Student Name: _____

2018

UNITS 3 & 4 PSYCHOLOGY

WRITTEN EXAMINATION

Reading time: 15 minutes

Writing time: 150 minutes

QUESTION AND ANSWER BOOK

Structure of book

Section	*Number of questions*	*Number of questions To be answered*	*Number of marks*
A	**50**	**50**	**50**
B	**9**	**9**	**70**
			Total 120

- Students are permitted to bring the following items into the examination: pens, pencils, erasers, sharpeners and rulers
- Students are <u>not</u> permitted to bring into the exam: electronic devices such as phones or calculators or liquid paper (or similar) or any paper(s)

Materials provided
Question and answer booklet of 24 pages & an answer sheet for multiple-choice questions

Instructions
Write your name in the space provided on both the question book and multiple-choice response sheet

SECTION A: Multiple-choice questions

Question 1

Sensory information is initially detected by which of the following divisions of the nervous system?

A. brain
B. spinal cord
C. peripheral
D. central

Question 2

Which division of the nervous system triggers an unconscious change in pupil size e.g. the pupils dilating when an individual moves from a bright environment to a dark room?

A. autonomic
B. somatic
C. central
D. the spinal cord

Question 3

The autonomic nervous system operates

A. by detecting and conveying sensory messages to the brain for further processing.
B. in a manner largely determined by conscious, cerebral processing.
C. in a self-regulatory manner, largely without conscious thought and thus independently of the brain.
D. by initiating skeletal muscle movement.

Question 4

The relationship between cortisol and the stress response can be best summarised as follows.
The release of additional cortisol into the bloodstream

A. is helpful to both the body and the mind in the short-term and long-term.
B. is harmful to both the body and the mind in the short-term and long-term.
C. it tends to be harmful to the body and the mind in the short-term, but helpful to the body in the long-term.
D. it tends to be helpful to the body and the mind in the short-term, but harmful to the body in the long-term.

Question 5

The substantia nigra is an area of the brain that plays a role in Parkinson's disease because

A. of its inability to produce adequate levels of dopamine which causes motor impairment.
B. it receives inadequate levels of dopamine from a nearby brain structure in the basal ganglia resulting in reduced motor functioning.
C. it produces excessive levels of dopamine triggering a variety of motor symptoms.
D. it receives excessive levels of GABA from a nearby brain structure in the basal ganglia causing tremors.

Use the following information to answer questions 6 to 8

In terms of the neural transmission of glutamate

Question 6

Which part of the neuron releases the glutamate?

A. axon
B. axon terminal
C. myelin
D. dendrites

Question 7

Glutamate is an

A. inhibitory neurotransmitter highly concentrated in the central nervous system.
B. inhibitory neurotransmitter highly concentrated in the peripheral nervous system.
C. excitatory neurotransmitter highly concentrated in the central nervous system.
D. excitatory neurotransmitter highly concentrated in the peripheral nervous system.

Question 8

Glutamate first reaches the target cell on which part of the neuron?

A. axon
B. axon terminal
C. myelin
D. dendrites

Use the following information to answer Questions 9 to 11

Seventeen-year-old Zoe has chosen to attend the three-week altitude training camp for 'high performance athletes' at Falls Creek, which runs over the New Year period. Upon arriving at Falls Creek, Zoe is surprised to learn that she will be sharing her room with three Kenyan runners who speak limited English. Additionally, her iPhone has no reception, thus she is feeling anxious and isolated due to her lack of access to social media. Zoe is now feeling stressed due to her negative thoughts about the next three weeks of the camp.

Question 9

According to the Lazarus and Folkman Transactional Model of Stress and Coping, which of the following would be the best example of a primary appraisal?

A. Zoe's evaluation of her energy levels and resources to cope with the stress
B. Zoe might choose to ignore her room-mates.
C. Zoe's evaluation of the significance of her situation
D. Zoe might choose to ask for a room transfer from the team-manager.

Question 10

According to the Lazarus and Folkman Transactional Model of Stress and Coping, which of the following would be the best example of a secondary appraisal?

A. Zoe evaluation of her energy levels and resources to cope with the stress
B. Zoe might choose to ignore her room-mates
C. Zoe's evaluation of the significance of her situation
D. Zoe might choose to ask for a room transfer from the team-manager

Question 11

Zoe's anxiety response is an example of_____which is a_____response to a stressor.

A. distress; negative psychological
B. eustress; positive psychological
C. distress; negative physiological
D. eustress; positive physiological

Use the following information to answer questions 12 to 17

Dr Spiteri aimed to investigate the effects of high arousal levels on memory formation. A group of 46 first-year Psychology undergraduate students at Smart University agreed to participate in what they believed was a simple experiment involving the use of context-dependent cues. The 46 students were part of two tutorial groups.

The 24 students from Tutorial group A: on Monday at 9.00am during their weekly tutorial class (in the third week of the semester) were escorted to the library and were exposed to a series of 10 four-letter nouns that were flashed on a data projector one at a time at two-second intervals on a screen.
After the final word was flashed, the students were required to organise a series of numbered pages that were scattered on a table into numerical order which took each student 30-58 seconds. Once this was done they were then asked to recall as many of the 10 nouns as they could.

The 22 students from Tutorial group B: on Thursday at 4.00pm during their weekly tutorial class (in the third week of the semester) were also escorted to the library and exposed to the same series of letters as group A.
Immediately after the last word was flashed, a loud gunshot sounded in the library and all of the students reflexively ducked, Dr Spiteri instructed the terrified students to remain still. Approximately 30 seconds later, an announcement was made over the library speaker, apologising for the disturbance and stating that it was simply part of a drill for the University emergency response team. Dr Spiteri then instructed the students to continue the experiment and record as many of the words as possible.

Dr Spiteri then compared the results of the two groups in the table below

	Tutorial Group A The baseline group	Tutorial Group B The emotionally aroused group
Number of participants	24	22
Mean number of words recalled (out of 10)	5.5	8.1
Standard deviation	2.6	1.1

Question 12
What type of data was generated by Dr.Spiteri in this experiment?
A. primary, quantitative data
B. secondary, quantitative data
C. primary, qualitative data
D. secondary, qualitative data

Question 13
What type of neurohormone would have been initially released when Group B was startled by the gunshot?
A. glutamate
B. adrenaline
C. cortisol
D. dopamine

Question 14
Which brain area would have played a key role in the consolidation of the arousing aspects of the fear experienced in response to the sound of the gunshot for the Group B participants?
A. cerebellum
B. hypothalamus
C. cerebral cortex
D. amygdala

Question 15
Based on the results of the experiment, which of the following statements most accurately represents a conclusion for the sample groups tested?
An emotionally arousing event such as the unexpected sound of a gunshot
A. enhanced the recall of implicit memories.
B. enhanced the reconstruction of episodic memories
C. diminished memory retrieval
D. enhanced the recall of explicit memories.

Question 16
Which of the following was the measure of variation used in this experiment?
A. the number of participants in each group: 24 in Group A vs. 22 in Group B
B. mean
C. standard deviation
D. all of the above

Question 17
Identify the allocation method used in this experiment
A. convenience
B. random
C. non-random
D. stratified

Question 18
Which of the following memory stores has the lowest duration?
A. short-term
B. iconic
C. echoic
D. semantic

Question 19
Millie was at a party when she was introduced to Alex, Millie responded to the introduction by saying 'Hi Alex, nice to meet you Alex, I'm just going to check on my ill sister over there on the couch', about 5 minutes later Alex came over to offer assistance to Millie as her sister seemed to be in distress. Millie then turned to Alex to offer her thanks but she had forgotten her name.
Millie's inability to retrieve Alex's name could be best explained by
A. the absence of a context-dependent cue
B. the absence of a state-dependent cue
C. the failure to use elaborative rehearsal
D. the absence of a leading question to assist Millie's recall.

Question 20
Isabelle feels the need to remember her 15 digit VCAA student number, so her mum slowly reads out each digit one by one to Isabelle at two second intervals as the two of them walked around Gardiners' Creek. Then after her mum had finished, Isabelle tried to recall the digits in order at two second intervals.
According to the Serial Position Effect theory, Isabelle should have the highest recall of the
A. first 5 numbers
B. middle 5 numbers
C. last 5 numbers
D. first 5 and last 5 numbers (a relatively equivalent level of recall for both sets of numbers)

Use the following information to answer questions 21 to 24

Emily completes a daily run each morning around Central Park. The park is frequented by a number of dogs that run 'off leash' towards Emily as she runs around the park which Emily finds unnerving. Her sister suggests she tries carrying a water pistol to spray any dogs that get close to her in order to deter their approach.

One Monday morning Emily grabs a water pistol as she heads out for a run, every time an off-leash dog approaches her, she gives the dog a spray and the dog backs off.

Question 21

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

From Emily's point of the view; the antecedent in this case is

A. spraying the dog.
B. being approached by a dog whilst running.
C. the dog backing off after being sprayed.
D. heeding her sister's advice.

Question 22

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

From Emily's point of view, the consequence in this case is

A. spraying the dog.
B. being approached by a dog whilst running.
C. the dog backing off after being sprayed.
D. heeding her sister's advice.

Question 23

From Emily's point of view the use of a water pistol is being _____ as reflected by the dogs ceasing to hassle her whilst she runs.

A. positive punished
B. negative punished
C. positive reinforced
D. negative reinforced

Question 24

The dogs that are sprayed for approaching Emily are learning via _____ to stop pestering runners.

A. positive punishment
B. negative punishment
C. positive reinforcement
D. negative reinforcement

Question 25

Which of the following altered states of consciousness is highest on the continuum of consciousness?

A. daydreaming
B. sleep
C. coma
D. anaesthetised

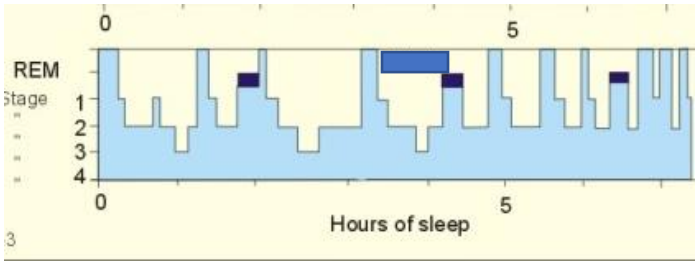
Question 26
Which of the following forms of consciousness would tend to result in the highest level of amplitude on brain waves recorded by an EEG?
An individual that is
A. under the influence of a cocaine.
B. under the influence of a caffeine.
C. under the influence of alcohol.
D. in a normal waking consciousness.

Question 27
Ruby who has just finished an ironman triathlon which took her 10 hours to complete the swim/ bike/ run competition. According to the restoration theory of sleep she would be most likely to experience a significantly higher proportion of which of the following stages of sleep to assist with her recovery?
A. NREM stage 1
B. NREM stage 2
C. NREM stage 3
D. REM sleep

Question 28
Due to cataplexy (muscle paralysis) an EMG would typically record the lowest level of electrical activity during which of the following?
A. a sleepwalking episode
B. REM sleep
C. a relaxed state of ordinary wakefulness
D. NREM stage 1 sleep

Question 29
According to Loftus, leading questions can produce unreliable eyewitness testimonies due to their influence on which of the following methods of retrieval?
A. cued recall
B. reconstruction
C. relearning
D. recognition

Question 30
The hypnogram on the right, would most likely depict the sleep cycles of which of the following age groups?
A. young children
B. adolescents
C. adults
D. elderly



Use the following information answer questions 31 to 34
A researcher from Melbourne University investigated the effects of sleepwalking on the sleep-wake cycle of adults aged 19-60 who have been reported to have regular sleepwalking episodes. The researcher required 36 participants whom were recruited via a social media website calling for volunteers to participate in the study in which they would be paid $100 per night of the research investigation. Participants were required to spend two nights in a sleep laboratory which measured a series of physiological processes.

Question 31
Sleepwalking is a type of
A. dyssomnia
B. parasomnia
C. circadian phase disorder
D. mental illness

Question 32
If the participants experienced the normal ultradian sleep cycles of adults, then any sleepwalking episodes would be most likely to be observed
A. within 10 minutes of the participants first going to bed.
B. during the first two sleep cycles.
C. during the third and fourth sleep cycles.
D. during every sleep cycle.

Question 33
During sleepwalking episodes, an EMG would be expected to record which of the following
A. beta-like brain waves.
B. theta and delta brain waves.
C. a relatively high level of electrical activity of the muscles (in comparison to the activity during stationary sleep).
D. a relatively low level of electrical activity of the muscles that control eye movements (in comparison to the activity during stationary sleep).

Question 34
One of the limitations of this study
A. sleepwalking only occurs during childhood
B. sleepwalking episodes are more likely to occur in a familiar environment than in a sleep laboratory, thus the two-night investigation might not generate any sleepwalking episodes.
C. it is considered unethical to record the activity of a sleepwalker in a sleep laboratory due to their lack of awareness during sleepwalking episodes
D. sleepwalking episodes tend to last for over an hour, which makes it difficult to make sense of any physiological response observed.

Question 35
Lucia suffers from anxiety, which often triggers episodes of over breathing resulting in dizziness and light headedness. Her Psychologist has suggested that she use breathing retraining which will her by increasing the level of _____ in the brain and thus help her control the symptoms of her anxiety.
A. GABA
B. adrenaline
C. dopamine
D. carbon dioxide

Question 36
The use of bright light therapy early in the morning in treating the effects of delayed sleep phase onset is intended to
A. delay the circadian phase and thus trigger the later release of melatonin in the evening.
B. advance the circadian phase and thus trigger the earlier release of melatonin in the evening.
C. delay the circadian phase and thus make the alert later in the day.
D. advance the circadian phase and thus make the patient feel alert later in the day.

Question 37
Cognitive Behavioural therapy is most likely to be utilised in treating which of the following
A. dyssomnias
B. parasomnias
C. the effects of jet lag
D. all of the above

Question 38
The use of Benzodiazepines in treating a mental disorder would have the most similar effect on the nervous system as which of the following substances?
A. caffeine
B. nicotine
C. alcohol
D. cocaine

Question 39
Systematic desensitisation works by asking patients to create a fear hierarchy of approximations of their
A. conditioned stimulus.
B. unconditioned stimulus.
C. conditioned response.
D. unconditioned response.

Question 40
According to Bandura in Observational learning
A. requires the learner to respond almost immediately to an antecedent.
B. requires the learner to respond almost immediately to a conditioned stimulus.
C. can result in behaviour that may not be demonstrated until long after it has been learned.
D. will only occur if the model is provided with a desirable consequence.

Question 41
Josh experienced a disrupted sleep last night largely due to his anxiety about his driver's licence test that she is due to complete the following day. Which of the following is least likely to occur as a result of his partial sleep deprivation?
he will
A. feel fatigued
B. feel more irritable than usual
C. hallucinate
D. have difficulty focussing the eyes

Use the following information to answer questions 42 to 47

A school counsellor at Red Bluff Secondary College wanted to investigate the effects of a Clonidine (a type of Benzodiazepine) on reducing the effects of anxiety for VCE students whom have been clinically diagnosed with anxiety.
The school counsellor sought consent from nine students at the college whom the counsellor was aware had been diagnosed with an anxiety disorder within the last twelve months, seven (five males and two females aged 15-17) agreed to participate.
The students were required to consume a daily dose of the supplied medication for a twelve-week period, whist completing a weekly self-report inventory which measured their level of anxiety.
For the first six weeks of the experiment, the patients consumed the Clonidine, then for the final six weeks, the patients unknowingly consumed a daily placebo drug.

Question 42
Which of the following would be considered a biologically perpetuating factor that contributes to the development and progression of the student's anxiety in this case?
A. genetic vulnerability
B. poor response to the medication
C. poor self-efficacy
D. a disorganised attachment

Question 43
The use of the placebos in this experiment could be argued to specifically breach which of the following ethical principles?
A. withdrawal rights
B. voluntary participation
C. informed consent
D. debriefing

Question 44
All of the following factors could increase cumulative risk in terms of an individual's vulnerability to a mental disorder EXCEPT
A. predisposing
B. protective
C. perpetuating
D. precipitating

Question 45
What type of sampling method and research design was respectively used in this case?
A. convenience; repeated measures
B. convenience; independent-groups
C. random; repeated measures
D. random; independent-groups

Question 46
Which of the following would be the independent variable?
A. the student's self-rated level of anxiety
B. the gender of the students
C. the use of Clonidine vs placebos
D. the seven students whom participated in the experiment vs. the two students that declined to participate.

Question 47
The use of the Clonidine for the treatment of anxiety is intended to act as a _____ factor that contributes to the development and progression of a mental condition.
A. precipitating
B. protective
C. perpetuating
D. predisposing

Question 48
Stigma as a barrier to accessing treatment for a mental condition can act as a _____ factor that contributes to the development and progression of a mental condition.
A. precipitating
B. protective
C. perpetuating
D. predisposing

Use the following information to answer questions 49 and 50
Evie has for several years been a highly anxious secondary teacher. She has become increasingly socially isolated in recent months and due to her high anxiety has experienced a high rate of absenteeism at work. After sustaining a knee injury at netball last year. She has given up playing competitive sport and despite making a full physical recovery from her injury, she is highly reluctant to leave the house to exercise due to her social anxieties.
According to the transtheoretical model of behavioural change

Question 49
Evie is experiencing which of the following stages?
A. contemplation
B. termination
C. preparation
D. precontemplation

Question 50
When Evie starts weighing up the pros and cons of changing her socially avoidant behaviour (in particular) – she has reached which of the following changes?
A. contemplation
B. termination
C. preparation
D. precontemplation

SECTION B: Short-answer questions

Question 1 (14 marks)
Dr Jay is a mental health clinician who specialises in treating parents suffering from the effects of separation from their spouse. Based on a series of interviews with her clients over an extended period, Dr Jay theorised that that parents who had a regular exercise routine and who minimised their alcohol consumption seemed to cope better than other parents who exercised regularly exercise and rarely consume alcohol.

- Dr Jay gained consent from 42 of her patients to participate in the six-month investigation.
- All participants (32 female and 10 male) were responsible for the majority of the weekly custody for two to four children (aged 2 to 15)

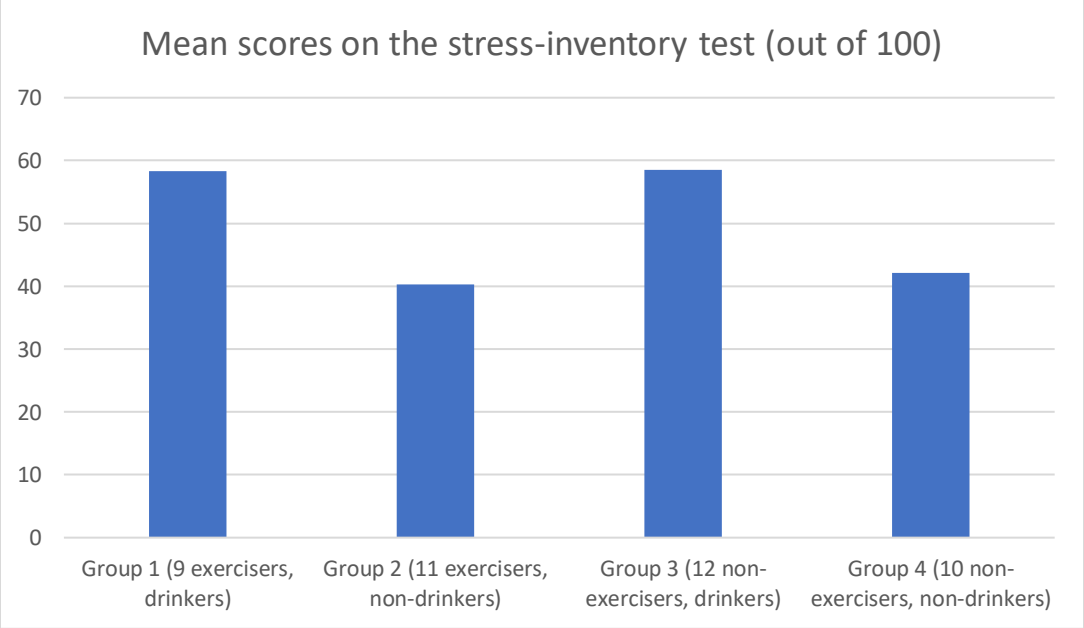
The participants were divided into four categories
Group 1: Exercisers who were drinkers
Group 2: Exercisers who were non-drinkers
Group 3: Non-exercisers who were drinkers
Group 4: Non-exercisers who were non-drinkers

- Dr Jay classified the exercisers, as the participants who vigorously exercised for at least 30 minutes on three or more occasions per week (on average for the six-month period)
- Dr Jay classified the drinkers as the participants who consumed five or more standard drinks on average of two or more occasions per week (on average for the six month period)

Dr Jay used a stress-inventory test which consisted of 20 x 5-point scale questions relating to the stress of single-parenting. A score of over 70 or more (out of 100) was considered as a high risk in terms of the effects of stress on the single-parents mental health.

The participants were not informed about the purpose of the research investigation, but they were required to complete a self-report via a diary that recorded details about their sleep, exercise rituals, alcohol consumption, diet, etc. As well completing the diary, a stress-inventory test was conducted three times over the 6 month period (at the end of two months, four months and six months), with the scores being averaged for each of the four groups (over the three periods).

The results are summarised as follows



a. Explain the role of a biological factor that may promote resilience in helping maintain mental health for adults dealing with the demands of being a single parent.

2 marks

b. Describe how exercise could be considered an avoidant-coping strategy rather than an approach-coping strategy for dealing with the stress from single-parenting.

2 marks

c. Identify and explain a limitation of the research design used in Dr Jay's experiment

3 marks

d. Describe an advantage and a limitation of the use of the mean to compare the scores of the four groups in this study.

2 marks

e. Compare the data from the four groups and write a conclusion on the findings

3 marks

f. Evaluate the validity of Dr Jay's experimental results.

2 marks

Question 2 (7 marks)
Dr Salmon intended to conduct a research investigation into the effectiveness of 'levodopa' a type medication that works as a dopamine agonist as a form of treatment for the symptoms of Parkinson's disease.

a. Describe one advantage of using an experiment as opposed to alternative types of research investigations in this case

2 marks

b. Describe the role of a control group in Dr Salmon's experiment

2 marks

c. Explain how levodopa can work as a dopamine agonist in terms of the lock and key mechanism

3 marks

Question 3 (6 marks)
Laura is a compulsive fingernail biter, she seeks help from the local GP who provides her with a one week supply of 'Mavala' which is a nausea inducing substance painted on finger nails.
Using the language of classical conditioning, describe how Laura could use the 'Mavala' to extinguish her finger nail biting for the 3 stages of classical conditioning.
Baseline

Acquisition

Post conditioning

Question 4 (12 marks)
A group of 60 young adults volunteered to participate in an experiment that compared the effects of a legal blood alcohol content of 0.05 vs one night of full sleep deprivation on a variety of cognitive and affective measures.

The participants were randomly allocated into three groups.

Group 1: an experimental group; were deprived of sleep for one full night by participating in a series of all-night activities under the strict supervision of the experimenters in a University student union building.
Group 2: also an experimental group; that consumed 5 standard drinks of alcohol in the two hours prior to the testing phase in order to induce a blood alcohol content of approximately 0.05.
Group 3: the control group consumed 5 standard drinks of a placebo (a non-alcoholic substitute) in the two hours prior to the testing phase. Note: the substitute tasted and smelled like alcohol, but had no effect on consciousness.

All three groups were given the same tests which evaluated their performance in the following areas
- automatic processes
- controlled processes
- sustained levels of concentration
- emotional responses to various simulations

a. One of the cited limitations of the experiments was determining the consciousness of participants during the testing phase. Why is consciousness considered a psychological construct?

2 marks

b. How could an EEG be used to measure the consciousness of participants

2 marks

c. Distinguish between a controlled process and an automatic process

2 marks

d. Compare the predicted results between the three groups in terms of the effects on cognition, concentration and mood.

Cognition:

Concentration

Mood

6 marks

Question 5 (5 marks)

- Mr Scott was determined to learn the names of all 25 x Year 7 students on the school cross country team. He printed their photos next to a list of their names and rehearsed the names.
- He continued to rehearse the names of the students until he could cover the list of names and then look at the photos and recite their names which took him 100 minutes (to complete without error).
- Once the season finished (in Term 2 2017) Mr Scott started focussing on his classes and other teams he coached during Terms 3 and 4 and then Term 1 the following year. At the start of Term 2 in 2018, he sensed that he had forgotten all of the names (of the 'now' Year 8's), so he endeavoured to relearn the names using the same approach as he used in 2017. This time it only took him 30 minutes to relearn the names.

a. In terms of the multi-store model, how many names would Mr Scott be expected to retrieve after the first time he rehearsed the names (in 2017)?

2 marks

b. Using the savings score formula, calculate Mr Scott's saving

2 marks

c. What does the score calculated in **part b.** indicate about Mr Scott's retrieval of the names (in 2018)

1 mark

Question 6 (3 marks)
16 year old Eva has maintained a relatively consistent daily bedtime ritual which includes weekends and holidays as she is rarely up after 11.00pm and she doesn't tend to sleep-in due to school requirements and the demands of her part-time job as a weekend/holiday early morning swimming instructor.
Despite desiring @ 8-9 hours' sleep each night, in recent months Eva has had difficulty both falling asleep and then waking up the following morning. She recently has been referred to a sleep specialist who diagnosed her with a circadian phase disorder.
Identify the type of circadian phase disorder that Eva is experiencing and describe the likely cause of her condition.

Question 7 (4 marks)
Identify and describe (in detail) two characteristics of a mentally healthy person

Question 8 (9 marks)
Lew has an intense phobia of needles as a result of a traumatic response to an injection that he experienced as a child.
Lew has been prescribed a four-week supply of Xanax (a type of Benzodiazepine) to see if this reduces the effects of his phobic disorder.

a. Define a phobia

1 mark

b. Explain how operant conditioning may have perpetuated Lew's phobia

2 marks

c. Identify and describe a type of cognitive bias that may have perpetuated Lew's phobia

2 marks

d. Explain how Xanax can be used to treat Lew's phobic disorder

2 marks

e. In terms of the mental health continuum, describe <u>two</u> indicators that Lew's phobia is merely a mental health problem (as opposed to a mental disorder)

2 marks

‘**Question 9 (10 marks)**

- Professor Littler was interested in investigating the effectiveness of exercise as a strategy for Year 12 VCE students coping with the effects of stress.
- Professor Littler’s husband worked at Box Hill South Secondary College and the Professor used this connection to recruit the Year 12 students to participate in the study that would run in Term Two 2018.
- Prior to the commencement of the research (at the start of second term) all Year 12s were issued with a stress inventory test which consisted of 20 questions requiring students to rate each response from 0-5. E.g. ‘Upon waking on a school day, when I think of the day ahead I generally feel’? – ‘at peace’ = 0 points, ……. ‘overwhelmed’ = 5 points. Thus, the range of possible scores for the inventory test = 0 – 100 points.
- The students were also asked (via an online survey) about their intended exercise routine for Term Two. Based on this information 30 students were labelled as ‘exercisers’ and the other 62 students in the year level were labelled as ‘non-exercisers’, this process was based on the regularity or irregularity of their intended exercise regime for the term.
- 30 pairs were the established based on a similarity of scores on the stress inventory test, with each pair consisting of a ‘non-exercising’ student and an ‘exercising’ student *(the other 32 students in the year level were not required in order to maintain an equal number of students in each group)*.
- The 30 ‘exercising’ students were coerced into joining the cross-country squad which trained 3 mornings a week, the training consisted of a 30-minue ‘aerobic’ run and they were also required to complete a 30-minute run on the weekend for each of the ten weeks during Term Two.
- During the term, five students from the ‘exercise’ group either were injured or became ill and thus their results along with their matched partners were eliminated from the study – meaning there were only 25 reported scores in the table below.
- At the end of term, all 50 remaining participants were required to complete the same stress inventory test as they did at the start of the term.
- Professor Littler predicted that the ‘exercising’ group would experience either a decline in their stress levels or a relatively (or more) stable level of stress (when comparing the start of term scores to the end of terms scores) in contrast to the ‘non-exercising’ group who would experience a higher level of stress due to the demands of second term.

The results are summarized as follows.

	25 ‘exercising’ students	25 ‘non-exercising’ students
Pre-test: Mean stress inventory stress score (out of 100)	51.1	50.9
Post-test: Mean stress inventory stress score (out of 100)	58.2	77.5
Change in mean stress inventory score	+ 7.1	+ 26.6
Pre-test: standard deviation of stress inventory scores	13.2	13.4
Post-test: standard deviation of stress inventory	23.3	12.1

Required

- Define stress and identify and describe two major benefits of exercise as a strategy for dealing with the effects of stress.
- Write a conclusion and draw implications based on the results of the experiment.
- Evaluate the use of the mean and the standard deviation as the descriptive statistics used in this experiment.
- Evaluate both the validity and reliability of the results generated in this experiment.
- Identify one strength and one limitation of the research design used in this experiment.

Extra lines: clearly indicate the question that you are continuing

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