



SOLUTIONS

2019 Units 3 & 4 PSYCHOLOGY

Trial examination

SECTION A: Multiple-choice questions

1	A
2	B
3	B
4	D
5	D
6	D
7	B
8	D
9	B
10	C
11	B
12	D
13	A
14	A
15	B
16	B
17	D
18	B
19	C
20	A

21	C
22	D
23	C
24	B
25	C
26	A
27	C
28	C
29	A
30	A
31	A
32	A
33	D
34	D
35	D
36	A
37	B
38	C
39	B
40	C

41	C
42	D
43	C
44	B
45	C
46	B
47	C
48	C
49	A
50	A

Question 1 A

Zach's somatic nervous system is responsible for the initial transmission of information regarding the temperature of the water from the skin in his feet. The information will be processed in his Central NS.

Question 2 B

Zach's axon is responsible for conducting the neural impulses (in relation to the sensory stimuli of the temperature of the water) from his feet towards his spinal cord.

Question 3 B

Zach's response of retreating back to shore due to the coldness of the water is an example of a voluntary response.

Question 4 D

Parkinson's disease is specifically caused by degeneration of the dopamine producing neurons in the central nervous system (the substantia nigra in the brain).

Question 5 D

In terms of the lock and key effect, the Carbidopa would mimic the effects of dopamine by acting as a key that would target the dopamine receptors - the locks and would mimic the excitatory effects on the targeted cells, making them more likely to fire and thus reducing the motor impairment caused by Parkinson's disease.

Question 6 D

The carbidopa would act as a dopamine agonist, by mimicking the effects of the depleted levels of dopamine at their matching postsynaptic receptors.

Question 7 B

There is no cure for Parkinson's disease. A variety of medication such as Carbidopa and Levodopa have been tested/used to treat the symptoms of the disease.

Question 8 D

Life events can be a source of stress when they either cause distress e.g. job loss, or eustress e.g. getting married.

Question 9 B

When Lilli was experiencing her initial period of shock, her body would have acted as if it was injured, thus her blood pressure would drop. *The other three options would occur during countershock.*

Question 10 C

According to Selye's General Adaptation Syndrome, cortisol would have first been released when she reached the countershock stage.

Question 11 B

According to Selye's General Adaptation Syndrome, when Lilli was experiencing migraines and lethargy, she would have most likely have reached the resistance stage. *She is showing the early signs of illness, but appears to be maintaining a high level of resistance as she able to still work productively towards dealing with the demands of the stressor.*

Question 12 D

According to the Lazarus and Folkman model of stress and coping, Lilli has most likely made a primary appraisal of the news of her father's death and resulting demands for dealing with all that is immediately associated with the death that the stressor is a significant threat. *Although it will challenge her, the scenario does not depict any evidence of the potential for a positive outcome (a feature of a the 'challenge' appraisal.*

Question 13 A

The most effective means of dealing with the source of Lilli's stress, that is how to best deal with the care of her mother, is to use an approach coping strategy, by directing her energy towards the source of the stressor. *The other three options simply deal with the emotions or the effects of the stress.*

Question 14 A

Initially Zahara's level of excitement was an example of eustress as it was a positive psychological response to a stressor.

Question 15 B

Zahara's level of unease about the presentation can be best labelled as anxiety. Anxiety refers to a state of physiological arousal associated with feelings of apprehension, unease or worrying about something that is about to happen.

Question 16 B

CBT is a psychological factor that Zahara could employ in order to enhance her resilience in dealing with the negative thoughts about her presentation. *Family support is a social strategy*

Question 17 D

Xavian's throwing her arms up in disgust due to the referee's decision is an example of a vicariously conditioned response that has occurred via social learning theory i.e. the observations and subsequent reproduction of the actions of the of the influential WNBA players. *Whilst the student design doesn't reference the word 'vicarious' it is useful terminology for student to utilised when describing behaviour that has been learned via observational learning (see p. 251 Jacaranda textbook)*

Question 18 B

In terms of the three-phase model of operant conditioning:

Antecedent: the referee calling a foul on Xavian

Behaviour: Throwing her arms up in disgust

Consequence: Being benched by her dad.

Question 19 C

See Qu.17 justification

Question 20 A

Xavian being 'benched' for her arm gesture is an example of response cost as the cost of her response is losing court time. *Some students may argue that the consequence is an example of positive punishment (option B) as the being benched is the stimulus 'added' in order to reduce her disrespectful antics, but the effect of being benched is the loss of court time.*

Question 21 C

The coach's behaviour is being negatively reinforced, as his actions are being strengthened in order to reduce the aversive ire of the referees.

Question 22 D

The professor has used convenience sampling via a readily accessible group of volunteers from the university who have responded to a media request (hence non-random given not everyone in the population of young adults had the opportunity to participate), that were non-randomly allocated via a predetermined method of selection based on the number of hours of phone use.

Question 23 C

The professor has used a cross-sectional study (a type of independent groups design; not 'dependent' - option D) as the participants were non-randomly allocated to two predetermined groups based on cross-sections of society: heavy phone users vs. light phone users.

Question 24 B

The mean is a measure of central tendency which provides a useful comparison of the average STM capacities for the two groups of participants.

Question 25 C

The use of maintenance rehearsal enables participants to retain the tested items in STM via subvocal repetition during the testing phase. The other three options all involve methods to access information previously stored in LTM in order to retrieve back into STM for use.

Question 26 A

Free recall is being used in this experiment, as the participants recall the information in any order without access to any cues.

Question 27 C

The standard deviation provides a summary of the spread of scores from the mean and thus indirectly measures the consistency of scores which reflects the reliability of the scores.

Question 28 C

A victim of a brain trauma that is suffering anterograde amnesia, would still have be able to form new classically conditioned emotional memories. Anterograde amnesia is caused by damage to the hippocampus which results in difficulty forming new explicit memories (semantic and episodic memories). The amygdala is responsible for the formation of classically conditioned emotional responses and thus if this area of the brain is unaffected by the brain trauma, then the victim could be classically conditioned to develop a fear response.

Question 29 A

According to past research (by Dawson and Reid and others) regarding the comparison of the effects of 24 hours of sleep deprivation on cognition compared to the effects of alcohol.

The effects of 24 hours of sleep deprivation are similar to a BAC (blood alcohol content) of 0.10

Question 30 A

According to past research on the effects of a blood alcohol concentration (BAC) of 0.10 and the effects of 24 hours sleep deprivation on cognition, concentration and mood, the greatest variation occurs with affective symptoms as sleep deprivation tends to flatten mood and cause irritability, whereas alcohol can at times enhance mood as it reduces stress and anxiety. *The effects on attention and other cognitive symptom are generally similar based on research by Dawson and Reid (1997), etc.*

Question 31 A

The experiment was generating primary data i.e. original data collected directly from the experiment designed and conducted by the experimenter that was quantitative i.e. the use of numerical ratings from the sleep diary.

Question 32 A

Insomnia is a type of dyssomnia, i.e. a group of sleep disorders that make it difficult to go to sleep or remain asleep

Question 33 D

The use of self-reporting is a non-standardised procedure as all participants are being asked to record their own data in a different environment (their own home) and potentially at different times of the day which could affect the reliability of their ratings. Options A and C are controlled via counterbalancing and the placebo effect would be controlled via the use of placebos.

Question 34 D

An EMG, detects, amplifies and records the electrical activity of the muscles (muscle tension).

Question 35 D

The RediNite medication is intended to suppress stress hormones, such as cortisol in the evening, and thus enhance the effectiveness of sleep-inducing hormones such as melatonin.

Question 36 A

The sleep cycles of young infants do not follow a circadian (24 hours) cycle as they have multiple sleep-wake cycles over a 24-hour period due to their feeding processes. The sleep cycles of the other three age groups follow a circadian rhythm as they are more likely to follow a more consistent pattern of waking once and falling asleep once per day.

Question 37 B

The incidence of NREM sleep follows an ultradian rhythm as they occur multiple times over a 24-hour period, during the 4-6 sleep cycles per night.

Question 38 C

Delayed sleep phase onset for adolescents can be attributed to a natural maturation process resulting in a delayed release of melatonin in the evening *and is far more likely to contribute to a dysomnia than a parasomnia*

Question 39 B

Impaired motor control in PE example is a behavioural symptom of sleep deprivation in Laz's case. *Difficulty concentrating in a Math's class & poor decision making when out with his friends on the weekend are examples of cognitive symptoms and irritability is an example of affective symptoms.*

Question 40 C

If the goal of the bright light therapy was help the shift worker to finish the shift with a high level of melatonin so that she could go to sleep after finishing her shift, then the best time for exposure to the bright light would be just after she wakes up in the afternoon following her daytime sleep and after her night shift in order to help reset her body clock. This would suppress the melatonin in the afternoon in the hours prior to her work shift and thus help her arrive at her shift in a relatively alert state before endeavoring to go to sleep roughly 16 hours after the initial exposure to the high intensity bright light that has helped to shift her body clock back by the necessary time to cater for the demands of her work hours.

Question 41 C

Controlled processes require a high level of mental effort and are generally performed using selective attention.

Question 42 D

When an individual is performing a task that requires their selective attention, it requires a higher level of awareness and brain wave activity. An EEG would therefore tend to record a relatively higher level of frequency and a lower level of amplitude brain waves in comparison to a daydreaming episode, an alcohol induced state or a drowsy state of normal waking consciousness.

Question 43 C

Sleepwalking episodes are more commonly experienced by young children in comparison to adults. *They occur during NREM sleep (stages 3 & 4) and tend to involve routine, passive activities and are generally not well remembered by the sleepwalker when they wake up the following day.*

Question 44 B

Jethro is currently experiencing the contemplation stage of the transtheoretical model of behavioural change as he has gained awareness to the extent of his problematic behaviour and has weighed up the pros and cons of changing his behavior and is getting ready to change his behaviour.

Question 45 C

Jethro has reached the preparation stage once he has made a commitment to change his behaviour within the next 30 days.

Question 46 B

Jethro's parents have been exposed to psychoeducation, this relies on the principles of operant conditioning in order to challenge avoidant behaviour which can negatively reinforce maladaptive behaviour and thus prevent the perpetuation of his condition.

Question 47 C

Stigma is classified as a social factor contributing to the progression of a mental disorder.

Question 48 C

A high level of cognitive ability is not considered a characteristic of all mentally healthy people as this is largely predetermined by genetics. A high level of social and emotional wellbeing, a high level of daily functioning and resilience are all (the listed characteristics in the study design) characteristics of a mentally healthy person.

Question 49 A

As a result of the Watson and Rayner Little Albert experiment, Little Albert developed a conditioned emotional response. This is a type of implicit memory that does not require conscious recall.

Question 50 A

A research hypothesis should contain both a broad IV & DV, the population of interest and a directional prediction. It can contain an operationalised dependent variable, but generally these variables are operationalised separately and thus are not required as part of a research hypothesis.

SECTION B: Short-answer questions**Question 1 (14 marks)**

a. *In terms of the Lazarus and Folkman transactional model of stress and coping identify and describe both Bridget's and Kath's primary appraisal.*

- Bridget has evaluated the stressor as a significant - challenge.
- As she has made an assessment as to how she can learn and grow from this experience of teaching students in a rural area.
- Kath has evaluated the stressor as a significant - threat.
- She has made an assessment of the potential future harm to her own well-being and the needs of others.

1 mark for identifying each of the appraisals and 1 mark each for a suitable explanation that is clearly linked to the scenario.

4 marks

b. *Explain how Kath may have made an avoidant coping strategy for dealing with the demands of her interstate teaching.*

- Kath may direct her energy away from the source of the stressor.
- In this case she may choose to go and have a few drinks with her friends to help control her emotions triggered by the stress of her teacher posting (interstate).

1 mark for an explanation of avoidant coping, 1 mark for a clear link to the scenario.

2 marks

c. *Describe an advantage of Kath using an avoidance coping strategy*

- It gives her an opportunity to conserve energy to focus on other stressors that can be changed.

Or -

- Ignoring the stressor for a couple of days, while focusing on other things, can provide 'time out' from a stressor while minimising potential stress from another source.

1 mark

d. *In terms of the Lazarus and Folkman transactional model of stress and coping explain why Kath may have made a reappraisal the day after first hearing the news of the teaching position*

- Kath has made a secondary appraisal (following her initial) primary appraisal.
- She has had the opportunity to evaluate her coping resources and the energy required to deal with her stressor this has resulted in a reappraisal of the significance of the stressor as she has gone through a more conscious consideration of the level of significance of the stressor and her ability to cope with the stressor.

1 mark for stating that she has made a reappraisal during the secondary appraisal, 1 mark for discussing the evaluation of her coping resources that has resulted in her reappraisal.

2 marks

e. *Describe two factors that would indicate the Kath has a mental health problem (as opposed to a mental illness)*

- Kath has symptoms/signs of a mental disorder but they are not as severe as people with a mental disorder.
- Kath's condition is temporary, short-term, the symptoms have only been present for a few weeks.
- Despite showing symptoms Kath can still maintain a degree of her daily functioning.

1 mark for any of the above points (up to 2 marks)

2 marks

f. Evaluate Kath's cumulative risk of developing a mental condition.

- Cumulative risk refers to the accumulation of risk due to the combined exposure to multiple biological, psychological and social risk factors that can either contribute to the development of a mental condition or exacerbate the severity of a mental condition.
- Kath has a family history of anxiety (biological predisposing factor) and appears to be suffering from stress and poor self-efficacy (psychological precipitating factors) and feels pressure from family, friends, future students, school authorities (social precipitating factor)
- The accumulation of these factors presently reflect that she is suffering from a mental health problem that could potentially develop into a mental illness if she cannot employ some protective factors to negate the level of risk or alternatively adopt an approach coping strategy in order to resolve some of these stressors.

1 mark for defining cumulative risk, 1 mark for identifying risk factors, 1 mark for a conclusion (the 3rd points)

3 marks

Question 2 (7 marks)

a. In terms of the lock and key process, explain how the release of glutamate affects the postsynaptic neuron

- The uniquely shaped glutamate neurotransmitters represent the keys.
- The correspondingly matched shaped NMDA and AMPA receptors represent the locks.
- When glutamate (the key) is released from the presynaptic axon terminals and binds with it complementary shaped AMPA and NMDA receptors (the locks).
- It causes the postsynaptic cell to fire due to the excitatory effects of the glutamate.

1 mark for each point, with emphasis on the underlined terms

4 marks

b. Explain how LTP could occur

- LTP occurs via the repeated stimulation of a neural connection responsible for a memory trace.
- Specifically, LTP results in a strengthening of postsynaptic responses (from the NMDA and AMPA receptors) from presynaptic (glutamate neurotransmitter) input.
- Resulting in a long-lasting enhancement of synaptic transmission or a strengthening of a neural pathway responsible for memory.

1 mark for each point, with emphasis on the underlined terms

3 marks

Question 3 (6 marks)

a. State which of the three would be depicted at the highest level on continuum of consciousness, justify your response.

Xavian would be highest on the continuum as she has a relatively higher level of awareness and was experiencing a normal waking consciousness as opposed to Xander and Trish who are both experiencing an altered state of consciousness characterised by a reduced level of awareness

1 mark for identifying Xavian, 1 mark for a congruent explanation (linked to the scenario)

2 marks

b. As the effects of alcohol slowly started to wear off, describe changes in Xander's EEG activity

- The electrical activity of Xander's brain would gradually increase in frequency and decrease in amplitude
- As he moved from an altered-state of consciousness (during his alcohol-induced state) to a normal waking consciousness as the effects of alcohol on his nervous system diminished over time.

1 mark for referencing the EEG readings, 1 mark for emphasis on the change in consciousness

2 marks

c. Explain how Trish's daydreaming episode could result in both a cognitive and perceptual distortion.

- Cognitive distortion: Trish may experience disorganised thoughts as she loses track of the intensity required to maintain a worthwhile stretch.
- Perceptual distortion: Trish may not register the low level of pain experienced by the stretch due to the tension in the body part being stretched.

2 marks

Question 4 (2 marks)

In terms of the evolutionary theory of sleep, provide two distinct reasons why a possum sleeps significantly longer than a giraffe.

- Possums can easily hide from predators during sleep thus are safe when they are asleep, Giraffe's cannot hide from predators during sleep, due to their large body mass.
- Possums have a low metabolic rate; thus, they have a lower food requirement than a Giraffe which has a higher metabolic rate and thus have a higher food requirement and thus need more waking hours to consume the necessary calories required to sustain their bodies.

Question 5 (5 marks)

Using the language of classical conditioning, describe both the acquisition and post conditioning phases of Siena's condition

Acquisition stage: The NS of the horn was repeatedly presented (sounded) just prior to the brother being shot by a rubber bullet (UCS) to the torso which would have resulted in pain/terror (UCR).

Post conditioning stage: After several pairings of the NS and UCS. The mere sound of the horn (CS) would reflexively trigger a flinch response (CR).

1 mark for identifying the NS/CS

1 mark for identifying the UCR/CR

1 mark for identifying the UCR

1 mark for emphasis on the repetition of the pairing

1 mark for stating the NS precedes the UCS.

Question 6 (14 marks)

a. Describe how the key steps of systematic desensitisation would be applied during the treatment period of research investigation.

- **Step 1:** the patient needs to learn/ be taught a relaxation strategy e.g. breathing retraining, progressive muscle relaxation.
- **Step 2:** the patient needs to then identify and rank approximations of the conditioned stimulus and thus create a *fear hierarchy* e.g. looking at a picture of a forest, touching a piece of wood, etc.
- **Step 3:** the patient needs to repeatedly *pair* their learned *relaxation strategy* with *gradual exposure to the approximations of their fear evoking stimuli* by starting at the bottom of the hierarchy and then applying their learned relaxation strategy in order to reduce their fear (conditioned) response to an adaptive level. This can occur in real time or via visual imagery (using virtual reality)
- Then move up to the next level of the hierarchy and so *until the patient has reached the top of the hierarchy and the conditioned stimulus no longer elicits the conditioned fear response due to extinction.*

*Thus, the patient is systematically (gradually in stages) desensitized (they become less anxious and more comfortable) to their phobia of wood/trees/etc. by unlearning the link between the anxiety and phobic stimulus & **reassociating** a comfortable feeling with phobic stimulus*

1 mark for each of the dot points with emphasis on the underlined terms

4 marks

b. Evaluate both the internal validity and the internal reliability of the results generated from this research investigation.

- **Internal validity** refers to the extent to which the results of an experiment are due to the manipulation of the IV on the DV as opposed to other extraneous/ confounding variables.
- In this case the use of a self-rating of the severity of the participant's phobic condition lacks validity due to the subjective nature of the scoring process i.e. it lacks objectivity.
- The **internal reliability** would be evaluated via determining the consistency of results for the sample tested.
- Given the high standard deviation for the experimental condition of 11.8 which is nearly double the standard deviation of 6.2, the experiment lacks internal validity as there is a wide spread of scores indicating a lack of consistency in terms of the effectiveness of systematic desensitisation in treating the symptoms for the sample tested.

1 mark for an explanation of internal reliability, 1 mark for a link between the use of self-reporting and the validity of the results.

1 mark for an explanation of internal reliability, 1 mark for a link between the standard deviation of the post-treatment scores and the reliability of the results.

4 marks

- c. Based on the results of the experiment, write an evidence-based conclusion of the results*
- Based on a comparison of the mean scores of the two groups: The control group experienced a reduction of 0.4 (39.1 - 38.7) out of 50 for their average self-rated scores for the severity of the symptoms vs the experimental group which experience a reduction of 9.6 (39.0 - 29.4) out of 50.
 - This indicates that the use of systematic desensitisation has been effective in reducing the severity of the symptoms of hylophobia for the sample tested.
 - However, the results may lack reliability as reflected by the high standard deviation of the experimental groups scores, likewise the use of self-reporting means that the data may lack validity.

1 mark for a basic summary of the scores, 1 mark for a statement about the effectiveness of the treatment based on the significance of the results, 1 mark for a statement about the potential lack of validity or reliability of the conclusions that is clearly linked to the scenario.

3 marks

- d. Explain two tasks that the researchers would have been required to perform during the debriefing process.*

Subjects should be debriefed at the conclusion of the experiment (not before or during).

- Providing the participants with information about the nature & reason for any deception that was used (there seemingly was no deception in this case)
- Correcting mistaken attitudes & beliefs about the research
- Debriefing is used to minimise (or extinguish) any negative consequences that participants might have suffered - particularly given participants were repeatedly exposed to their fear-evoking stimulus - wood/trees/etc.

1 mark for any of the dot points provided (up to 2 marks)

2 marks

- e. Identify the type of research investigation used by Dr. Wafaul in this case*

Experiment

Note: the research investigations covered in the VCE course include: experiments, case studies, self-reports and naturalistic observation as opposed to the research designs covered which included: repeated-measures, matched-participants, independent-groups, cross-sectional studies.

1 mark

Question 7 (12 marks)

- a. List two biological perpetuating risk factors that could affect Zara's mental condition (apart from the Zalephon)*

- Poor response to the medication (due to genetic factors)
- Substance abuse
- Poor sleep

1 mark for any of the above points (up to 2 marks)

2 marks

b. Describe the purpose of exposing participants to placebos for this experiment

- The control group consumption of the placebos will eliminate the potential for expectations (from the consumption of medication) having a confounding effect on the validity of the results.
- Thus, the control group will serve as a baseline comparison group that will be used to compare the effectiveness of the zalephon (the IV) in treating anxiety levels (the DV)

1 mark for explaining the purpose of placebos, 1 mark for a clear link to the experiment

2 marks

c. Identify three distinct ways that the research investigation will potentially breach Zara's informed consent

- She was not aware of the nature of the experiment in terms of the potential for participants to be consuming a daily placebo treatment
- She was not aware of the risks of ceasing existing to take prescribed medication
- She was not fully aware of the purpose of the study in comparing the effectiveness of placebos vs. zalephon

3 marks

d. Explain how Benzodiazepines such as Intermezzo can be used to treat anxiety/phobic disorders

- Benzodiazepines act as GABA agonists
- By targeting the GABA receptors & thus increasing the efficiency of the inhibiting action of GABA on postsynaptic neurons which slows down central nervous system activity.
- Thus, the medication (Intermezzo in this case) provides a sedative, muscle relaxing effect i.e. it reduces physiological arousal.

Specifically, they reduce the over activation of the physiological response in the presence of the phobic stimulus.

1 mark for each dot point, with emphasis on the underlined terms

3 marks

e. Explain how poor self-efficacy could have been a perpetuating risk factor to the development and progression of Zara's anxiety disorder

- **Self-efficacy** refers to a person's belief in their ability to be successful when carrying out a particular task. It relates to one's sense of competence when faced with situations that are part of everyday life. People with **poor self-efficacy** have a perceived inability to carry out the necessary strategies to complete a particular task or to achieve a predetermined goal.
- Zara's poor self-efficacy could have perpetuated the occurrence or recovery from her anxiety disorder as when she faced with a difficult task, it may pose a threat to her well-being which could increase her level of anxiety.

1 mark for a definition of poor self-efficacy, 1 mark for an explanation of the manner in which it could have perpetuated her anxiety disorder.

2 marks

Question 8 (10 marks)**The brain structures involved in both the formation and retrieval of the memory of the scuffle.**

The hippocampus would have played a key role in the encoding and consolidation of the explicit memory which would have been consequently stored in the cerebral cortex. The hippocampus also plays a role in the retrieval of explicit memories during the reconstruction of the memory when Siena provided her eyewitness testimony. More specifically the hippocampus has enabled Siena to contextualize her memory of the incident, namely the 'where and when' of the assault. The hippocampus also links emotion to memory by working with the amygdala to encode the contextual (explicit) details of the emotionality of the experience.

Sienna's amygdala was responsible for processing, mediating & consolidating emotionally arousing memories/responses. During Siena's emotionally arousing experience, a high level of adrenaline (released during her initial fight-flight-freeze response) would have triggered the release of noradrenaline from the amygdala, the high levels of noradrenaline in the brain would have stimulated the amygdala to attach more emotional significance to the memory of Siena's stressful experience, which in turn would have signaled the hippocampus to encode the contextual details of the traumatic event in order to store the emotional details of the event.

The amygdala was also largely responsible for the formation of 'flashbulb' memories which is a highly vivid and detailed snapshot of the incident which has occurred as a result of witnessing a highly emotionally arousing event. These memories in Siena's case have been periodically recalled in terms of the details of where she was and what she was doing on the Mordialloc pier at the time of the assault. Cues will trigger a 'photographic' like recall of the event for the months following the incident, with the memory storming back into her consciousness like a flashbulb. Despite these memories being highly detailed and recalled with confidence, they are not always recalled with a high degree of accuracy.

The role of the three memory stores according to the multi-store model of memory

Sensory memory was the entry point for Siena's incoming memory of the stimuli which bombarded her senses during the event. Her sensory memory stored sensory impressions long enough for each impression to slightly overlap enabling her to perceive the world around her. Her sensory registers have allowed her to choose which stimuli she would have paid attention to in order to register these details in her STM.

Sienna's STM is like a temporary working memory, by working on and temporarily storing the information attended to from her sensory memory such as the sights and words exchanged & also the material retrieved from LTM e.g. during the eyewitness testimony. Some of the abstract details of the incident that are attended in STM will be rehearsed and consolidated into LTM.

Sienna's LTM is responsible for the retention (storage) of information i.e. source details of the incident for later use in her STM via retrieval, this would have occurred inadvertently via a flashbulb memory e.g. if she sees the Mordialloc pier or a more conscious reconstruction of the memory during the eyewitness testimony.

The impact of leading questions on the reliability of Siena's eyewitness testimony.

When Siena was required to provide her eyewitness testimony in court, she would have been required to retrieve information from her LTM back into STM for use via a reconstructive process, her memory retrieval could have been influenced by the use of leading questions. A leading question is a question that suggests the answer or contains the information the police constable was looking for when he/she first interviewed Siena at the pier shortly after the incident. Siena may have been fed erroneous information such as 'what happened after the younger man pushed the elderly man into the bay'. Studies by **Loftus** indicated that leading questions could be used to accurately reconstruct memory and can result in an updated memory trace (that contains false information). In terms of the reconstructive nature of memory, Siena's memory is hypothesised to work by storing abstract features from the original source of the incident (at the pier), which was then used to construct the memory during retrieval and then adding other

details from other sources of memory in order to conventionalise her eyewitness testimony during the retrieval process back into our STM. Sienna may have experienced source confusion, where memories are integrated from two different sources, and the true source of a memory is forgotten or confused with another source (details from the police constable's leading question) thus creating a false memory.

Marking guidelines**9-10 marks**

Students have accurately identified the relevant sections of the brain: the hippocampus and the amygdala and the three memory stores: sensory memory, STM & LTM and provided a highly detailed description of their roles in the formation and retrieval of the memory of the incident as well as a detailed description the impact of a leading question on the fallibility of eyewitness testimony that demonstrates higher order thinking skills in the manner in which it relates to the scenario and course theory.

7-8 marks

Students have accurately identified the relevant sections of the brain: the hippocampus and the amygdala and the three memory stores: sensory memory, STM & LTM and provided a detailed description of their roles in the formation and retrieval of the memory of the incident as well as an accurate description the impact of a leading question on the fallibility of eyewitness testimony that demonstrates some a higher level of thinking skills (than an average VCE student's response, based on the marker's judgement is required in this case) the manner in which it relates to the scenario and course theory).

5-6 marks

Students have accurately identified the majority of the relevant sections of the brain: the hippocampus and the amygdala and the three memory stores: sensory memory, STM & LTM and provided a description for their roles in the formation and retrieval of the memory of the incident as well as a description the impact of a leading question on the fallibility of eyewitness testimony.

3-4 marks

Students have identified some of the relevant sections of the brain: the hippocampus and the amygdala and the three memory stores: sensory memory, STM & LTM and provided a description for their roles in the formation and retrieval of the memory of the incident as well as a limited description the impact of a leading question on the fallibility of eyewitness testimony.

0-2 marks

Students have only provided a limited response in terms of the manner in which it has addressed the criteria of the question.