



**YEAR 12 *Trial Exam Paper***

**2019**

**PSYCHOLOGY**

**Written examination**

***Sample responses***

**This book presents:**

- high-level sample responses
- explanatory notes
- mark allocations
- tips.

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**SECTION A – Multiple-choice questions****Question 1**

*Answer: D*

**Explanatory notes**

Option D is correct because the dendrites receive information from other neurons and the axon terminals release neurotransmitters into the synaptic gap.

**Question 2**

*Answer: B*

**Explanatory notes**

Option B is correct because GABA agonists do not increase the level of GABA in the brain. Instead, GABA agonists mimic GABA and stimulate the inhibitory effects of GABA on the postsynaptic neuron.

**Question 3**

*Answer: B*

**Explanatory notes**

Option B is correct because Fiona's increased heart rate and shallow, quickened breaths would have been caused by increased neural activity in her sympathetic nervous system. This neural activity would have been decreased by the GABA agonist medication.

**Question 4**

*Answer: C*

**Explanatory notes**

Option C is correct because it involves removal of the unpleasant symptoms Fiona experiences, and this would increase the likelihood of her taking the medication again in the future.

**Question 5**

*Answer: C*

**Explanatory notes**

Option C is correct because Alzheimer's disease gradually destroys neurons in the brain.

**Question 6**

*Answer: A*

**Explanatory notes**

Option A is correct because neurofibrillary tangles are proteins that build up inside neurons and destroy them from the inside out. Amyloid plaques grow on the outside of neurons, stopping them from communicating with other neurons effectively.

**Question 7**

*Answer: D*

**Explanatory notes**

Option D is correct because the hippocampus is responsible for the consolidation of new explicit memories, which would include remembering the details of each new object to be able to recognise it later.

**Question 8**

*Answer: B*

**Explanatory notes**

Option B is correct because anterograde amnesia involves an inability to consolidate memories of new material (a type of explicit memory). In this case, the mice would be unable to recognise new objects because they would not have been able to consolidate a memory of each item. However, procedural skills such as learning a new maze could still be carried out because this is not consolidated by the hippocampus (or indicative of typical anterograde amnesia).

**Question 9**

*Answer: C*

**Explanatory notes**

Option C is correct because the researchers would have had to ensure that the mice were protected from harm throughout the experiment. This harm could be psychological distress or a physiological response.

**Question 10**

*Answer: D*

**Explanatory notes**

Option D is correct because losing her house and possessions would be a major stress for Chenelle. This is when an event is extraordinarily stressful or disturbing for those who experience it.

**Question 11**

*Answer: A*

**Explanatory notes**

Option A is correct because catastrophes are generally unpredictable and are often caused by natural disasters, such as earthquakes, tsunamis or bushfires. Life events often occur as a result of a decision, such as getting married or divorced, moving house or changing schools.

**Question 12**

*Answer: C*

**Explanatory notes**

Option C is correct because Chenelle is predicting a harm or loss for her family, which is classified as a threat.

**Question 13**

*Answer: B*

**Explanatory notes**

Option B is correct because secondary appraisal in the Transactional Model of Stress and Coping involves an individual working out what resources they have available to help them cope with the stressful event.

**Question 14**

*Answer: A*

**Explanatory notes**

Option A is correct because the Transactional Model of Stress and Coping does not acknowledge any physiological responses to a stressor.

**Tip**

- *Be aware that the Study Design requires you to be able to identify limitations of the models studied in Units 3 and 4 Psychology. This includes models such as the Transactional Model of Stress and Coping, Selye's General Adaptation Syndrome, the multi-store model of memory (Atkinson–Shiffrin model) and the transtheoretical model of behaviour change.*

**Question 15**

*Answer: C*

**Explanatory notes**

Option C is correct because the blue jacket would have been neutral before conditioning, therefore producing no response from Sally's dog.

**Question 16**

*Answer: A*

**Explanatory notes**

Option A is correct because the dog wagging its tail in response to walking (which is the unconditioned stimulus) is an automatic, reflexive, involuntary response that occurs during conditioning.

**Question 17**

*Answer: B*

**Explanatory notes**

Option B is correct because the dog has now learned to wag its tail in response to the blue jacket (conditioned stimulus), after the blue jacket was associated with going for a walk (unconditioned stimulus).

**Question 18**

*Answer: B*

**Explanatory notes**

Option B is correct because by responding to the blue jumper, the dog is producing a conditioned response to a stimulus that is similar to the blue jacket (conditioned stimulus).

**Question 19**

*Answer: D*

**Explanatory notes**

Option D is correct because ultradian rhythms are fewer than 24 hours long.

**Question 20**

*Answer: B*

**Explanatory notes**

Option B is correct because, according to the restorative theory of sleep, rapid eye movement (REM) sleep is important for replenishing the mind. If Jai is sleep deprived, he would have difficulty concentrating. In addition, non-rapid eye movement (NREM) sleep is thought to be important for replenishing the body. Jai would be at a higher risk of getting sick with cold and flu-like symptoms due to experiencing less NREM sleep.

**Question 21**

*Answer: C*

**Explanatory notes**

Option C is correct because only 12 participants who were already being treated for epilepsy volunteered for extra testing. Using only one or a few participants and studying them in-depth is characteristic of a case study.

**Question 22**

*Answer: A*

**Explanatory notes**

Option A is correct because a case study usually investigates only one or a few participants because it involves rare phenomena. In this case, only 12 people were studied. Therefore, it is difficult to generalise the results to the population because it is unlikely that the sample will be representative of the population.

**Question 23**

*Answer: A*

**Explanatory notes**

Option A is correct because measuring the participant's neural activity was the variable that was observed to study the effect of the independent variable, which was being sleep deprived.

**Question 24**

*Answer: B*

**Explanatory notes**

Option B is correct because if the participants have sleep-like waves, it is likely that they would have more alpha waves. Alpha waves indicate drowsiness and are higher in amplitude and lower in frequency than the brainwaves of a person who is awake and alert.

**Question 25**

*Answer: D*

**Explanatory notes**

Option D is correct because the cognitive effects of being sleep deprived for 17–19 hours are equivalent to having a legal BAC of 0.05%.

**Question 26****Answer: B****Explanatory notes**

Option B is correct because dyssomnia is a sleep disturbance that involves difficulty initiating or maintaining sleep, whereas parasomnia is a sleep disturbance that involves inappropriate activity during sleep.

**Question 27****Answer: C****Explanatory notes**

Option C is correct because the role of the experimenter requires that Little Albert should have been protected from any psychological or physiological harm. The fact that he was intentionally caused distress means this study would not be approved today.

**Question 28****Answer: A****Explanatory notes**

Option A is correct because attention would involve Luke closely watching his brother's goal-kicking technique.

**Question 29****Answer: B****Explanatory notes**

Option B is correct because Luke's motivation would be influenced by the potential for praise from his brother, thus making him more likely to want to imitate his brother's goal-kicking techniques.

**Tip**

- *Be aware that motivation and reinforcement in observational learning are very different. Motivation is the learner's desire to imitate the model's behaviour. On the other hand, reinforcement is the consequence the learner receives for performing the behaviour. Thus, motivation is influenced by reinforcement because it increases the likelihood of imitating the behaviour again in the future.*

**Question 30****Answer: C****Explanatory notes**

Option C is correct because matching the Japanese words with their English meanings involves selecting the correct answer from alternatives, which is recognition.



**Question 31**

*Answer: D*

**Explanatory notes**

Option D is correct because writing a story involves retrieving information from memory with minimal cues.

**Question 32**

*Answer: D*

**Explanatory notes**

Option D is correct because Section 1 involves recognition, whereby the answers (cues) are provided and need to be selected from the alternatives. In contrast, Section 2 involves recall, which is retrieving information using minimal retrieval cues. This is why Heidi finds Section 2 more difficult.

**Question 33**

*Answer: C*

**Explanatory notes**

Option C is correct because region 1 is the amygdala, which consolidates emotionally arousing implicit memories. Region 2 is the cerebral cortex, which stores explicit memories, including facts and personal experiences. Region 3 is the cerebellum, which forms procedural-based implicit memories.

**Question 34**

*Answer: A*

**Explanatory notes**

Option A is correct because having a family history of depression is a biological risk factor. It is also predisposing because it puts Chad at a higher risk of developing a mental disorder, such as depression.

**Question 35**

*Answer: D*

**Explanatory notes**

Option D is correct because breaking up with his girlfriend (or loss of a significant relationship) is a social risk factor. It was also a precipitating factor because it triggered the onset of his depression.

**Question 36**

**Answer: B**

**Explanatory notes**

Option B is correct because dwelling on how terrible his situation is and not coming up with any practical solutions are typical characteristics of the perpetuating factor of rumination. In addition, perpetuating factors are those that inhibit recovery and maintain symptoms of the illness.

**Question 37**

**Answer: B**

**Explanatory notes**

Option B is correct because getting adequate sleep is a biological, protective factor.

**Question 38**

**Answer: A**

**Explanatory notes**

Option A is correct because a stimulant increases the number of brainwaves that occur over a period (frequency) and decreases the height of the brain waves (amplitude).

**Question 39**

**Answer: C**

**Explanatory notes**

Option C is correct because elderly people wake up more and sleep more lightly than children. Elderly people therefore have fewer NREM stages 3 and 4 sleep than children.

**Question 40**

**Answer: C**

**Explanatory notes**

Option C is correct because circadian phase disorders occur due to a mismatch between the external environment (his job requiring that he works at night) and his internal biological clock (which tells his body to sleep at night).

**Question 41**

**Answer: B**

**Explanatory notes**

Option B is correct because bright light therapy would be needed first thing in the morning so that Charlie's melatonin production is stopped early in the day. This would allow him to feel sleepier earlier in the evening. Option C would be of benefit to Charlie, but the essential ingredient of bright light therapy is exposure to intense amounts of light, which this option does not involve.

**Question 42**

*Answer: C*

**Explanatory notes**

Option C is correct. The data Lauren collected is primary because she collected it herself by testing her own students. It is also quantitative because it is numerical data.

**Question 43**

*Answer: D*

**Explanatory notes**

Option D is correct because the mean can be influenced by extreme scores or outliers in the data, thus increasing or decreasing the mean and making it less accurate.

**Tip**

- *Remember that if outliers are present in the dataset, a better measure of central tendency is the median. The median is the middle value in the dataset and is less influenced by outliers.*

**Question 44**

*Answer: D*

**Explanatory notes**

Option D is correct. The independent variable is whether the food is offered as an incentive. Therefore, this cannot be an extraneous variable.

**Question 45**

*Answer: B*

**Explanatory notes**

Option B is correct because providing food involves presenting a pleasant stimulus that increases the likelihood of the students completing the tasks. This is a positive reinforcement.

**Question 46**

*Answer: D*

**Explanatory notes**

Option D is correct because taking away a pleasant stimulus lowers the likelihood of the behaviour occurring again in future. This is categorised as response cost (a form of negative punishment).

**Question 47**

*Answer: A*

**Explanatory notes**

Option A is correct because controlled processes require more mental effort and a higher level of awareness than automatic processes.

**Question 48**

*Answer: C*

**Explanatory notes**

Option C is correct. Sleep is a naturally occurring altered state of consciousness because it is controlled by the body's biological clock.

**Question 49**

*Answer: C*

**Explanatory notes**

Option C is correct because Mary has modified her behaviour to overcome her problem of being nervous when performing in front of others. This suggests that she is in the action stage. Mary has already made changes and is not just thinking about them, which means that she has passed the pre-contemplation or contemplation stages.

**Question 50**

*Answer: D*

**Explanatory notes**

Option D is correct because if Kate was in the contemplation stage, she would be planning to modify her behaviour in the next six months.

## **SECTION B**

### **Question 1**

#### **Sample response**

Dopamine is a neurotransmitter found in the central nervous system and is involved in the transmission of messages related to voluntary movements. In Parkinson's disease, neurons that produce dopamine are destroyed, resulting in lower levels of dopamine in the brain. This means that the areas of the brain involved in planning, coordinating and initiating voluntary movements receive fewer or weakened messages about motor activity. This results in a lack of control over voluntary movements and leads to symptoms such as bradykinesia and balance difficulties.

#### ***Mark allocation: 3 marks***

- 1 mark for stating that the role of dopamine in the central nervous system involves the communication of messages relating to voluntary muscle movement
- 1 mark for explaining that Parkinson's disease is associated with low levels of dopamine in the central nervous system because neurons are dying, which worsens over time because it is neurodegenerative
- 1 mark for stating that this low level of dopamine leads to weakened, fewer or disrupted messages related to voluntary movement

**Question 2a.****Sample response**

Devorah is suffering from a phobia rather than anxiety. This is because she experiences a severe and irrational fear to a specific stimulus (birds). This is different to anxiety, which is a general state of worry or uneasiness that may not have a specific trigger.

**Mark allocation: 3 marks**

- 1 mark for stating that Devorah is suffering from a phobia
- 2 marks for providing two different pieces of supporting evidence from the scenario that Devorah is suffering from a phobia, such as
  - her fear is severe and irrational
  - her fear is specific to birds
  - her fear is impairing her functioning (e.g. she no longer leaves the house or sees her friends)

**Question 2b.****Sample response**

Phase 1: antecedent

Explanation: the stimulus of seeing a feather

Phase 2: behaviour

Explanation: Devorah not leaving her house

Phase 3: consequence

Explanation: Devorah would feel relieved and her level of fear would decrease due to not leaving the house. This is negative reinforcement, increasing the chance of her repeating the behaviour in the future and thus perpetuating her phobia.

**Mark allocation: 6 marks**

- 1 mark for identifying each phase (up to 3 marks)
- 1 mark for providing an example of an antecedent from the scenario, such as ‘just seeing a feather’, ‘hearing a bird tweet’ or ‘thinking about birds’
- 1 mark for providing an example of a behaviour from the scenario, such as not leaving her house or not socialising with her friends (avoidance behaviour)
- 1 mark for providing an example of a consequence from the scenario, such as feeling relief, having her anxiety or fear reduced etc. and identifying that the consequence would be negative reinforcement, thus increasing the likelihood of her avoidance behaviour again in the future (perpetuation)

**Tip**

- *When explaining consequences of operant conditioning, be sure to identify the type of consequence in the scenario and what its effect on future behaviour would be. For example, response cost decreases the likelihood of the behaviour occurring again as a result of having a pleasant stimulus removed, or negative reinforcement increases the likelihood of the behaviour occurring again because an unpleasant stimulus has been removed.*

**Question 2c.****Sample response**

Stimulus generalisation occurs when the learned response (behaviour) is made to another stimulus (antecedent) that is similar to the stimulus that was present when the behaviour was originally reinforced (consequence). In the case of Devorah, seeing a feather or thinking about birds (antecedent), which are similar to the original magpie that swooped her friend in primary school, now leads to her avoidance behaviour (behaviour), thus reducing her fear (consequence).

**Mark allocation: 2 marks**

- 1 mark for an explanation of the process of stimulus generalisation using operant conditioning terminology
- 1 mark for applying this explanation to Devorah's situation

**Question 2d.****Sample response**

Cognitive behavioural therapy (CBT) uses learning principles to help people change unhelpful or unhealthy thought processes, feelings and behaviour. The psychologist would start by challenging Devorah's faulty thoughts about birds. For example, the psychologist could provide statistics about how many people die from bird attacks each year. This would help Devorah to overcome her irrational thoughts and replace them with more realistic ones. The psychologist would also help Devorah to modify unhelpful avoidance behaviours. This could include using relaxation training (e.g. breathing retraining, exercise or meditation) when she needs to leave the house. This would help Devorah to stop avoiding the things she enjoys, such as catching up with friends.

**Mark allocation: 4 marks**

- 1 mark for describing the cognitive component of CBT, including challenging or changing faulty thinking patterns or irrational thoughts and replacing them with more realistic ones
- 1 mark for providing an example of how the psychologist would help Devorah implement the cognitive component of the CBT
- 1 mark for describing the behavioural component of CBT, including modifying unhelpful behaviours or eliminating avoidance behaviours
- 1 mark for providing an example of how the psychologist would help Devorah implement the behavioural component CBT – for example, teaching relaxation techniques and being exposed to the feared stimulus in a safe or relaxing environment (systematic desensitisation)

**Question 3a.****Sample response**

Conscious responses involve awareness, whereas an unconscious response might not involve awareness. For example, when Emily smelled the meat pie, she unconsciously responded by salivating, which would not have involved awareness. When Emily decided to buy the meat pie, she would have been aware of this and it would have been a conscious response.

***Mark allocation: 3 marks***

- 1 mark for providing a difference between conscious and unconscious responses, such as:
  - conscious responses are voluntary, whereas unconscious responses are involuntary
  - conscious responses involve awareness, whereas unconscious responses do not involve awareness
  - conscious responses tend to be complex, whereas unconscious responses tend to be simple
- 1 mark for providing an example of a conscious response from the scenario
- 1 mark for providing an example of an unconscious response from the scenario



**Question 3b.****Sample response**

Emily's brain in her central nervous system (CNS) would have recognised the scent of the meat pie and processed this information, deciding to buy the pie and eat it. Emily's brain would have then initiated the motor movements necessary to get money out of her wallet and give it to the man selling snacks, as well as to hold the pie and eat it. The motor messages required to perform these movements would then be communicated to Emily's somatic nervous system via the spinal cord in her central nervous system, which would carry this information via motor neurons to the voluntary muscles in her arms and hands to get out the money and pay the man selling snacks.

**Mark allocation: 4 marks**

- 1 mark for correctly identifying each relevant division of the nervous system, such as the central nervous system, peripheral/somatic nervous system or the autonomic/parasympathetic nervous system, and applying the function of each division to the scenario (up to 2 marks)
- 1 mark for explaining each matching function of two relevant divisions of the nervous system (up to 2 marks), including the:
  - central nervous system, which would be involved in interpreting sensory information about the smell of the meat pie or deciding to buy the pie
  - peripheral/somatic nervous system, which would be involved in detecting and carrying sensory information about the meat pie or money in her hand, or performing the voluntary motor movements required to eat the pie or pay for it
  - autonomic nervous system or parasympathetic division, which would be involved in the digestion of the meat pie, such as the production of saliva.

**Note:** The sympathetic division would not be relevant because Emily is not stressed or in a state of heightened arousal.

**Tip**

- *When referencing the different divisions of the nervous system in your responses, be aware that it is acceptable to abbreviate certain divisions; for example, autonomic nervous system (ANS) and central nervous system (CNS). However, the somatic and sympathetic nervous systems cannot be abbreviated because SNS would apply for both. Similarly, PNS cannot be used because it could be referring to both the peripheral and the parasympathetic nervous systems.*

**Question 4a.****Sample response**

independent groups design

**Mark allocation: 1 mark**

- 1 mark for correctly identifying independent groups design

**Question 4b.****Sample response**

One advantage of an independent groups design is that it is less time consuming than other experimental research designs. Both conditions can be run simultaneously, as there are different participants in each group.

**Note:** Other possible answers include that it is more time efficient because participants do not need to be pre-tested or matched on characteristics or there are no order effects because different participants are used in each condition.

**Mark allocation: 1 mark**

- 1 mark for outlining an advantage of using an independent groups design

**Question 4c.****Sample response**

Cortisol is a stress hormone that enhances metabolism and increases energy levels in the body by increasing blood sugar levels. This would help the Ace employees to deal with stress more effectively.

**Mark allocation: 1 mark**

- 1 mark for outlining a positive impact of cortisol being released as a part of an employee's stress response

**Question 4d.****Sample response**

The general adaptation syndrome (GAS) is a three-stage model that shows the body's non-specific physiological responses to stress over time. According to the GAS, employees falling ill and taking time off from work during busy and stressful periods would most likely occur when they are in the resistance stage. This is when cortisol levels are at their highest for a prolonged period. This places a strain on the employees' bodily systems, including their immune systems, making them more susceptible to illnesses such as colds.

**Mark allocation: 3 marks**

- 1 mark for identifying that the employees would most likely be in the resistance stage of the GAS when getting sore throats and colds
- 1 mark for explaining that during the resistance stage, levels of cortisol are at their highest level for a prolonged period
- 1 mark for linking the employees' increased likelihood of getting sick to the high levels of cortisol because it puts pressure on or weakens their immune systems, increasing their susceptibility to illness or disease

**Tip**

- *To determine if someone is in the resistance or exhaustion stage of the GAS in a scenario, remember the key distinction is that, in the resistance stage, the person may be feeling run down, have a sore throat or a cold, but they would still be functioning as normal. However, their immune system would be starting to become compromised. In the exhaustion stage, a person may not be functioning properly. They would potentially be bedridden and would have more a serious disease or illness, such as the flu, glandular fever or depression.*

**Question 4e.****Sample response**

Jane could conclude that a combination of exercise and approach strategies is most effective at lowering stress levels of the employees at Ace. Group A, who used their own coping strategies, showed no improvement in perceived stress levels and their cortisol levels remained similar. Both group B, who exercised, and group C, who used approach strategies, showed lower cortisol levels and an improvement in perceived stress levels after three months. The most successful group at lowering both cortisol and stress levels was group D, who used both exercise and approach strategies.

**Mark allocation: 5 marks**

- 1 mark for stating an overall conclusion that although either exercise or approach strategies were effective at reducing stress, a combination of the two was most successful
- 1 mark for stating that group A showed no improvement
- 1 mark for stating that group B showed a reduction in cortisol levels and improvement in perceived stress levels
- 1 mark for stating that group C showed similar improvements to group B
- 1 mark for stating that group D was most effective at reducing cortisol and stress levels

**Question 5a.****Sample response**

It is hypothesised that those VCE students at Boston High who had access to context-dependent cues when recalling words would show improved recall compared with those who recalled the words without access to context-dependent cues.

**Mark allocation: 3 marks**

- 1 mark for including the correct population
- 1 mark for including the simplified independent variable and dependent variable
- 1 mark for stating a direction

**Question 5b.****Sample responses**

Sampling procedure: stratified sampling

Potential limitation: It is more time consuming than other methods of sampling, such as convenience sampling, because Hugo would have had to first find out the proportion of males and females in each stratum (year level) and then make sure his sample included participants from each stratum in the same proportions as in the population. This process would be time consuming.

**Mark allocation: 3 marks**

- 1 mark for stating stratified sampling
- 1 mark for explaining a limitation of this type of sampling, such as:
  - not every member of each stratum has an equal chance of being selected for the sample, thereby lowering the representativeness of the sample
  - it is more time consuming than other methods of sampling, such as convenience sampling, because the proportions of students in each stratum must be calculated and then represented in the same proportion within the sample
- 1 mark for applying this disadvantage to Hugo's experiment

**Question 5c.****Sample response**

Hugo found that students who learned and recalled the words in the same environment (the classroom or oval) had better recall of the words than those who had to learn and recall the words in different environments. This is because environmental cues from the situation where the memory was originally formed (e.g. the classroom) would act as retrieval cues to trigger a student's memory of the words that they formed in that context.

**Mark allocation: 2 marks**

- 1 mark for an interpretation of the results, explaining that students who had access to context-dependent cues showed improved recall of the words
- 1 mark for an explanation of how context-dependent cues improved the recall of the words by providing environmental cues (from the oval or the classroom) that were present at the time the memory of the words was formed

**Question 5d.i.****Sample response**

long-term memory (LTM)

**Mark allocation: 1 mark**

- 1 mark for identifying long-term memory

**Question 5d.ii.****Sample response**

Capacity: relatively unlimited

Duration: relatively permanent

**Mark allocation: 2 marks**

- 1 mark for correctly identifying the capacity of long-term memory, which is relatively unlimited
- 1 mark for correctly stating that the duration of long-term memory is relatively permanent for up to a lifetime

**Question 6a.****Sample response**

Adults require seven to eight hours of sleep per night. Adults suffering from partial sleep deprivation are not getting the amount of sleep they require on a regular basis, particularly REM sleep. This would impair their cognitive functioning; for example, they may have poor attention or trouble concentrating.

**Mark allocation: 3 marks**

- 1 mark for stating that adults require seven to eight hours of sleep per night
- 1 mark for explaining that partial sleep deprivation means that the sufferer is not getting the amount of sleep, particularly REM sleep, that they require (which is linked to cognitive functioning)
- 1 mark for stating at least one example of an impairment of cognitive functioning (e.g. lapses in attention, poor concentration, impaired problem solving, impaired decision-making, errors in judgement, irrational thinking, impaired learning or impaired memory)

**Question 6b.****Sample response**

This method would have involved a one-on-one verbal discussion with participants about their sleep patterns since the birth of their children, such as the number of hours they sleep, sleep quality, how refreshed they felt upon awakening and the number of times they woke up during the night. This is a subjective process whereby participants are recording information from their point of view into the diary. This is influenced by their individual circumstances and characteristics and relies on their memory. The subjective nature of this method could lower the accuracy of the data collected and could lower the validity of the results, making it difficult to determine if the independent variable (having children) caused the change in the dependent variable (amount of sleep).

**Mark allocation: 3 marks**

- 1 mark for describing that an interview involves a one-on-one verbal discussion with an example of what may be discussed
- 1 mark for explaining what is meant by 'subjective in nature' in this context
- 1 mark for explaining that this could lower the validity and accuracy of the data collected such that it could be unclear if the independent variable of having children was reducing the amount of sleep rather than extraneous variables or biases in the data

**Question 7a.****Sample response**

The doctor may have reported that Glenda's brainwaves became lower in frequency and higher in amplitude after doing the breathing retraining techniques.

**Mark allocation: 2 marks**

- 1 mark for identifying that there would be an increase in amplitude
- 1 mark for identifying that there would be a decrease in frequency

**Question 7b.****Sample response**

alpha brainwaves

**Mark allocation: 1 mark**

- 1 mark for correctly identifying alpha brainwaves

**Tip**

- *Remember that you need to know the brainwave patterns (beta, alpha, theta and delta) that relate to varying levels of awareness which includes being drowsy or asleep.*

**Question 7c.****Sample response**

One psychological change that Glenda may experience is a lowered awareness. As a result, she may not notice some external stimuli in her surroundings, such as sounds in the doctor's office. Another psychological change Glenda may experience is lowered self-control, whereby she may be more open to suggestions from her doctor or have difficulty controlling voluntary movements.

**Mark allocation: 4 marks**

- 1 mark for each description of a psychological change, including decreased levels of awareness, reduced ability to perform controlled or automatic processes, lowered content limitations, perceptual distortions, cognitive distortions, lowered emotional awareness, reduced self-control or reduced time orientation (up to 2 marks)
- 1 mark for each example that relates to Glenda (up to 2 marks) including:
  - decreased levels of awareness: she may not notice or pay attention to external stimuli, such as the doctor's voice, doctor's office or surroundings
  - lowered content limitations: more bizarre or less organised thoughts
  - perceptual distortions: senses may become heightened or less sensitive to external stimuli, hallucinations may occur, pain perception may differ or she may have a loss of sense of identity
  - cognitive distortions: difficulties with decision-making and problem-solving, trouble storing memories and retrieving information from long-term memory
  - lowered emotional awareness: heightened, amplified, more expressive, more extreme, dulled, less expressive emotions; report feeling nothing; or emotions can be inappropriate for an event or situation
  - reduced self-control: difficulty coordinating and controlling movements, may have difficulty showing restraint or have lowered inhibitions
  - reduced time orientation: distorted or less accurate time perception; time seems to pass at a different speed than normal and may seem to slow down or speed up



## Question 8

### Sample response

One biological factor that could have influenced Simon's ability to recall the attack is long-term potentiation. When Simon first saw the elderly lady being attacked, neurons in his brain would have formed a connection. When Simon discussed the attack with the police, his neighbours, friends or lawyers, this would have resulted in repeated activation of the same neural pathways, thus strengthening Simon's memory of the event. This would make Simon more likely to remember details about it six months later in court.

Another biological factor that could have influenced Simon's ability to recall the attack is that it was an emotionally arousing event for him. He felt his heart pounding, his palms getting sweaty and his breathing becoming faster and shallower, which would suggest that his sympathetic nervous system had been activated. This means the neurohormone adrenaline would have been present in his nervous system. This would have triggered the release of noradrenaline, which would have activated his amygdala, resulting in a consolidation of the implicit, emotional aspects of his memory of the event, such as feeling fearful. This would have enhanced the consolidation of explicit details of the event in his hippocampus, such as what the attacker looked like or what time of day it was. This would have enabled Simon to remember more details of the attack six months later in court.

One psychological factor that could have influenced Simon's ability to recall the attack is context-dependent cues. Context-dependent cues are environmental cues that are present at the time the memory was formed and can act as triggers to aid retrieval. For Simon, context-dependent cues would be present if he was back on the street at the local shops where he first formed a memory of the attack. This would provide him with environmental cues, such as sights and sounds, that would enhance his ability to recall details of the attack. If the police took him back there instead of interviewing him at the police station later that day, this may have enhanced his memory of the event. Also, six months later in court, these context-dependent cues would not be present, which could lead to an inability to recall certain details of the attack.

Another psychological factor that could have influenced Simon's ability to recall the attack is the use of leading questions. The police or the lawyer may have asked Simon questions that suggested details of the attack. For example, asking 'What was the young man who attacked the woman wearing?' would suggest that the attacker was a man and was younger in age, which may not have been the case. As found in Elizabeth Loftus' research, misleading information in leading questions can become integrated into an eyewitness's long-term memories of events, thus distorting their memory. In Simon's case, if leading questions introduced new information after the original experience of seeing the attack, this new information may become integrated with the original memory stored in long-term memory. This would result in recall of a reconstructed or altered version of the original memory, meaning that when Simon recalls details in court six months later, he would be more likely to recall the attacker being a young man.

**Note:** This question should be marked globally using the criteria on page 26.

Marks	Criteria
8–10 marks	<p>Student has provided at least two biological and two psychological factors that could have influenced Simon’s memory of the attack when he is cross-examined by the lawyer six months later.</p> <p>Student has identified and explained two appropriate biological factors and applied these to the scenario. Acceptable factors include:</p> <ul style="list-style-type: none"> <li>• neural plasticity; long-term potentiation or long-term depression, glutamate</li> <li>• neurohormone adrenaline (emotionally arousing event) and the role of the amygdala in the consolidation of emotional aspects of the event.</li> </ul> <p>Student has identified and explained two appropriate psychological factors and applied these to the scenario. Acceptable factors include:</p> <ul style="list-style-type: none"> <li>• state-dependent cues</li> <li>• context-dependent cues</li> <li>• leading questions (Loftus’ research).</li> </ul> <p>Student has confidently used key terminology to explain these factors in relation to how Simon’s memory of the attack would be influenced.</p> <p>Student responses at this level are written coherently and fluently.</p>
5–7 marks	<p>A lesser response has not discussed two biological and two psychological factors cohesively or has minor errors.</p> <p>Student has identified and explained two appropriate biological factors and will apply these to the scenario. Acceptable factors include:</p> <ul style="list-style-type: none"> <li>• neural plasticity; long-term potentiation or long-term depression, glutamate</li> <li>• neurohormone adrenaline (emotionally arousing event) and the role of the amygdala in the consolidation of emotional aspects of the event.</li> </ul> <p>Student has identified and explained two appropriate psychological factors and applied these to the scenario. Acceptable factors include:</p> <ul style="list-style-type: none"> <li>• state-dependent cues</li> <li>• context-dependent cues</li> <li>• leading questions (Loftus’ research).</li> </ul> <p>Student responses at this level are written coherently.</p>
4–5 marks	<p>Student has identified and explained one or two appropriate biological factors and applied these to the scenario. Acceptable factors include:</p> <ul style="list-style-type: none"> <li>• neural plasticity; long-term potentiation or long-term depression, glutamate</li> <li>• neurohormone adrenaline (emotionally arousing event) and the role of the amygdala in the consolidation of emotional aspects of the event.</li> </ul> <p>Student has identified and explained one or two appropriate psychological factors and applied these to the scenario. Acceptable factors include:</p> <ul style="list-style-type: none"> <li>• state-dependent cues</li> <li>• context-dependent cues</li> <li>• leading questions (Loftus’ research).</li> </ul> <p>Student responses at this level are written coherently.</p>

2–3 marks	<p>Student has identified and explained one appropriate biological factor and may have applied this to the scenario. Acceptable factors include:</p> <ul style="list-style-type: none"> <li>• neural plasticity; long-term potentiation or long-term depression, glutamate</li> <li>• neurohormone adrenaline (emotionally arousing event) and the role of the amygdala in the consolidation of emotional aspects of the event.</li> </ul> <p>Student has identified and explained one appropriate psychological factor and may have applied this to the scenario. Acceptable factors include:</p> <ul style="list-style-type: none"> <li>• state-dependent cues</li> <li>• context-dependent cues</li> <li>• leading questions (Loftus’ research).</li> </ul> <p>Key terminology or elements of each factor may be missing. Student response may lack depth or detail.</p>
1 mark	<p>Student has identified one appropriate biological factor. Acceptable factors include:</p> <ul style="list-style-type: none"> <li>• neural plasticity; long-term potentiation or long-term depression, glutamate</li> <li>• neurohormone adrenaline (emotionally arousing event) and the role of the amygdala in the consolidation of emotional aspects of the event.</li> </ul> <p style="text-align: center;"><b>OR</b></p> <p>Student has identified one appropriate psychological factor. Acceptable factors include:</p> <ul style="list-style-type: none"> <li>• state-dependent cues</li> <li>• context-dependent cues</li> <li>• leading questions (Loftus’ research).</li> </ul>

### END OF SAMPLE RESPONSES