Questions 46 to 50.

A researcher was investigating the effects of a new drug in the treatment of post-traumatic stress disorder (PTSD). Concerned about experimenter bias, the researcher used a double-blind procedure with the help of a research assistant who worked directly with the participants in the control and experimental groups.

Determine appropriate type of investigation: experiments (including use of control and experimental groups); case studies; observational studies; self-reports; questionnaires; interviews; rating scales; access secondary data, including data sourced through the internet that would otherwise be difficult to source as raw or primary data through fieldwork, a laboratory or a classroom

Question 46

The control group should

- A. not take the new drug to treat PTSD.
- B. take the new drug to treat PTSD to be consistent with the experimental group.
- C. be able to choose if they take the new drug to treat PTSD or not.
- D. take a higher dose of the new drug to treat PTSD.

A *The control group is a group that is used as a baseline of comparison against the experimental group. They are not exposed to the independent variable and therefore should not take the new drug to treat PTSD.*

Minimise confounding and extraneous variables by considering type of sampling procedures, type of experiment, counterbalancing, single and double blind procedures, placebos, and standardised instructions and procedures

Question 47

The investigation used a double-blind procedure to avoid experimenter bias. Which of the following best describes this procedure?

- A. only the researcher knew which group the control and experimental group was
- B. only the research assistant knew which group the control and experimental group was
- C. both the researcher and the experimental group knew which group received the control condition
- D. both the researcher and the research assistant knew which group the control and experimental group was

A *A double-blind procedure is a method to minimise the effects of extraneous variables in a research study. It involves the participants not being aware of their participation in the control or experimental conditions, as well as the researcher administering the conditions (i.e. the research assistant) so that the experiment is not carried out in a biased way.*

Minimise confounding and extraneous variables by considering type of sampling procedures, type of experiment, counterbalancing, single and double blind procedures, placebos, and standardised instructions and procedures

Use basic principles of reliability and validity in evaluating research investigations undertaken

Question 48

In the experiment, it is essential the researcher controls for extraneous variables so that

- A. there is a high probability that the results obtained about the new drug were due to chance.
- B. a valid conclusion can be made about the effect of the new drug (independent variable) on PTSD (dependent variable).
- C. a valid conclusion can be made about the effect of the new drug (dependent variable) on PTSD (independent variable).
- D. the hypothesis that the new drug will reduce the effects of PTSD is supported, and the results of the experiment can be generalised to the broader population.

B To draw a valid conclusion in any research, it is essential that extraneous variables are controlled for. This is to ensure that it is in fact the independent variable (new drug) that is having an effect on the dependent variable (PTSD) and not some other factor or due to chance.

Apply ethical principles when undertaking and reporting investigations, including consideration of the role of the experimenter, protection and security of participants' information, confidentiality, voluntary participation, withdrawal rights, informed consent procedures, use of deception in research, debriefing and use of animals in research

Question 49

Some of the participants in the experiment were children. In order to obtain informed consent, the researcher would have needed to

- A. inform only the participant so that they understood the nature, purpose and risks of the study.
- B. inform only the legal guardian so that they understood the nature, purpose and risks of the study.
- C. inform the legal guardian and participant (to the best of their ability) so that they understood the nature, purpose and risks of the study.
- D. inform only the legal guardian and participant's relatives so that they understood the nature, purpose and risks of the study.

C One of the key ethical guidelines a researcher must follow is informed consent. This is to ensure that any potential participant fully understands the nature, purpose and risks of the study they are about to volunteer for. In addition, an underage participant must have consent from a legal guardian. Furthermore, the participant must still be informed to the best of their ability about the nature, purpose and risks of the study.

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 50

The new drug works by interfering with the neurotransmitters involved in long-term potentiation (LTP). Which of the following neurotransmitters would the new drug primarily interfere with?

- A. gamma amino butyric acid (GABA), which has an inhibitory effect
- B. gamma amino butyric acid (GABA), which has an excitatory effect
- C. glutamate, which has an inhibitory effect
- D. glutamate, which has an excitatory effect

D Long-term potentiation (LTP) is the long-lasting strengthening of synaptic connections, primarily involving the excitatory neurotransmitter glutamate.

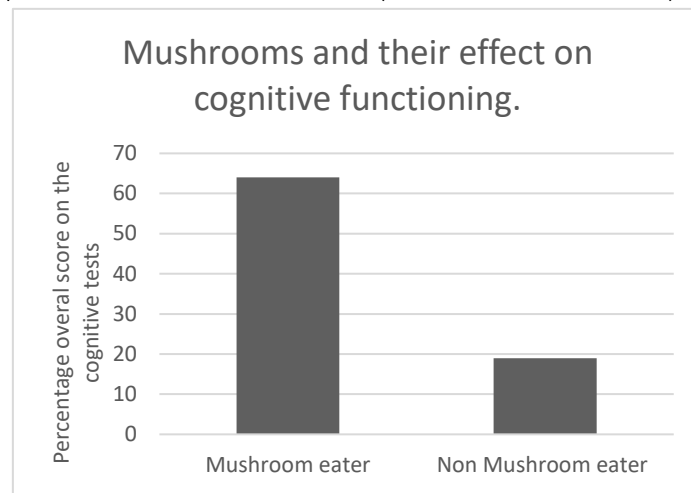
Section B

VCAA Key Knowledge

Question

Answer guide

A recent study by the National University of Singapore has shown that eating more than two portions of mushrooms a week could prevent memory problems occurring later in life. They discovered that antioxidants present in the mushrooms could have a protective effect on the hippocampus. The study involved 663 adults aged 60 and over who were tracked for lifestyle factors from 2011 to 2017, including how many portions of mushrooms they ate in their day-to-day life. Those that self-reported that they were 'Mushroom eaters' (who habitually ate more than two portions a week) performed higher in a cognitive test involving memory recall than those who habitually ate less than two portions of mushrooms a week ('Non Mushroom eaters').



the characteristics of scientific research methodologies, including techniques for primary qualitative and quantitative data collection relevant to the investigation

Question 1a (1 mark)

Would data from the cognitive tests be considered qualitative or quantitative?

Answer:

- *The test data would be considered to be quantitative (numerical).*

Marking protocol:

One mark for the above point.

Determine appropriate type of investigation: experiments (including use of control and experimental groups); case studies; observational studies; self-reports; questionnaires; interviews; rating scales; access secondary data, including data sourced through the internet that would otherwise be difficult to source as raw or primary data through fieldwork, a laboratory or a classroom

Question 1b (2 marks)

Is the mushroom study an experiment? Justify your answer.

Answer:

- *The study is not an experiment...*
- *...as there was no systematic manipulation of an independent variable (i.e. a certain quantity of mushrooms was not deliberately fed to the groups), but rather correlated mushroom eating habits with performance on cognitive tasks.*

Marking protocol:

One mark for each of the above points.

independent and dependent variables and operationalisation of variables

Question 1c (2 marks)
Operationalise the independent variable of this study.

Answer:

- *The independent variable is the amount of mushrooms consumed, operationalised as habitually eating more than two portions of mushrooms per week (a 'mushroom eater') or habitually eating less than two portions of mushrooms per week (a 'non mushroom eater').*

Marking protocol:

One mark for specifying the criteria for being part of the 'mushroom eater' group, and one mark for specifying the criteria for being part of the 'non mushroom eater' group.

Samantha is walking home from the train station late one night. Suddenly, there is a loud bang and she jumps in fright from the noise. She looks across the road and sees an old car that had just backfired (that is, its engine created a minor explosion) as it took off from the traffic lights at the intersection. Samantha noticed that her heart rate had increased dramatically, so she walked slowly for several minutes to try to recover her composure. The next time she took the train home, she avoided the intersection where the car backfired.

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 2a (2 marks)
Identify two physiological responses, other than increased heart rate, that Samantha would have experienced as she heard the loud noise.

Answer:

- *Dilation of pupils*
- *Dry mouth/decrease in salivation production*
- *Goose bumps*
- *Increased sweating*
- *Increased blood pressure*
- *Hyperventilation/increased breathing rate*
- *Butterflies in stomach/suppression of digestion*
- *Stimulated production of glucose/adrenaline*

Marking protocol:

One mark for any of the above points (or any other reasonable physiological response to acute stress), to a maximum of two.

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 2b (3 marks)
Explain the role of Samantha's nervous system in experiencing the bodily changes in Question 2a.

Answer:

- *Hearing the loud noise would have activated Samantha's sympathetic nervous system.*
- *The activation of her sympathetic nervous system produced the physiological responses/arousal she experienced (increased heart rate, etc.) which is characteristic of the fight-flight-freeze response.*
- *In response to the loud noise/stressor/potential threat, stress hormones (such as adrenaline/noradrenaline/cortisol) would have been released, which activates visceral muscles, organs and glands to help deal with the perceived threat.*

Marking protocol:

One mark for identifying the sympathetic nervous system.
One mark for identifying the fight-flight-freeze response.
One mark for identifying the role of stress hormones.
Note: the answer must refer to the scenario in some way, otherwise, a maximum of one mark is awarded.

The distinction between conscious and unconscious responses by the nervous system to sensory stimuli, including the role of the spinal reflex

Question 2c (2 marks)

Discuss whether Samantha's physiological response of an increased heart rate following the sound of the car backfiring was conscious or unconscious, with reference to the nervous system/s involved.

Answer:

- *Samantha's heart rate increasing was an unconscious response to a sensory stimulus.*
- *The activation of her (sympathetic nervous system, governed by the) autonomic nervous system when she heard the loud noise of the car backfiring is reflexive, which increased her heart rate (to pump more blood around her body enabling her to be able to react quickly to avoid danger).*

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 2d (3 marks)

Using the three-phase model of operant conditioning, explain why Samantha now avoids the intersection.

Answer:

- *Antecedent: the loud noise at the intersection.*
- *Behaviour: Samantha avoiding the intersection.*
- *Consequence: removing the fearful/unpleasant stimulus of the intersection (negative reinforcement), which may lead Samantha to continue to avoid the intersection.*

OR

- *Antecedent: the intersection/cars along the main road intersection.*
- *Behaviour: walking along the intersection.*
- *Consequence: a car backfiring, causing an unpleasant fright (positive punishment), which may lead Samantha to avoid the intersection.*

Marking protocol:

One mark each for identifying the three phases (discriminative stimulus/antecedent; response/behaviour; consequence) and relating each of the three phases to the scenario.

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

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 2e (4 marks)

Explain two reasons why Samantha's avoidance of the main road intersection is an example of a behaviour acquired through operant conditioning and not classical conditioning.

Answer:

- *Consistent with the nature of operant conditioning, Samantha is actively involved in the learning, because she was required to produce the behaviour of walking while a car backfired for learning to occur. (She does not passively acquire the behaviour as she would in classical conditioning.)*
- *Consistent with the nature of operant conditioning, her response is a voluntary behaviour. Walking or avoiding walking at the main road intersection is a non-reflexive behaviour. (Her response is not an involuntary, reflexive response in the presence of the conditioned stimulus such as in classical conditioning.)*
- *Consistent with the nature of operant conditioning, the consequence of the response, either being punished by hearing the loud noise, or negatively reinforced by avoiding the loud noise, is an essential component to the acquisition process. (This is unlike classical conditioning, where no consequences of a response are needed for acquisition to occur.)*
- *Consistent with the nature of operant conditioning, a stimulus (such as a reinforcer or punisher) is presented after the behaviour. After walking near the intersection, the loud noise is a stimulus that is presented afterwards. (This is different to classical conditioning where stimuli precede a response, with no stimulus following the response.)*

Marking protocol:

Two marks for any of the above points (one mark describing a characteristic of operant conditioning as distinct from classical conditionings, and an additional mark for linking this to the scenario), to a maximum of four.

Gabrielle, a 25-year-old actor, recently started to travel overseas for work, but has always found it difficult to sleep on aeroplanes. During a recent flight from Melbourne to New York for the filming of a new television show, she only slept a total of three hours. Upon her arrival in New York, Gabrielle picked up a double shot espresso coffee and went straight to a rehearsal. Over the following days, she found that she would often stutter, forget her lines, and had trouble falling asleep at the desired time.

the effects of partial sleep deprivation (inadequate sleep either in quantity or quality) on a person's affective (amplified emotional responses) behavioural and cognitive functioning

Question 3a (4 marks)

Describe the effects of Gabrielle's partial sleep deprivation on her affective and cognitive functioning, and how this could affect her rehearsal.

Answer:

- *An affective consequence of Gabrielle's partial sleep deprivation could include irritability...*
- *...which may have affected her in the rehearsal by making her more frustrated when she forgets her lines.*
- *A cognitive effect that Gabrielle may have experienced is difficulty recalling information...*
- *...which may have affected her in the rehearsal by making her forget her lines.*

Marking protocol:

One mark for an appropriate emotional effect that is due to partial sleep deprivation, and an additional mark for linking it to her rehearsal. Other acceptable emotional effects include:

- grumpiness/aggression
- anxiety
- amplified/exaggerated/heightened emotional reactions
- more impulsive/quicker emotional reactions/less impulse control

One mark for an appropriate cognitive effect that is due to partial sleep deprivation, and an additional mark for linking it to her rehearsal. Other acceptable cognitive effects include:

- reduced awareness
- reduced alertness/concentration
- difficulty making decisions
- difficulty with problem solving
- difficulty with organisation and planning
- illogical/disordered thinking

changes in levels of alertness as indicated by brain waves patterns (beta, alpha, theta, delta) due to drug induced altered states of consciousness (stimulants and depressants)

Question 3b (2 marks)

Explain how consuming a double shot espresso coffee would likely affect Gabrielle's brain wave patterns.

Answer:

- *Coffee (contains caffeine which) is considered a stimulant.*
- *Stimulants will likely increase the frequency of brain waves/number of beta brain waves present (and reduce the number of lower frequency/alpha/theta/delta brain waves).*

Marking protocol:

One mark for each of the above points.

Gabrielle decides to attend a sleep seminar to learn more about why she is experiencing trouble falling asleep. While listening to the presenter speak in the seminar, she realises that she is experiencing a circadian phase disorder known as jet lag.

changes to a person's sleep-wake cycle and susceptibility to experiencing a circadian phase disorder, including sleep-wake shifts in adolescence, shift work and jet lag

the interventions to treat sleep disorders including cognitive behavioural therapy (with reference to insomnia) and bright light therapy (with reference to circadian phase disorders)

Question 3c (3 marks)

Based on the information Gabrielle has gained in the seminar, identify the likely intervention that would be suggested for her condition and explain how it may assist her to restore her regular sleeping pattern.

Answer:

- *An intervention that would assist Gabrielle to overcome her jet lag/circadian phase disorder would be bright light therapy (BLT).*
- *BLT involves exposure to a bright light in safe amounts at appropriate times (i.e., when she should be awake), with the aim of shifting Gabrielle's circadian rhythm (with the bright light inhibiting the production of melatonin to reduce drowsiness).*
- *This would help restore her sleeping pattern by resetting her sleep-wake cycle to the desired schedule, matching her new location in New York.*

Marking protocol:

One mark for each of the above points.

the differences in sleep across the lifespan and how these can be explained with reference to the total amount of sleep and changes in a typical pattern of sleep (proportion of REM and NREM)

Question 3d (4 marks)

The presenter mentioned that the need for sleep changes with a person's age.

Provide two distinctions between the sleep patterns of a newborn infant versus someone of Gabrielle's age.

Answer:

- *An infant requires approximately 16 hours of sleep and spends almost 50% of their time in REM sleep.*
- *This contrasts with Gabrielle who is 25-years-old (an adult) and would require only 8 hours of sleep and spend only about 20% of her sleep in REM.*

Marking protocol:

Two marks for each of the above points.

Note: that the answer must include a comparison term (such as, "whereas," "while," "in contrast", etc.). If no comparison term is provided, the maximum mark for this question is one mark.

the effects on consciousness (cognition, concentration and mood) of one night of full sleep deprivation as a comparison with effects of legal blood-alcohol concentrations

Question 3e (4 marks)

During the seminar the presenter said, 'driving while sleep deprived is as bad as driving while drunk.' Do you agree with this statement? Justify your answer.

Answer:

- Yes.
- *A person with a blood-alcohol concentration (BAC) above legal driving limits and a person who has had significant sleep deprivation will both have similar impairments in cognitive functioning.*
- *Research suggests that a person who has not slept for 17 hours/17 hours of wakefulness (partial sleep deprivation) has similar cognitive deficits to a person who has a BAC of 0.05%.*
- *Furthermore, a person who has 24 hours of sleep deprivation (total sleep deprivation) has similar cognitive deficits to a person with a BAC of 0.10%.*
- *Both extended sleep deprivation and a BAC of more than 0.05% result in reduced attention, impaired judgement, reduced hand-eye coordination, lack of clear (logical) thinking and reduced alertness, which would all affect a person's ability to drive safely.*

Marking protocol:

This answer is globally marked (i.e. an overall mark is awarded for the entire answer). The following criteria should be used to assess a response:

4 High	<ul style="list-style-type: none"> • All elements of the question addressed. • A very high-level evaluation of both the effects of a person's BAC and sleep deprivation on driving performance which shows an in-depth understanding of concepts. • The response compares BAC to partial and total sleep deprivation and uses data. • For full marks, the response should thoroughly support their judgement of 'yes' to the question (note that 'no' is not an easily justifiable answer and would be unlikely to receive full marks).
2-3 Medium	<ul style="list-style-type: none"> • Some elements of the question addressed, which shows a good understanding of concepts. • The response attempts to compare the effects of BAC to sleep deprivation but does not fully explore partial and total sleep deprivation. The response generally supports the student's judgement of 'yes' to the question.
1 Low	<ul style="list-style-type: none"> • Few elements of the question addressed, which shows only a basic understanding of concepts. • The response makes an attempt to answer the question by generally describing a comparison. It may not support the student's 'yes' judgement to the question.
0 No score	<ul style="list-style-type: none"> • Response does not demonstrate any understanding of BAC and sleep deprivation.

James noticed some changes to his mobility, so he made an appointment with a doctor. The doctor concluded that James was most likely suffering from the onset of Parkinson's disease. This news really shook James and when he left the doctor's clinic, he felt very upset and walked around for hours in a daze.

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

Question 4a (2 marks)

Identify one motor symptom and one non-motor symptom that may have led the doctor to the diagnosis of Parkinson's disease.

Answer:

- *Motor symptom: tremors/resting tremor; muscle rigidity; slowness of voluntary movement (bradykinesia); akinesia; postural instability; shuffling gait.*
- *Non-motor symptom: decrease or loss of sense of smell (anosmia); sweating and increased sensitivity to temperature; mental health problems such as anxiety and depression; impaired cognitive functioning; sleep disturbances.*

Marking protocol:

One mark for a motor symptom and one mark for a non-motor symptom.

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

Question 4b (2 marks)

Explain how chronic changes to neurons and neurotransmitters lead to the motor symptoms of Parkinson's disease.

Answer:

- *People with Parkinson's disease have fewer dopamine-producing neurons (in the substantia nigra) and thus less dopamine.*
- *Dopamine helps an individual to produce smooth bodily movements, and therefore bodily movements are disrupted/uncoordinated as a result of the dopamine deficiency.*

Marking protocol:

One mark for each of the above points.

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 4c (3 marks)

Outline the processes involved in neural transmission once the neural impulse has reached the axon terminal, with reference to the lock-and-key process.

Answer:

- *When an action potential reaches the axon terminals of the presynaptic neuron, neurotransmitters are released from the vesicles into the synaptic gap.*
- *These neurotransmitters have a chemically distinct shape that acts like a key that can match with and affect the correspondingly shaped receptor sites on the postsynaptic neuron's dendrites which acts like a lock.*
- *When the neurotransmitter reaches its corresponding receptor site, it binds to it (which may cause an inhibitory or excitatory response).*

Marking protocol:

One mark for each of the above points.

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 4d (4 marks)

With reference to the Lazarus and Folkman Transactional Model of Stress and Coping, explain James's reaction when he was diagnosed with Parkinson's disease.

Answer:

- *James would first undertake primary appraisal, determining if the situation is significant, and assessing if it is stressful, irrelevant or benign-positive.*
- *James would likely determine the situation as stressful and a threat, as his condition may cause him harm in the future.*
- *He would then undertake secondary appraisal, where he would consider what options, resources and coping strategies he had to deal with the stressor.*
- *It appears that James's diagnosis of Parkinson's disease may exceed his ability and available resources to cope (and that he viewed the situation as distressful), given how upset he was following the diagnosis.*

Marking protocol:

One mark for each of the above points.

For his extended VCE Psychology practical investigation, Don decided to investigate if meditation had an effect on time orientation. He used a sample of 20 students from his class out of a cohort of 110 Year 12 students at his school.

In the first stage of his experiment, the 20 participants sat quietly in a room for an unknown period of time to them (six minutes) and were asked to record the amount of time they thought had passed. The next day, the same participants sat in the same room, but this time, they completed a guided meditation and were again asked to record the amount of time they thought had passed (six minutes).

Identify and operationalise independent and dependent variables

Question 5a (2 marks)

Identify the independent and dependent variables in Don's research investigation.

Answer:

- *IV: Whether the participants sat quietly in a room (in normal waking consciousness) or were guided through a meditation session (inducing an altered state of consciousness).*
- *DV: The estimation of the amount of time that had passed (in minutes).*

Marking protocol:

One mark for each of the above points.

Use an appropriate experimental research design including independent groups, matched participants, repeated measures and cross-sectional studies

Question 5b (2 marks)

Name the experimental research design that Don used in this investigation and state one disadvantage of this choice of design.

Answer:

- *Experimental research design: repeated measures design*
- *Disadvantage: Possible 'order effect' such that students may perform differently (e.g. better/worse) in the second condition due to factors such as practice (e.g. at estimating time).*

Marking protocol:

One mark for each of the above points.

Experimental research design:
Disadvantage:

Select appropriate sampling procedures for selection and allocation of participants including random sampling, stratified sampling, convenience sampling and random allocation of participants to groups

Question 5c (3 marks)

Identify the sampling technique used by Don in his investigation and discuss an advantage of this technique over another.

Answer:

- The sampling technique used by Don was convenience sampling.
 - This technique is advantageous as it is quick and easy to administer (as he just used his class for the investigation),
 - compared to random sampling which would be more time consuming to create a random sample from the entire population/cohort.
- or
- compared to stratified sampling which would be more time consuming/difficult to create the strata.

Marking protocol:

One mark for each of the above points.

Note that the answer must include a comparison term (such as, “whereas,” “while,” “in contrast”, etc.). If no comparison term is provided, the maximum mark for this question is one mark.

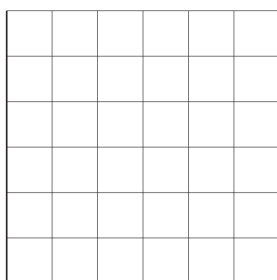
Don calculated the mean and standard deviation of his investigation conditions and presented the following results in his report.

	Quiet room	Meditation
Mean estimation of time (minutes)	5.7	8.1
Standard deviation	0.6	1.5

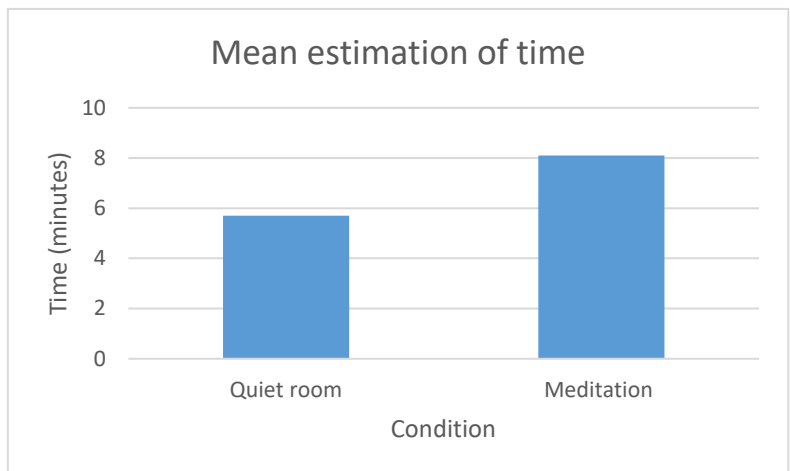
Organise, present and interpret data using tables, bar charts, line graphs, percentages, calculations of mean as a measure of central tendency and understanding of standard deviation as a measure of variation around the mean

Question 5d (2 marks)

Represent the mean results of the study in a correctly labelled graphical representation using the grid provided below.



Answer:



Marking protocol:

One mark for labelling the y axis.

One mark for correctly labelling of the bars on the x axis.

Draw conclusions consistent with evidence and relevant to the question under investigation

changes in a person's psychological state due to levels of awareness, controlled and automatic processes, content limitations, perceptual and cognitive distortions, emotional awareness, self-control and time orientation

Question 5e (3 marks)

Explain what the mean time in Don's investigation suggests about the effect of meditation on our state of consciousness and time orientation.

Answer:

- *The mean estimated time was further from the actual time of six minutes when undertaking a guided meditation session (8.1 minutes) than when sitting quietly (5.7 minutes).*
- *The results suggest that meditation may induce an altered state of consciousness because...*
- *...it affects a person's time orientation and thus the prediction of time they were in the room.*

Marking protocol:

One mark for each of the above points.

Organise, present and interpret data using tables, bar charts, line graphs, percentages, calculations of mean as a measure of central tendency and understanding of standard deviation as a measure of variation around the mean

Question 5f (1 mark)

What do the standard deviations in Don's investigation suggest?

Answer:

- *It suggests a greater variation in estimated times in the experimental condition (meditation) compared to the control condition (quiet room).*

Marking protocol:

One mark for the above point.

Mr Dawson is a 40-year-old man who has three children. From the age of 18, he was employed as a carpenter and had a large friendship group at work, but is now unemployed. For the past five years, he has lost confidence in his abilities and not been able to hold down a job. He supports himself through a government welfare payment, but he is still under financial stress as the payment is often not enough to make ends meet.

Mr Dawson has been divorced for the past four years, rarely sees his children, and currently lives alone in the outer suburbs. His family also consists of his two sisters and elderly father, as his mother passed away when he was 35-years-old. Mr Dawson was very close to his mother and discovered that after her death, she had been suffering from depression her entire life. He talks to his father on the phone on a weekly basis but has limited contact with his sisters who live interstate.

For many years, Mr Dawson was happily involved in community activities and had an active social life, but these activities no longer give him any pleasure. Since losing his carpentry job five years ago, he has stopped going to social events, often stays at home, and orders fast food, as he believes no one would want to socialise with him. He has also been experiencing sleep problems for the past couple of years, leading to extreme fatigue during the day and fainting episodes.

His father suggested he see a psychologist and after many months of persuasion, he finally booked an appointment. During his session with the psychologist, Mr Dawson was diagnosed with depression. The psychologist believes he had been suffering from depression since the death of his mother after which he also got himself into heavy drinking. He quickly became an alcoholic at that time which often made him forget things and caused him to make numerous mistakes at work, ultimately causing him to lose his job.

The psychologist records that Mr Dawson has faced many challenges in his life and that he needs to regain his self-efficacy. In the first few sessions, the psychologist focuses on building Mr Dawson's self-efficacy through several scenario-based and goal-setting tasks that they work through together.

mental health as a continuum (mentally healthy, mental health problems, mental disorders) influenced by internal and external factors that can fluctuate over time

the typical characteristics of a mentally healthy person, including high levels of functioning, social and emotional well-being and resilience to life stressors

the distinction between predisposing risk factors (increase susceptibility), precipitating risk factors (increase

Question 6 (10 marks)

Mr Dawson's psychologist is preparing a report for his family, so they can gain a better understanding of his condition and ways to support him.

Prepare the report for Mr Dawson's family that includes:

- a justification of why Mr Dawson could be considered to be suffering a mental disorder as opposed to a mental health problem.
- a detailed analysis of the internal and external risk factors that may have contributed to the development and

Answer:

- *Mr Dawson could be considered to be suffering a mental disorder due to the atypical behaviours he is displaying. He used to participate in community activities and had an active social life, but no longer attends any social events and stays at home.*
- *He is also showing a degree of dysfunction as he has not been able to hold down a job due to losing confidence in his abilities. He is also exhibiting dysfunctional/irrational thinking in his belief that no one would want to socialise with him.*
- *Signs of distress are also evident in the scenario, where Mr Dawson experiences problems sleeping and extreme fatigue, as well as a lack of pleasure from activities that used to make him happy.*
- *Mr Dawson is considered to have a mental disorder rather than a mental health problem due to the longevity of his condition and the severity of the associated characteristics.*
- *A risk factor is any stimulus, be that an event, a situation or characteristic that increases the likelihood of the development or progression of a mental disorder for a person.*
- *A complex interaction of both internal and external risk factors account for the development and progression of a mental disorder. Internal factors originate within a person, such as those that are biological or psychological in nature, whereas external factors are those that originate outside a person, which are social in nature. Risk factors may also be predisposing (which increase susceptibility),*

susceptibility and contribute to occurrence), perpetuating risk factors (inhibit recovery) and protective factors (prevent occurrence or re-occurrence)

the influence of biological risk factors including genetic vulnerability to specific disorders, poor response to medication due to genetic factors, poor sleep and substance use

the influence of social risk factors including disorganised attachment, loss of a significant relationship and the role of stigma as a barrier to accessing treatment

resilience as a positive adaption to adversity including the relative influence of protective factors with reference to: adequate diet and sleep (biological); cognitive behavioural strategies (psychological); support from family, friends and community (social)

progression of his mental health disorder.

- a discussion of protective factors that might assist Mr Dawson in his recovery.

precipitating (which increase susceptibility and contribute to occurrence), or perpetuating (which inhibit recovery).

- *A predisposing factor is one that increases a person's susceptibility to developing a mental disorder. In the case of Mr Dawson, a biological predisposing factor may have been his genetic vulnerability/family history, given that his mother also had depression. The family history of a mental disorder does not necessarily mean that he will also develop a mental disorder, but rather, means that there is a greater likelihood that genes may play a role in the development of a mental disorder throughout his life.*
- *A precipitating factor is one that is the possible trigger for the mental disorder. A social precipitating factor may have been the loss of a significant relationship when his mother passed away in his thirties, which may have led him to a further biological risk factor in the substance abuse (heavy drinking) that occurred shortly after. The subsequent loss of his job appeared to have further isolated Mr Dawson from colleagues and friends, who could have otherwise provided him with social support – this loss may also have contributed to the onset of his depression. The financial stress of losing his job and resulting lowered self-efficacy (psychological factors) may also have contributed to the onset of his depression.*
- *A perpetuating factor is one that prolongs a mental disorder. For Mr Dawson, his social isolation from his colleagues and living alone (both social factors) as well as his impaired memory (a psychological factor) may have contributed to him not obtaining another job that could allow him to gain social support or boost his self-efficacy. The loss of a significant relationship with his divorce (a social factor) may have also perpetuated his depression. His poor sleep (a biological factor) may also prevent him from recovery. The stigma attached to mental disorders (a social factor) may have made Mr Dawson hesitant to seek treatment to begin with (as it states that he needed many months of persuasion to see a psychologist), which would have inhibited his recovery.*
- *His diagnosis of depression would have involved an interaction and accumulation of all these risk factors, known as cumulative risk. The more risk factors a person has, the higher the likelihood of developing a mental disorder. The aggregate of these factors leads to a greater risk of developing a mental disorder than any single factor alone.*
- *Protective factors are those that help reduce the likelihood of developing a mental disorder or prevent the recurrence of a mental disorder. Those that might assist Mr Dawson in his recovery are a better diet (biological factor) as it states that he often orders fast food; greater social support from his family/friends (social factors) and working towards improving his self-efficacy with the aid of the psychologist (psychological).*
- *These protective factors could help build Mr Dawson's resilience so that he is better able to adapt to adversity when it occurs and bounce back from life events. For example, building a greater sense of worth*

in his carpentry skills (self-efficacy) may help give him confidence in his abilities to be successful in a job. If he is successful in holding down a job, the money he earns may help him become more resilient in the face of financial stressors.

Marking protocol:

This question is marked holistically out of a total 10 marks. Outstanding responses will:

- Explain at least three mental disorder characteristics that Mr Dawson displays (relevant to the scenario).
- Justify why he is considered to have a mental disorder rather than a mental health problem based on theory and the information provided in the scenario.
- Identify at least one risk factor from each of the 4P categories.
- Demonstrate an understanding of the 4P model.
- Discuss the factors identified in terms of the biopsychosocial model.
- Explain how protective factors could assist Mr Dawson.
- 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 2017-2021 VCE Psychology exam specifications for the marking of 10-mark questions. In terms of this criteria, a 10-mark answer would:

<ul style="list-style-type: none"> • identification and explanation of formal psychological terminology relevant to the question 	Explicitly name and explain at least three characteristics of a mental disorder, and use key terms in relation to the 4P and biopsychosocial model.
<ul style="list-style-type: none"> • use of appropriate psychology terminology 	Use key terms from the study design relevant to the question.
<ul style="list-style-type: none"> • discussion of relevant psychological information, ideas, concepts, theories and/or models and the connections between them 	Outline the 4P model and the different risk factors associated with the scenario. Discuss the notion that the more risk factors a person has the higher the likelihood of developing a mental disorder.
<ul style="list-style-type: none"> • analysis and evaluation of data, methods and scientific models 	Analyse the biopsychosocial and 4P factors that may contribute to the disorder or protect from it.
<ul style="list-style-type: none"> • drawing of evidence-based conclusions and explanation of limitations of conclusions 	Draw on the information provided in the scenario to make conclusions regarding contribution and protective factors.

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	<input checked="" type="checkbox"/> A	<input type="checkbox"/> B	<input type="checkbox"/> C	<input type="checkbox"/> D	18	<input type="checkbox"/> A	<input checked="" type="checkbox"/> B	<input type="checkbox"/> C	<input type="checkbox"/> D	35	<input checked="" type="checkbox"/> A	<input type="checkbox"/> B	<input type="checkbox"/> C	<input type="checkbox"/> D
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17	<input type="checkbox"/> A	<input type="checkbox"/> B	<input checked="" type="checkbox"/> C	<input type="checkbox"/> D	34	<input type="checkbox"/> A	<input checked="" type="checkbox"/> B	<input type="checkbox"/> C	<input type="checkbox"/> D					