TSSM
Creating VCE Success

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2018 Trial Examination

STUDENT NUMBER

Figures									Letter
Words									

PSYCHOLOGY

Unit 3 – Written examination

Reading time: 15 minutes
Writing time: 1 hour 30 minutes

QUESTION AND ANSWER BOOK

Section	*Area of study*	*Number of questions*	*Number of questions to be answered*	*Number of marks*
A	1. How does the nervous system enable psychological functioning? 2. How do people learn and remember?	45	45	45
B	1. How does the nervous system enable psychological functioning? 2. How do people learn and remember?	8	8	45
				Total 90

- Students are permitted to bring into the examination room: pens, pencils, highlighters, erasers, sharpeners and rulers.
- Students are NOT permitted to bring into the examination room: blank sheets of paper and/or white out liquid/tape.
- No calculator is permitted in this examination.

Materials supplied

- Question and answer book of 21 pages.

Instructions

- Print your name in the space provided at the top of this page.
- All written responses must be in English.

Students are NOT permitted to bring mobile phones and/or any other unauthorised electronic devices into the examination room.

SECTION A - Multiple-choice questions

Instructions for Section A

Answer all questions.
Choose the response that is **correct** or that **best answers** the question.
A correct answer scores 1, an incorrect answer scores 0.
Marks will **not** be deducted for incorrect answers.
No marks will be given if more than one answer is completed for any question.

The following information refers to questions 1-12

Brian is an IT consultant who recently moved from Australia to work at Google in San Francisco. Whilst initially excited about the move, he has found the relocation much harder than he ever anticipated. His young son become ill when they moved and he was shocked at the medical bills and lack of government subsidy in America. His Father back in Australia was diagnosed with a terminal illness and he feels hopeless and unable to help him from his new home. One morning when he was heading off to work he could not find his keys temporarily and his wife was shocked at his extreme overreaction to this event. Brian has since developed flu like symptoms but he is still going to work and carrying out his usual daily activities.

Question 1
Brian has found the move from Australia to America more stressful than anticipated. He was shocked to learn the harsh ramifications of living in a country that provided no supportive funding for medical expenses and he is also finding the separation from his father extremely traumatic due to his father's recent illness. These factors refer to which of the following types of stressor?
A. Stressful life events
B. Daily hassles
C. Acculturation
D. Catastrophe

Question 2
Brian's father being diagnosed with a terminal illness would be categorised as which type of stressor?
A. Stressful life event
B. Daily hassle
C. Acculturation
D. Catastrophe

Question 3
Losing his keys is an example of
A. a stressful life event.
B. a daily hassle.
C. acculturative stress.
D. a catastrophe.

SECTION A - continued

Question 4
Prior to the move Brian was excited about the challenge ahead. In this situation the event was most likely causing
A. Distress.
B. Eustress.
C. Panic.
D. An alarm reaction.

Question 5
However, the subsequent high medical bills and news of his father's illness mean that the move is subsequently causing
A. Distress.
B. Eustress.
C. Panic.
D. An alarm reaction.

Question 6
Prior to the move, the prospective move would have activated which part of the nervous system?
A. Sympathetic nervous system
B. Parasympathetic nervous system
C. Somatic nervous system
D. Peripheral nervous system

Question 7
After the move, the difficulties Brian has faced would have activated which part of the nervous system?
A. Sympathetic nervous system
B. Parasympathetic nervous system
C. Somatic nervous system
D. Peripheral nervous system

Question 8
In terms of the General Adaptation Syndrome, what stage would Brian be in shortly prior to the move?
A. Alarm Reaction
B. Resistance
C. Exhaustion
D. None of the above

Question 9
In terms of the General Adaptation Syndrome, what stage would Brian be in when he developed flu like symptoms?
A. Alarm Reaction
B. Resistance
C. Exhaustion
D. Counter-shock

Question 10
Brian's excitement before the move indicated he perceived the stressor initially as a
A. Benign.
B. Irrelevant.
C. Harm.
D. Challenge.

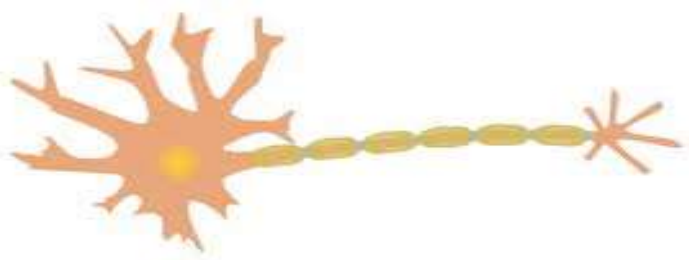
Question 11
Brian's subsequent difficulties following the move indicated he perceived the move as a
A. Threat.
B. Irrelevant.
C. Harm/Loss.
D. Challenge.

Question 12
Brian's doctor has advised him that when he recovers from his flu-type symptoms, he should engage in physical activity to help him deal with the stress he is experiencing. Which of the following is not a benefit of physical exercise?
A. Exercise uses up the stress hormone cortisol
B. Exercise helps to work out muscle tension that has built up in the muscles
C. Exercise increases the cardiovascular system, increasing stamina for when we face future stressors
D. Exercise will deal directly with the problems faced by Brian

Question 13
Stress can be considered a psychobiological process because
A. Of the activation of the autonomic nervous system.
B. There is usually a psychological interpretation of a stressor/something that is causing us to worry and a physiological response such as the activation of the sympathetic nervous system.
C. Both the sympathetic and parasympathetic branch of the nervous system are involved.
D. The interpretation of a stressor can differ depending on individual differences.

SECTION A - continued

Question 14
Which part of the neuron is responsible for receiving messages in the form of a neurotransmitter?



A. Myelin sheath
B. Nucleus
C. Axon terminals
D. Dendrites

Question 15
Symptoms of Parkinson's disease only develop when the drop in dopamine levels is as follows:
A. 80% overall and a 50% drop in the substantia nigra neurons.
B. 50% overall and an 80% drop in the substantia nigra neurons.
C. 40% overall and a 25% drop in the substantia nigra neurons.
D. 90% overall and a 50% drop in the substantia nigra neurons.

Question 16
Excitatory neurotransmitters _____ neural transmission.
A. Increase
B. Decrease
C. Neutralise
D. Have no effect on

Question 17
Inhibitory neurotransmitters work by preventing _____ neurons from firing.
A. Pre-synaptic
B. Post-synaptic
C. Motor
D. Sensory

Question 18
The neurons that take information to the Central Nervous System are called:
A. Somatosensory neurons
B. Efferent neurons
C. Motor neurons
D. Sensory neurons

Question 19
Which one of the following nervous systems stimulates the digestive system in the body?
A. Somatic
B. Sympathetic
C. Parasympathetic
D. Cerebral

Question 20
Which of the following is not a polysynaptic reflex?
A. Knee jerk reaction
B. Instinctively pulling away from something hot
C. Instinctively stepping off a sharp object.
D. None of the above

Question 21
The Peripheral Nervous System consists of the Somatic and Autonomic Nervous Systems. These systems are respectively concerned with
A. Unconscious and conscious responses.
B. Conscious and unconscious responses.
C. Unconscious and automatic responses.
D. Both involve involuntary responses.

Refer to the following for question 22-25

Jessica is currently in Year 11 completing her VCE studies. At the end of Year 10 she made a decision to drop her studies of German and instead focus on French as an additional language. She is shocked by how quickly she has forgotten the previously acquired German speaking skills, but feels her development of French speaking skills is going very well and her extensive practicing of speaking French and listening to recordings in French is paying dividends.

Question 22
Jessica's acquisition of French speaking skills is a result of which neurological process
A. Long term depression.
B. Myelination.
C. Sprouting and dendritic branching.
D. Long term potentiation.

Question 23
Jessica's inability to recall her German speaking skills is a result of which neurological process
A. Long term depression.
B. Myelination.
C. Sprouting and dendritic branching.
D. Long term potentiation.

Question 24
How would Hebb explain Jessica's failure to recall aspects of the German language?
A. Dendritic spinning has occurred
B. Post synaptic neurons are failing to fire.
C. Use it or lose it principle.
D. All of the above

Question 25
Which neurotransmitter would be particularly active in the brain when Jessica is learning French?
A. Serotonin
B. Dopamine
C. Acetylcholine
D. Glutamate

Question 26
Identify which of the below is a key excitatory neurotransmitter?
A. Serotonin
B. Dopamine
C. Acetylcholine
D. Glutamate

Refer to the following for question 27-32

Sally cried each time she was immunised with a painful injection by the doctor who wore a white jacket during the procedure. After the third vaccination, Sally had developed a strong classically conditioned response — the sight of the white jacket worn by the local pharmacist and by the baker triggered an emotional outburst of fear and crying. Stimulus generalisation had occurred.

Question 27
Identify the unconditioned stimulus in this scenario.
A. The painful injection
B. The white jacket
C. Fear of the white jacket
D. The third vaccination

Question 28
Identify the conditioned stimulus in this scenario.
A. The painful injection
B. The white jacket
C. Fear of the white jacket
D. The third vaccination

Question 29
Identify the conditioned response in this scenario.
A. The painful injection
B. The white jacket
C. Fear of the white jacket
D. The third vaccination

Question 30
Stimulus generalisation in this scenario is demonstrated by
A. Fear of all white jackets.
B. Fear of the white jacket worn by the pharmacist and baker.
C. Fear of the white jacket prior to conditioning.
D. Fear of the white jacket worn by the doctor.

Question 31
Identify the area of the brain and two hormones that are likely to be activated during the acquisition of this fear for Sally.
A. Hippocampus, noradrenaline and cortisol
B. Amygdala, noradrenaline and cortisol
C. Hippocampus, noradrenaline and GABA
D. Hippocampus, noradrenaline and glutamate

Question 32
After visiting the baker for several subsequent mornings and experiencing no aversive stimulus such as an injection, Sally no longer shows a fear response to the baker in a white coat. Identify the process that has occurred here.
A. Stimulus discrimination
B. Spontaneous recovery
C. Extinction
D. Acquisition of a non-fear response

Refer to the following for question 33-36

Observational learning has played an important role in training medical students for well over a century. Medical students will watch many medical procedures being carried out before conducting such procedures.

Question 33
Observational learning is based on the principles of which learning theory?
A. Operant conditioning
B. Classical conditioning
C. Social learning
D. Long term potentiation

Question 34
In the above scenario relating to medical staff, those procedures that are carried out successfully are praised openly within the profession. However, medical staff fear criticism where procedures are not successful. Thus, medical students will carefully select which behaviours and individuals to model themselves on depending on this. This is known as
A. Vicarious reinforcement.
B. Vicarious conditioning.
C. Vicarious punishment.
D. None of the above

Question 35
Some medical students are not suitable to perform detailed neurosurgery as they do not possess the required precision of the fine motor skills and hand eye coordination involved in delicate procedures. Identify the stage of observational learning that they may not be able to master.
A. Attention
B. Retention
C. Reproduction
D. Motivation-reinforcement

Question 36
Some medical students fail to build suitable visual representation of the precision of the fine motor skills and hand eye coordination involved in delicate procedures. Identify the stage of observational learning that they may not be able to master.
A. Attention
B. Retention
C. Reproduction
D. Motivation-reinforcement

Question 37
Because he got cold at the football last week, Giovanni decides to wear a coat to the match today, as it's very windy. Is this an example of
A. Positive reinforcement.
B. Negative reinforcement.
C. Punishment.
D. Response cost (negative punishment).

Question 38
A policeman catches Sharon drink–driving and she loses her licence. Is this an example of
A. Positive reinforcement.
B. Negative reinforcement.
C. Punishment.
D. Response cost (negative punishment)

Question 39
Which of the following refer to implicit memories only?
A. Procedural and classically conditioned memories
B. Procedural and personal memories
C. Episodic and semantic memories
D. Semantic and classically conditioned memories

Question 40
Which area of the brain is largely involved in the consolidation of new long-term memories that a student learns in their subject lessons?
A. The cerebral cortex
B. The hippocampus
C. The amygdala
D. The cerebellum

Question 41
Which area of the brain is largely involved in the consolidation of new long-term memories when learning how to drive a car?
A. The cerebral cortex
B. The hippocampus
C. The amygdala
D. The cerebellum

Question 42
Which area of the brain is largely involved in the storage of existing long-term memories that a student learns in their subject lessons?
A. The cerebral cortex
B. The hippocampus
C. The amygdala
D. The cerebellum

Question 43
Which area of the brain is largely involved in the consolidation of new long-term memories that a student acquires when knowing to avoid a particularly dogmatic teacher who they fear?
A. The cerebral cortex
B. The hippocampus
C. The amygdala
D. The cerebellum

Question 44
Which of the following would indicate the most likely level of retention used when completing an open-ended essay question?
A. Cued recall
B. Retention
C. Free recall
D. Recognition

Question 45

When using serial recall to memorise a simple list of words, the likely outcome would be

A. The primacy effect would be eliminated due to the disruption to LTM.

B. The recency effect would be eliminated due to the disruption to LTM.

C. The primacy effect would be eliminated due to the disruption to STM.

D. The recency effect would be eliminated due to the disruption to STM.

END OF SECTION A

SECTION B – Short answer questions

Instructions for Section B
Answer **all** questions in the spaces provided.

Question 1 (8 marks)
a. Using the three-phase model of operant conditioning, explain how a police consultant might train a police dog to detect the presence of an illegal drug at the airport.

6 marks

b. Explain how the above learning could be later extinguished.

2 marks

SECTION B - continued
TURN OVER

Question 2 (2 marks)
Identify one neurotransmitter and one area of the brain involved in the development of Parkinson's disease.

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Refer to the following for questions 3-7

The best-known and most influential experiment on the duration of STM was conducted by American psychologists Margaret Peterson and Lloyd Peterson (1959). Participants were given 'trigrams' (meaningless groups of three letters such as *qlg*, *jfb* and *mwt*) to memorise. Immediately after the trigrams were presented, the participants were given a distracter, or interference task, requiring them to start counting backwards by threes from an arbitrary three-digit number; for example, '634, 631, 628, ...'. This was done to prevent practice of the trigrams. Following a time interval that varied from 3 to 18 seconds, a light was used to signal that participants were required to recall the trigrams.

The longer the interval, the less likely a participant was able to accurately recall the trigrams. By 18 seconds after the presentation of the trigrams, participants had forgotten almost all of the trigrams. When participants did not have to count backwards, their performance was much better, possibly because they were practising or repeating the items to themselves.

Question 3 (13 marks)
a. What was the aim of this study?

1 mark

_____

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_____

b. What conclusions can be drawn from this study in relation to short term memory?

2 marks

_____

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SECTION B – **Question 3** - continued

c. When given the additional counting backwards task participants performed much worse than when they did not have to count backwards. Name the design that is exemplified here and one disadvantage of this design.

3 marks

d. Outline how you could overcome the disadvantage described above in this study.

2 marks

e. Identify and explain one method that could be used to verify the reliability of these finding.

2 marks

f. Why was it important to use nonsense trigrams as the material to be retained in this particular study?

2 marks

SECTION B – Question 3 - continued
TURN OVER

g. How can we extend the duration of short term memory?

1 mark

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_____

Question 4 (2 marks)
Identify two examples of acculturative stress that international students, immigrants, refugees and asylum seekers who come to Australia may face.

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Question 5 (2 marks)
In terms of the nervous system response during the fight, flight, freeze response; explain why one might describe the freeze response as being likened to an organism having one foot on the accelerator and one foot on the brake at the same time.

_____

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_____

Refer to the following for Question 6

Alzheimer's disease is a type of dementia characterised by the gradual widespread degeneration of brain neurons, progressively causing memory decline, deterioration of cognitive and social skills, and personality changes. As brain cells die, the brain shrinks. The outer part of the brain is usually the area affected first by the disease. Short-term memory loss is therefore one of the first symptoms of Alzheimer's disease. As the disease progresses to deeper parts of the brain, long-term memory is increasingly impaired.

Question 6 (4 marks)

a. Two distinguishing neurological features of Alzheimer's disease are neurofibrillary tangles and amyloid plaques. Identify two differences between these two features. 2 marks

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_____

_____

b. Name the neurotransmitter that particularly declines with this condition.

1 mark

_____

c. At what stage can Alzheimer's be definitively diagnosed?

1 mark

_____

_____

SECTION B – continued
TURN OVER

Question 7 (4 marks)
a. Using an example, explain what is meant by a spinal reflex.

2 marks

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b. Discuss the reasoning why a quadriplegic might not demonstrate a knee jerk reflex action when the knee is tapped on the patella ligament**.**

2 marks

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SECTION B – continued

Extended response question

Refer to the following for Question 8

A famous case study documented memory problems experienced by American patient H.M. who had undergone brain surgery. The patient, whose real name was Henry Molaison, subsequently participated in hundreds of research studies on memory until he died in 2008 at age 82. However, until his death, he was known only by the initials H.M. to protect his privacy.

In 1953, when Molaison was 27 years old, he agreed to brain surgery to treat the severe epilepsy from which he had been suffering since the age of ten. Molaison's epilepsy was unresponsive to anti-convulsant medications and other treatments. It was also extremely debilitating and he had difficulty holding even a simple job. At the time, doctors knew that, in many patients with epilepsy, seizures started in either the right or left hemisphere, usually in the medial temporal lobe. Because Molaison's seizures were so severe, and because their precise origin could not be determined, his neurosurgeon decided to remove the medial temporal lobe from each hemisphere. Altogether, over 5 centimetres of tissue was 'sucked out' from each lobe. This included about two-thirds of each hippocampus, most of each amygdala, and adjacent cerebral cortex from around the hippocampus and amygdala. Although some of the hippocampus and amygdala remained in each lobe, these structures and surrounding neural tissue were so damaged ('lesioned') that what was left was believed to be useless.

Medically, the surgery was successful in terms of its goals. Molaison's seizures declined in their frequency and severity, and could also be controlled with medication. His personality was basically unchanged and almost all cognitive functions remained unaffected. Molaison could conduct a conversation as normally as most people, as long as he was not distracted. He had a good vocabulary, normal language skills and slightly above-average intelligence. However, there was a huge cost. The surgery left him with serious memory problems. Molaison could not remember things that happened in the period leading up to his operation. This memory loss was virtually 'total' for about 2 years pre-surgery and 'partial' back to about 10 years pre- surgery. Overall, in relation to episodic memories, he could not remember any event that happened at a specific time and place but he had retained the gist of personal experiences. He could describe in a general way his life up until his operation.

Research suggested he could learn new motor skills and retain memories of how to complete previously learnt motor skills. He could retain information in his STM as long as he kept repeating and rehearsing that information.

Question 8 (10 marks)
Discuss the implications of this piece of research in terms of theoretical concepts related to memory.

In your response address the following:

- Define this type of study and describe one advantage and one disadvantage of this type of study
- Discuss why HM could recall all events prior to his surgery apart from the last two years before surgery.
- What does this study tell us about the role of the hippocampus in terms of storage versus consolidation of long term memories?
- Discuss the condition that HM had.
- Discuss how elements of HM's STM and LTM were affected by the operation.
- Discuss what this case study suggests about areas of the brain involved in memory.

END OF QUESTION AND ANSWER BOOK