

## VCE Psychology 2020 Unit 3 & 4 Trial Examination Assessment Guide

### Section A – Multiple Choice Questions

Question	Correct Answer	Explanation
1	C	<i>Neurotransmitters are released by the axon terminals and received by receptors on the dendrites.</i>
2	C	<i>Driving and using a mobile phone are both controlled processes making it difficult to divide your attention between driving and the use of the phone.</i>
3	D	<i>Whilst A is partially correct, D is a better description of what occurs in LTD.</i>
4	A	<i>It has both a sensory and motor function. It is responsible for controlling our skeletal muscles, not ALL of our muscles.</i>
5	C	<i>Although neurons degenerate, it is the reduction of dopamine that is significant in Parkinson's Disease and not glutamate.</i>
6	D	<i>Receptors on the dendrites of the post-synaptic nerve receive nervous information.</i>
7	D	<i>There would be an inhibition of digestion.</i>
8	B	<i>Dawn is in the resistance stage with elevated blood cortisol levels. Not low blood cortisol levels.</i>
9	D	<i>The selection process is a daily pressure. It is not a life event because we are not forced to adjust to new circumstances.</i>
10	C	<i>Andrew avoiding the park and/or places a dog might be is an example of negative reinforcement.</i>
11	B	<i>Andrew has generalised his fear to all dogs.</i>
12	C	<i>Punishment is unique to operant conditioning.</i>
13	B	<i>This is best described as response cost because it involves the removal of a pleasant stimulus being his mobile phone.</i>
14	D	<i>In observational learning, motivation refers to the incentive to <b>perform</b> the behaviour.</i>
15	B	<i>Information remains in echoic memory for approx. 3-4 seconds. The words of Megan's mother remained in echoic memory long enough for Megan to pay attention to what was said.</i>
16	A	<i>Information can also enter STM by being retrieved from LTM.</i>
17	C	<i>There is no known cure for Alzheimer's disease.</i>
18	C	<i>Greg will struggle to form new episodic (declarative) memories. He will still be able to use his STM.</i>

19	B	<i>The amygdale has a role in the formation of our classically conditioned emotional responses.</i>
20	C	<i>Sufferers of Parkinson's disease are likely to experience both motor and non-motor symptoms. All other options are correct.</i>
21	D	<i>It was a controlled process requiring focused attention and it eventually became an automatic process.</i>
22	B	<i>This is an example of John dividing his attention.</i>
23	C	<i>Motivation in observational learning refers to the desire to perform the behaviour. Not learn it.</i>
24	B	<i>There are no muscles "IN" the eye. The EOG detects, amplifies and records the electrical activity of the muscles responsible for eye movement (or orbital muscles).</i>
25	D	<i>This is an example of state dependent cues providing retrieval cues which assist the recollection of an event.</i>
26	C	<i>Perception is required to determine how many fingers were being held up in front of Barry.</i>
27	A	<i>Mason will spend more time in NREM than REM (approx. 20-25%).</i>
28	B	<i>Sleep enhances our mood. We are more likely to be irritable with a lack of sleep. NREM sleep is thought to be suited to the restoration of our muscles rather than REM.</i>
29	B	<i>It is easier to adapt to a longer day than a shorter day. Rodney will be required to stay up longer whereas Jacob would have to try and fall asleep at much earlier time than usual.</i>
30	C	<i>Becoming more irritable is an emotional change which is an example of sleep deprivation impacting on affective functioning.</i>
31	B	<i>Bright light therapy in early evening will hopefully delay the release of melatonin meaning that Gary will not feel sleepy until later in the evening.</i>
32	B	<i>Sleep onset insomnia is not a circadian rhythm disorder.</i>
33	C	<i>Alcohol is a depressant and a blood alcohol content of 0.05 is has a similar effect to that of a period of sleep deprivation for 17 hours.</i>
34	A	<i>Sleep diary and video monitoring are both qualitative. B and C are both quantitative.</i>
35	D	<i>Research indicates that REM sleep is important for the consolidation of memories.</i>
36	C	<i>The restorative theory indicates that NREM sleep is important in terms of the physiological recovery from muscular activity.</i>
37	B	<i>Psychoeducation includes the family, friends and supports of the patient. It does not <b>only</b> involve the patient.</i>
38	B	<i>Sleep deprivation has a greater effect on simple tasks compared to complex tasks.</i>
39	B	<i>Memory bias is a psychological contributing factor.</i>
40	A	<i>Being unable to function in normal everyday life is indicative of someone experiencing anxiety as opposed to stress.</i>
41	C	<i>A and B are psychological interventions. We would take a GABA agonist and not a glutamate agonist.</i>
42	D	<i>Both internal and external factors can lead to changes in mental health.</i>
43	B	<i>A is systematic desensitisation. C is a biological strategy and D is a part of psychoeducation.</i>

44	D	<i>An anxiety disorder significantly interferes with the functioning of daily life.</i>
45	B	<i>Systematic desensitisation is an intervention strategy for specific phobia.</i>
46	B	<i>This is a cross-sectional design.</i>
47	A	<i>The only correct response is that quantitative data was collected.</i>
48	B	<i>Professor McNab was looking at the effect of caffeine (IV) on REM sleep (DV).</i>
49	C	<i>There has been no allowance for those who may have consumed considerable amounts of caffeine prior to attending the sleep laboratory.</i>
50	C	<i>The study lacks validity. There is no control group, no accounting for any caffeine consumed during the day, familiarity with taking caffeine not accounted for, not a true random sample etc.</i>

## Section B – Short Answer Questions

### Question 1

*Glutamate is an excitatory neurotransmitter that makes the post-synaptic neurons more likely to fire (1 mark). GABA is an inhibitory neurotransmitter that makes the post synaptic neurons less likely to fire (1 mark). It is possible that the student has low levels of GABA (1 mark). Without the inhibitory effects of GABA, post synaptic neurons can be activated too easily (1 mark). A possible medication would be one that “mimics” the role of GABA to maintain neural transmission at optimal levels (1 mark).*

### Question 2

- a. *A model of stress, outlining a possible explanation for Tom’s headaches, colds and infections is the GAS (1 mark). The stressful nature of Tom’s employment indicates he is in the resistance stage of the GAS with cortisol levels remaining high for a period of time (1 mark). This has weakened his immune system making Tom more susceptible to bacterial and viral infections. (1 mark)*
- b. *The source of stress for Tom is daily hassles (1 mark). These are the daily incidents that are stressful for Tom but they are not life changing (1 mark).*
- c. *Any three of the following*
  - *Exercise requires energy – uses up stress hormones – reduces stress experience. Return to homeostasis sooner.*
  - *Increases cardiovascular system – strength/stamina for future stressors. Fitter – cope with stress better (stress associated with high blood pressure and heart disease).*
  - *Brain releases endorphins in exercise. Relieve pain/stress. Increase sense of wellbeing/mood and relaxation.*
  - *Divert attention from stressor. Improves mood - reduces stress-related tension.*
  - *Reduces muscle tension associated with increase sympathetic NS activity.*
  - *Provides “time out” from stressor.*

### Question 3

- a. *Neural plasticity refers to the capacity of the neurons in the brain to change their structure (1 mark) and function (1 mark) as a result of experience.*
- b. *Every time Karen recalls the event; glutamate would be repeatedly released into the synapse (1 mark). Due to this repeated stimulation of the neural pathway, LTP would occur (1 mark) which would strengthen the neural connections making the memory of the event stronger for Karen (1 mark).*
- c. *Because this accident was an emotional experience, adrenaline would have been released due to activation of the sympathetic nervous system (1 mark). Acting as a neurotransmitter, adrenaline would activate the amygdale (1 mark) which would signal to the hippocampus that long term storage of the event should be strengthened and long lasting neural networks (memories) are formed (1 mark).*

#### Question 4

- a. *Anterograde amnesia (1 mark)*
- b. *Alzheimer's disease is a neurodegenerative disease (1 mark). Amyloid plaques due to a build-up of protein interfere with the communication of information between neurons (1 mark). Neurofibrillary tangles also form as a result of excessive protein which can result in the death of neurons (1 mark). The hippocampus is responsible for the formation of new explicit memories and this degeneration of neurons in the hippocampus results in anterograde amnesia (1 mark).*
- c. *Explicit memories are stored in the cerebral cortex. If parts of the cerebral cortex are not damaged she will recall some older memories (1 mark).*
- d. *The skill of knitting involves an implicit (procedural) memory (1 mark) and these memories tend to remain intact until severe neuronal degeneration occurs (1 mark).*

#### Question 5

- a. *Independent groups (1 mark)*
- b. *Students need to accurately state the following to receive 2 marks; the population, IV, DV and direction. 3 of the 4 points, or 2 of the 4 points, scores 1 mark. One of the 4 points scores zero marks. An example is; Students will perform better on tests using multiple choice questions compared to using written questions.*
- c. *Class A would most likely perform better on the test (1 mark). Their test involves multiple choice questions which involved recognition (1 mark) whereas Class B had to complete written questions which involved recall (1 mark). Recognition is a more sensitive measure of retention and would detect more information in resulting in a better score for Class A (1 mark).*
- d. *It is possible that the classes differ in ability which has not been accounted for (1 mark). This could be overcome by using matched pairs so that you are comparing two classes of equal ability (1 mark).*
- e. *Class A completed their test in the same room in which they learned the material. The room may have provided context dependent cues (1 mark) where the environment of the room acted as retrieval cues to assist recall of the information (1 mark). Class B completed their test in the stadium whereby these environmental cues were most likely non-existent (1 mark).*

#### Question 6

- a. *For Russell, dribbling was still a controlled process whereas for Luke it was more of an automatic process (1 mark). For Russell, dribbling required a higher level of awareness, more focused attention and more mental effort than dribbling for Luke (1 mark). Therefore, because dribbling for Luke requires a lower level of awareness, he was able to focus more of his attention to the whereabouts of his team mates and opponents compared to Russell (1 mark).*  
*OR*  
*Therefore, because dribbling for Russell requires a higher level of awareness, he had to focus more of his attention to dribbling which meant he could not focus his attention on the whereabouts of his team mates and opponents compared to Luke (1 mark).*

- b. *A cognitive distortion means there is a change in our cognitive or mental functioning. Our thought processes may be illogical or irrational and we have impaired reasoning (1 mark) A question the Doctor could ask could be; where do you live? What day is it etc? (1 mark). A perceptual distortion involves an awareness of our senses and perception of internal and external stimuli (1 mark). A question the Doctor could ask could be; how many fingers am I holding up? What is written on that sign etc? (1 mark).*
- c. *An EEG (1 mark) that detects, amplifies and records the electrical activity of the brain in the form of brain waves (1 mark).  
OR  
An EMG (1 mark) that detects, amplifies and records the electrical activity of the muscles (1 mark).  
OR  
An EOG (1 mark) that detects, amplifies and records the electrical activity of the muscles responsible for eye movement (1 mark).*

### **Question 7**

- a. *Gary is experiencing a shift in the adolescent sleep wake cycle (1 mark). This is where melatonin is being released 1-2 hours later than normal. Melatonin is the hormone that makes us sleepy (1 mark) which explains why Gary is not feeling tired at 10:30pm.*
- b. *Bright light therapy for Gary could be used early in the morning (1 mark). Bright light therapy would attempt to advance the release of melatonin and help Gary become sleepier earlier in the evening (1 mark).*
- c. *Most adolescents are sleep deprived as a result of the shift in the adolescent sleep wake cycle (1 mark). They don't get tired until later in the evening but are still required to be at school early in the morning (1 mark). This means they are not getting the required quantity of sleep and, therefore, may have problems with their affective, behavioural and cognitive functioning (1 mark) which can impact on their school performance and/or their relationships at school (1 mark). Gary sleeping in can worsen the problem because he will now not get tired until much later again on the Sunday night but will have to be at school early on Monday (1 mark) and the process continues. By starting school at a later hour, schools are trying to reduce the effects of sleep deprivation (1 mark).*

## Question 8

When marking extended responses, a 'holistic' approach should be taken. Emphasis should be given to the overall quality of the student's response. At first you would categorise a response as being high (8-10), medium (5-7) or low (<5). You would then make a final decision as to the quality of the response and a final score. A high scoring response will include discussion of the following;

- **Responses must always link to the scenario.**
- Often there are contributing factors in the development of a specific phobia that are biological, psychological and social in nature.
- All of these factors interrelate and any treatment intervention needs to consider the relationship between these factors.
- This phobia was precipitated by classical conditioning. Initially the bee was a NS. When stung, Daniel made an association between the bee and the pain.
- The bee has now become a CS and, as a result of stimulus generalisation, many other flying insects have also become a CS producing the CR of fear of many flying insects.
- By not going to the park, not going outside at home and staying in the library at school, Daniel is perpetuating his fear by operant conditioning.
- His avoiding of any park/garden, etc. where flying insects exist is negatively reinforcing his fear of these insects and making the fear stronger.
- In terms of long term potentiation, every time he is exposed to this fear, or thinks about being stung, it results in stimulation of the neural pathways involved in the fear which strengthen the neural connections and the fear.
- A biological based intervention could include discussion of;
  - the use of short-acting, anti-anxiety benzodiazepine agents (gamma-amino butyric acid [GABA] agonists) in the management of phobic anxiety (protective)
  - relaxation techniques including breathing retraining (protective)
  - exercise (protective)
- A psychological based intervention could include discussion of;
  - cognitive behavioural therapy (CBT) (protective)
  - systematic desensitisation (protective)
- A social based intervention could include discussion of;
  - psychoeducation for families/supporters with reference to challenging unrealistic or anxious thoughts and not encouraging avoidance behaviours (protective)