VCE Psychology Unit 4

Written Examination

Suggested Solutions

SECTION A: MULTIPLE-CHOICE QUESTIONS

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SECTION A – MULTIPLE-CHOICE QUESTIONS

Question 1  A
The taste aversion to fish has been classically conditioned (learned).

Question 2  B
An infant’s brain has a greater ability to compensate for lost functionality as a result of a brain injury in comparison with an adult’s brain, due to the more adaptive plasticity of an infant’s brain.

Question 3  A
The development of an infant’s visual cortex in response to visual stimuli is an example of experience-expectant learning; the development of a child’s ability to play cricket is an example of experience-dependent learning.

Question 4  A
Proliferation is a feature of developmental plasticity that occurs during early brain development, when there is a rapid formation of new synaptic formations in response to the bombardment of sensory input.

Question 5  C
NMDA (N-methyl D-aspartate) is a specialised receptor responsible for receiving the neurotransmitter glutamate, which is an excitatory neurotransmitter that plays a key role in long-term potentiation, and thus learning.

Question 6  D
An MRI uses magnetic fields and radio waves to vibrate atoms in the brain, which are detected by a magnetic chamber. This information is then processed by a computer to produce a clear, coloured image.

Question 7  B
Adrian is being reinforced with stickers for the desired behaviour every time he does it (continuous reinforcement).

Question 8  A
Adrian has to acquire ten stickers to obtain the Lego, thus the use of a fixed ratio schedule has been applied in this case.

Question 9  C
The use of a token economy to alter Adrian’s behaviour is an example of operant conditioning, because his behaviour is determined by the consequences (accumulation of stickers).

Question 10  B
After a period of incubation in which a problem is put consciously on hold, the learner will continue to process the problem at an unconscious level, before gaining insight (often suddenly) into the solution to the problem.
Question 11  D
Parkinson’s response of barking excitedly and wagging his tail whilst riding a wave is a reflexive (unconditioned) response, which indicates an application of classical conditioning.

Question 12  B
Parkinson’s response of barking excitedly and wagging his tail is a conditioned response, which is reflexively evoked when he sees Joel waxing his surfboard in the garage (the conditioned stimulus).

Question 13  D
Parkinson’s learning has been reflexive, as his barking and tail wagging is automatically triggered by the sight of the surfboard being handled in the garage.

Question 14  A
Latent learning occurs without direct reinforcement being given during the learning process, thus the learning remains hidden until the learner is placed in a situation in which their (latent) learning can be applied.

Question 15  D
In order for successful conditioning of behaviour to occur, the stimulus should ideally occur just after the response when operantly conditioned (so that the learner can determine the link between the stimulus and the behaviour), whereas the stimulus should occur just before the response when classically conditioned (in order to reflexively trigger the conditioned response).

Question 16  C
Jill’s learning to not play with things in the adults’ cupboard is an example of vicarious punishment, as she has learned indirectly (vicariously) by observing the negative consequences (delivery of punisher) applied to Jack.

Question 17  A
As a result of one unpleasant experience, eating the shaving cream (initially an unconditioned stimulus) has triggered illness (an unconditioned response), therefore Jack has developed a one-trial taste aversion to shaving cream.

Question 18  B
The dependent variable in this case was the number of aggressive acts that the children were observed performing.

Question 19  C
The participants were matched according to their pre-existing aggression levels, and then randomly allocated to one of three groups – as is the case with a standard matched pairs design.

Question 20  B
The use of naturalistic observation would eliminate artificiality. This could be achieved by using a repeated measures design, e.g. the number of aggressive acts would be secretly observed in the childrens’ home environment during a time when they were exposed to the aggressive toys, and then the process could be repeated after viewing violent cartoons or movies at home when a parent is present.
Question 21  D
If the experimental outcome replicated Bandura’s findings, then a likely conclusion would be that children can learn aggressive behaviour indirectly (vicariously), as determined by the consequences applied to the model.

Question 22  C
If the findings of the experiment replicated the findings from Bandura’s (1963a) experiment, then both of the groups that observed cartoon and filmed aggression would have been more likely to imitate aggressive behaviour than the control group.

Question 23  C
The thirty children used in the experiment is an example of a convenience sample, given that no attempt has been made to make the participants representative of the population of interest. Instead, the children used in the study were from a conveniently-located kindergarten.

Question 24  B
The antecedent condition (or discriminative stimulus) for the cat in Thorndike’s puzzle box experiment was being placed in the puzzle box, which led to the operant response of attempting to escape in order to obtain the food reward (the consequence).

Question 25  C
After a period of preparation in which Sultan is actively involved in data gathering (exploring different options for obtaining the bananas), he moved into a period of incubation in which a problem is put consciously on hold. The learner (Sultan) will continue to process the problem (of how to obtain the food reward – bananas) at an unconscious level, before gaining insight (often suddenly) to the solution to the problem.

Question 26  B
Abnormality can be defined as behaviour that is deviant, distressing or dysfunctional and interferes with the person’s ability to carry out their day to day life.

Question 27  B
The transitional approach to the classification of mental disorders is a key feature of the dimensional approach. This approach allows mental health clinicians to identify changes in the patient’s symptoms and thus determine the success of treatment over time.

Question 28  C
Spontaneous recovery occurs after a classical or operant response has been extinguished.

Question 29  C
According to Tolman’s maze experiments, Group 1 had learned directly via the consequences (positive reinforcement – a form of operant conditioning) applied to the successful maze completion (the operant response). Group 2 had latently learned the maze route, given that they had not been reinforced for the first eleven days of Tolman’s experiment.

Question 30  D
The adrenal cortex (outer layer of the adrenal gland) releases cortisol in response to a stressor.
Question 31  
D
When Rod first becomes aware of his melanoma diagnosis, his body goes into shock and acts as if it is injured, so his level of resistance falls below its normal level.

Question 32  
B
According to Seyle’s General Adaptation Syndrome, if a stressor has not been successfully dealt with during the alarm stage, the resistance stage is then entered. During this stage, the stress hormone cortisol is released into the bloodstream via the adrenal cortex in order to deal with the stressor.

Question 33  
A
Eustress is a positive psychological response which can enhance performance and help the person complete a task more effectively. e.g. alertness at work.

Question 34  
B
Allostatic load refers to the cumulative cost to the body of allostasis. This can result in a decline in efficiency of the response, or the early termination of the allostatic response.

Question 35  
C
A double-blind procedure is used to eliminate an experimenter effect, which can occur when the actions of the experimenter have an unwanted (potentially confounding) effect on the dependent variable.

Question 36  
C
The benefits of physical exercise for reducing the symptoms of stress are as follows:
• It can increase our levels of beta endorphins and promote a sense of well-being.
• It can divert our attention away from a stressor.
• It uses up stress hormones produced by the HPA axis.
• It can decrease muscle tension.

Question 37  
C
In the stress response, GABA can be described as the major inhibitory neurotransmitter found in the central nervous system. It regulates neuronal excitability, enabling an optimal level of neurotransmission in the brain.

Question 38  
A
The use of benzodiazepine to manage stress responses has an agonistic effect at the synapse, enhancing the effect of GABA in the nervous system, and thus reducing anxiety symptoms.

Question 39  
B
Lisa’s appraisal of her situation is subjective, and is therefore an example of a psychological factor that contributes to her stress response.

Question 40  
C
Lisa’s initial response is an example of a primary appraisal, in which she has evaluated the significance of the situation in terms of the harm caused, i.e. her devastation at missing out on the Olympics.
Question 41  B
Lisa’s initial plan to give up athletics indicates that she doesn’t feel that she can manage her problem, as reflected by distancing herself from the situation to concentrate on her studies. This illustrates an emotion-focused coping strategy.

Question 42  A
According to Lazarus and Folkman’s Transactional Model of Stress and Coping, Lisa’s planned use of a sports psychologist would be an example of problem-focused coping, as it demonstrates that she is managing her problem by seeking outside assistance.

Question 43  B
Lisa would obtain **information support** (a form of social support from a third party) from a sports psychologist to help her manage her situation.

Question 44  C
Phobias are generally acquired through classical conditioning, and they can be maintained via negative reinforcement. For example, if a person suffers from heliophobia (fear of sunlight), they become anxious when faced with the prospect of being in the sun. By avoiding sunlight, the anxiety is reduced, which strengthens the avoidance behaviour, and the phobia itself.

Question 45  B
Cognitive behavioural therapy is an example of a psychological treatment of a phobia, which focuses on identifying the cause of the aviatophobia, and then endeavouring to change a person’s maladaptive behaviour in response to the thought of flying.
SECTION B – SHORT ANSWER QUESTIONS

Question 1
a. Neither reflexes nor fixed action patterns require prior experience.  

b. • Reflexes are simple, inborn (automatic) responses to environmental stimuli, e.g. a pupil expanding when going from a light environment to a dark room (e.g. a cinema) to enable more light to enter the eye.
• A wide variety of species exhibit the same reflex to environmental stimuli, e.g. an eye blink when a puff of dust enters the eye.

whereas
• A fixed action pattern is a complex sequence of behaviour that the species is predisposed to make, e.g. sea turtle hatchlings instinctively head toward the ocean when they hatch out of their eggs.
• The behaviour is species specific, e.g. only spiders spin webs to catch their prey.

Either form of distinction can be used
1 mark for explanations, 1 mark for examples

Question 2
• Experience-expectant learning occurs during sensitive periods of development, in which the brain is primed to respond to environmental input.
• An example of this is the development of language, which requires a child to be in an environment in which language is used.
• It is referred to as experience-expectant learning because it is responsive to stimuli that are so common, it is practically guaranteed to be available to the child.

1 mark for a suitable example
1 mark for the explanation (either the first or third dot point)

Question 3
• The doctor could paint Dirk’s fingernails with a nausea-inducing substance (the unconditioned stimulus – UCS) which will reflexively evoke a nauseous feeling (unconditioned response – UCR).
• Dirk’s subsequent nail-biting behaviour will result in repeated pairing of UCS and UCR until eventually the thought of nail-biting (conditioned stimulus) will evoke a nauseous feeling in anticipation of feeling ill (conditioned response).

Question 4
• Discriminative stimulus: failing his driver’s licence
• Operant response: Taj has additional lessons/practice during the summer holidays in which he concentrates on all aspects of his driving.
• Consequence: Taj becomes a more competent driver and passes his drivers licence test.
Question 5
- Zach’s dad could take away Zach’s favourite toy (e.g. his DS device) whenever he is rough with his sister.
- This will therefore decrease the targeted behaviour (of roughness).

2 marks

Question 6
- Fixed ratio: Skinner used an invariable schedule of reinforcement for the disc-pecking behaviour, i.e. every fifth time they pecked a disc in order to receive food reinforcer.
- Variable ratio: Skinner used a randomised schedule of reinforcement for the disc-pecking behaviour, e.g. every fifth attempt on average, but ensuring the delivery of reward was random.

2 marks

Question 7
- The saccharine-flavoured water was paired with radiation (UCS) which evoked illness thirty minutes later (UCR).
- After one trial the rats avoided water with the aversive saccharine scent (CS).

2 marks

Question 8
- Jess’s nephew’s mental-health clinician may determine that he is mentally ill, based on a psychological or behavioural pattern generally associated with his subjective distress or dysfunction.
- This is not a part of normal development or culture, and affects his ability to cope with everyday life.

2 marks

Question 9
a. • They provide a high degree of detail for mental disorders.
   • They provide user-friendly guidelines that help in the diagnosis of disorders with the ‘yes–no’ approach, thus assisting the decision-making process, i.e. if treatment is needed.
   • They assist in the manner in which mental health professionals gather expert knowledge, and in the subsequent manner in which they are able to efficiently communicate with their peers.

1 mark

1 mark for any one of the above points

b. • The categorical approach only looks at whether the patient has a disorder or not – it does not address the severity or provide an evaluation of the symptoms present (as opposed to the dimensional approach).
   • Labelling can cause stigma, e.g. imagine your reaction if one of your teachers was identified as having a borderline personality disorder.
   • Low inter-rater reliability (historically)
   • There is a high degree of overlap between symptoms for various disorders, e.g. mood disorders vs. personality disorders vs. schizophrenia.
   • The classification process minimises the level of information provided to the clinician.

1 mark

1 mark for any one of the above points
Question 10
a. Siri may evaluate significance of the situation, for example:
   • the harm/loss that has already occurred, i.e. the physical damage caused
   • the threat of future harm/loss, i.e. the end of her violin playing
   • the challenge to learn and gain from the experience, e.g. an opportunity to spend time learning new skills
   
   1 mark
   
   *1 mark for any one of the suggested responses above*

b. Siri will evaluate her coping options, such as her
   • internal options – using our own resources such as inner strength and will-power
   • external options – seeking professional help and advice from our peers
   • reappraise the impact of her injury and the coping strategies presently available to her
   
   1 mark
   
   *1 mark for any one of the suggested responses above*

Question 11
a. • Meditation is a self-induced altered state of consciousness that is used in order to gain a form of personal benefit, e.g. pain relief, spiritual growth, stress reduction.
   • This is achieved by focusing on a single stimulus such as breathing, or the visualisation of an object and blocking out of all external stimuli.
   
   2 marks

b. The use of meditative techniques on VCE students in Melbourne over the duration of their VCE year effectively reduces stress levels, as operationalised by the reduction in their scores on an anxiety test just prior to their end-of-year English exam.
   
   3 marks
   
   *1 mark for population – VCE students in Melbourne
   
   *1 mark for DV (and operationalised DV) – reduced stress levels/reduced score on anxiety test
   
   *1 mark for IV – use of meditative techniques during VCE

c. • A confounding variable is any variable other than the IV that systematically affects the DV throughout the experiment, and thus affects the validity of results.
   • For example, the use of a repeated measure design that hasn’t been counterbalanced could create an order effect.
   •Alternatively there could be demand characteristics, artificiality or a placebo effect.
   
   2 marks
   
   *1 mark for first dot point and 1 mark for any suitable example*
Question 12

a. Any two of the following:
   • Prolonged sadness (for more than two weeks)
   • Appetite reduced/increased
   • Suicidal thoughts
   • Sleeping more/less
   • Loss of pleasure when involved in activities that were previously enjoyed
   • Moodiness/irritability/frustration
   • Slowing down of thoughts and actions
   Etc. 2 marks

b. • Serotonin is a neurotransmitter found in the central nervous system. It has an inhibitory effect on the nervous system that calms and soothes, and generates feelings of general contentment.
   • In depression, low levels of serotonin are associated with sad and anxious behaviour, disrupted sleep, etc. (all symptoms of depression) 2 marks

c. • A recovery group which is an independent third party.
   • This could provide information support, appraisal support, emotional support, etc. 2 marks

Question 13

a. Any two of the following
   • preoccupation with gambling (it dominates their thoughts)
   • chasing losses, i.e. the gambler tries to reclaim losses
   • lying to conceal extent of gambling
   • illegal activity, e.g. the gambler steals to finance gambling
   • withdrawal symptoms – the gambler has a physical reaction when deprived of the opportunity to gamble 2 marks

b. • Problem gamblers have excessive dopamine activity. Dopamine is a neurotransmitter found in the central nervous system involved in motivation and reward processes.
   • Excessive levels of dopamine can create a situation in which the person’s behaviour is altered due to the addiction, which is triggered by over-excitation of the pleasure centre of the brain.
   • The dopamine reward system is a neural pathway (located in the medial forebrain) in which there is a high concentration of dopamine. It is triggered by either receiving a reward, or by the anticipation of a reward, e.g. it can be activated simply by a cue such as a pop-up gambling ad whilst surfing on the web. 2 marks

   1 mark for either of the first two points, 1 mark for the third point

c. • A recovery group which is an independent third party.
   • This could provide information support, appraisal support, emotional support, etc. 2 marks
Question 14

a. Any two of the following:
   • hallucinations
   • delusions
   • thought disorders, which can result in incoherent speech
   • impairment in executive function (ability to plan, make decisions, etc.)
   • impairment in working memory
   Etc.

b. • excessive levels of the neurotransmitters dopamine in the brain
   • can result in schizophrenic symptoms or worsened symptoms when taking stimulants (such as cocaine), e.g. paranoia, hallucinations, confused thinking, delusions, etc.

c. • A recovery group which is an independent third party.
   • This could provide information support, appraisal support, emotional support, etc.
SECTION C – EXTENDED ANSWER QUESTION

Biological cause:
GABA is the chief inhibitory neurotransmitter found in the central nervous system, and it counteracts the excitatory effect of glutamate and thus plays a key role in regulating neuronal excitability.

Joe may have a dysfunctional GABA system, meaning that his body is unable to produce adequate amounts of GABA to regulate neurotransmission in his brain. This may predispose his development of anxiety disorders such as trypanophobia (in this case).

Psychological cause:
Joe may have acquired the phobia via classical conditioning. For instance, he may have had an intensely painful reaction (unconditioned response) to an injection as a young child. His phobia may be maintained through operant conditioning, e.g. by getting highly anxious when he is told he is about to have an injection, Joe might be highly disruptive until he is allowed to take an oral alternative, thus negatively reinforcing his phobia of injections.

Note: Freud’s Psychodynamic theory could also be provided as a psychological cause.

Sociocultural cause:
Joe may have developed trypanophobia via parental modelling.

For example, if his father gets highly anxious before receiving an injection, particularly when the doctor gets the needle and prepares it, and Joe was present for the injection, then Joe is more likely to have developed a phobia through this indirect experience.

Note: Joe could have also acquired the phobia from an environmental trigger, or through the transmission of threat information (he might have seen a media story in which a child had a life threatening reaction to an injection).

Biological treatment:
One means of managing phobic disorders is to take the psychoactive drug benzodiazepine, which enhances the effect of GABA and thus provides a sedative, muscle relaxing effect, i.e. it reduces physiological arousal, resulting in a calming/relaxing effect.

Benzodiazepine has an agonistic effect, i.e. it imitates GABA and stimulates the neurotransmitter activity at the site of the postsynaptic neuron, thus reducing Joe’s symptoms of anxiety when he is exposed to an injection, or is anticipating receiving a needle.

Psychological treatment:
Systematic desensitisation could be used by following three steps:

Step 1: Teach Joe a relaxation strategy.

Step 2: Establish a fear hierarchy, from the least fear-evoking situation (e.g. looking at a picture of a needle) to the highest fear-evoking situation (having a needle in contact with skin).

Step 3: Joe starts at the bottom of the hierarchy and applies the practised relaxation strategy until he can get his anxiety to a manageable level, and then he moves to the next step of the fear hierarchy, and so on. This continues until he can handle a needle against his skin and the thought of an injection no longer leads to maladaptive behaviour.

Note: Flooding could also be used, or cognitive behavioural therapy, or a psychodynamic theory such as dream analysis, free association, hypnotherapy, etc.

10 marks
Marking guide

9–10 marks:
- Comprehensive explanation of biological, psychological and sociocultural cause of trypanophobia.
- Comprehensive explanation of biological and psychological treatment of trypanophobia.
- Effective application of evidence and examples that apply to the scenario.

7–8 marks
- Thorough explanation of biological, psychological, and sociocultural cause of trypanophobia.
- Thorough explanation of biological and psychological treatment of trypanophobia.
- Some application of evidence and examples that apply to the scenario.

5–6 marks
- Some explanation of biological, psychological and sociocultural cause of trypanophobia.
- Some explanation of biological and psychological treatment of trypanophobia.
- Limited application of evidence and examples that apply to the scenario.

3–4 marks
- Limited explanation of biological, psychological and sociocultural cause of trypanophobia.
- Limited explanation of biological and psychological treatment of trypanophobia.
- Minimal application of evidence and examples that apply to the scenario.

0–2 marks
- Very limited explanation of biological, psychological and sociocultural cause of trypanophobia.
- Very limited explanation of biological and psychological treatment of trypanophobia.
- No application of evidence and examples that apply to the scenario.