



2023 Trial Examination

STUDENT
NUMBER

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Letter

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PSYCHOLOGY

Unit 3 – Written examination

Reading time: 15 minutes

Writing time: 1 hour and 30 minutes

QUESTION AND ANSWER BOOK

Structure of book

<i>Section</i>	<i>Number of questions</i>	<i>Number of questions to be answered</i>	<i>Number of marks</i>
A	40	40	40
B	13	13	80
			Total 120

- 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 30 pages.

Instructions

- Print your name in the space provided on 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 communication 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.

Question 1

Which parts of the nervous system make up the autonomic nervous system?

- A. Sympathetic and parasympathetic
- B. Autonomic and somatic
- C. Brain and spinal cord
- D. Autonomic and Parasympathetic

The following information relates to question 2-5

Sandra, a VCE Year 12 student, has slept in after studying late the evening before and she has consequently made herself late for school. This has stressed her out given that she has a Biology SAC in the morning and she wanted to get there early to ask her teacher some questions before the SAC. She runs for the bus as it is moving from the curb and shouts, waves her arms at the driver and yells for him to stop.

Question 2

Which parts of Sandra's Nervous System is responsible for the motor actions of running, shouting and waving her arms?

- A. Sympathetic nervous system
- B. Parasympathetic nervous system
- C. The somatic nervous systems
- D. The Central Nervous System

Question 3

Which pathway of the nervous system would carry messages for the motor actions mentioned above?

- A. The afferent pathway of Sandra's autonomic nervous system
- B. The efferent pathway of Sandra's somatic nervous system
- C. The efferent pathway of Sandra's autonomic nervous system
- D. The afferent pathway of Sandra's somatic nervous system

SECTION A - continued

Question 4

Sandra experiences heightened arousal as she runs to catch the bus waving her arms and yelling to be noticed by the driver. Which of the following combination of physiological responses did Sandra experience?

- A. Breathing rate decreases, pupils contract, digestion is inhibited, bronchioles constrict
- B. Pupils dilate, breathing increases, bladder contracts, perspiration increases, mouth dries.
- C. Heart Rate and blood pressure increases, salivation decreases, pupils dilate, digestion inhibited.
- D. Bronchioles contract, digestion stimulated, pupils constrict, bladder relaxes.

Question 5

Which part of the nervous system is triggered to create Sandra's heightened arousal?

- A. Parasympathetic System
- B. Autonomic and parasympathetic nervous system
- C. Sympathetic nervous system
- D. Central Nervous System

Question 6

Which of the following is not an unconscious response?

- A. A reflex action
- B. An unconditioned response
- C. A voluntary action in which attention is given to the stimulus.
- D. A behaviour which is unintentional, and which is regulated by the autonomic nervous system

Question 7

Rashida turned the water on in the shower and was distracted by the phone ringing. After quickly checking her phone, she went to check the water before she got in the shower and did not realise how hot the water had become. She burnt her hand and quickly withdrew her hand and then felt intense pain down her arm and hand. She ran her arm and hand under the cold tap at the basin. Rashida's action of withdrawing her hand and arm can be described as a(n)

- A. Spinal reflex
- B. learned spinal response
- C. learned spinal action
- D. voluntary stimulus reaction

SECTION A - continued
TURN OVER

Question 8

Which of the following is the correct sequence of events for a spinal reflex response to occur?

- A. Sensory information travels along sensory neurons to the spinal cord and up to the brain and then motor neurons carry the motor messages to the parts of the body involved in the reflex arc.
- B. Motor commands travel via motor neurons to the interneuron which then send messages along the sensory neurons to the parts of the body involved who perform the reflex response
- C. An interneuron takes the sensory information to the brain and then motor neurons carry the motor messages to the part of the body involved in the reflex arc
- D. Sensory information travels to the interneurons via the sensory/afferent pathway to the spinal cord. The interneuron sends signals down efferent pathways via motor neurons to the parts of the body involved in the reflex arc and a message is sent to the brain so it makes sense of the resulting actions

Question 9

Which of the following statements about the autonomic nervous system is not accurate?

- A. The ANS controls the body's internal environment in an autonomous or self-regulated manner.
- B. The ANS is a vital part of the Somatic Nervous System
- C. The ANS performs most of its functions without our conscious awareness such as digestion, respiration, heart rate and blood pressure.
- D. The ANS adapts our body to the demands of experiences related to stress, fear and anger.

Question 10

Which is not an example of an unconscious response?

- A. Blushing when embarrassed
- B. Shivering when cold and sweating when hot
- C. Reflexes such as sneezing or blinking.
- D. Putting on a jumper when you feel cold or scratching an itch.

Question 11

Neurotransmitters can have a/an _____ or a/an _____ effect. They are released from the _____ from the presynaptic neuron transmitting chemical signals to the adjacent neuron. They have a moderately fast effect.

- A. Modulating, quick, receptor sites
- B. Inhibitory, excitatory, synaptic vesicles
- C. Influential, changing, post-synaptic neuron
- D. Modulating, slow, axon terminals

SECTION A - continued

Question 12

The ability of a synapse to change over time by sprouting and rerouting via repeated stimulation is associated with _____ whose role is to act as a/an _____ neurotransmitter.

- A. Dopamine; inhibitory
- B. Gaba; excitatory
- C. Glutamate; inhibitory
- D. Glutamate; excitatory

The following information relates to question 13-14

Lily has suffered from generalised anxiety disorder for several years and she is unable to contain her heightened arousal responses such as feeling panicky, a racing heart, sweaty palms and a sense of doom.

Question 13

Which of the following is true with regards to Lily's nervous system's inability to reduce the overstimulation of neurons and the hyper-and over-excited bodily responses seen in anxiety such as consistent increased heart rate, respiration, or blood pressure?

- A. Increased levels of serotonin
- B. Low levels of GABA
- C. Low levels of Glutamate
- D. Increased amounts of Dopamine

Question 14

To help treat Lily's condition of generalised anxiety disorder some doctors would suggest that she take drugs such as benzodiazepine. This will help to quieten the debilitating effects of heightened arousal responses which cause distress. This type of drug will

- A. Increase levels of GABA in the synapse
- B. Decrease levels of Dopamine at the axon terminal
- C. Increase the amount of Glutamate in the synapse
- D. Decrease the levels of Serotonin in the synaptic vesicles

**SECTION A - continued
TURN OVER**

Question 15

Neuromodulators are different to Neurotransmitters in their effect on the nervous system. Which of the following is not accurate?.

- A. Neuromodulators produce a slower and longer-lasting diffuse effect
- B. Some neuromodulators like dopamine can act as a neurotransmitter and a neuromodulator
- C. Neuromodulators modify synaptic connections by increasing or decreasing responsiveness of neurons by enhancing or changing the effects of various neurotransmitters at the synapse
- D. Neuromodulators have their effect in specific localised areas in the synapse

The following information relates to question 16-17

Joe is a gambling addict and visits the casino and horse-racing track often losing large amounts of money. No matter how many times he tries to change this behaviour he can't resist the temptation of going to gamble regularly. He even anticipates and gets excited about how much he will win before he leaves for the gambling venue and when he gets there and each time, he puts a bet. Angela has a shopping addiction. She is constantly looking at outfits and accessories and other items online and gets excited about getting home and purchasing the items in her cart. She also often goes by the shops on the way home, after thinking all day about how excited she will feel once she purchases these items.

Question 16

Which one of the following neurotransmitter or neuromodulator is involved in the behaviour of Joe and Angela?

- A. Serotonin
- B. Glutamate
- C. Noradrenaline
- D. Dopamine

Question 17

Both Joe and Angela spend many sleepless nights worrying about the debt that they are accumulating, and they have become moody and despairing when they get home from either gambling for Joe or shopping for Angela. The neuromodulator that would play a major role in Joe and Angela's mood regulation, sleep-wake cycles, memory process and appetite is

- A. Noradrenaline
- B. Serotonin
- C. Dopamine
- D. Glutamate

SECTION A - continued

The following information relates to question 18-19

Angela eventually reaches the conclusion that she has a major problem, a shopping addiction that is draining her savings and her weekly income and that she needs to do something about it. She realises that she can't overcome this problem on her own. Consequently, she decides to deal with her shopping addiction in terms of seeking help from a psychotherapist who suggests that she attempt hypnotherapy to tackle her problem. Joe also comes to the realisation that he has a problem but in considering his options he decides that he will deal with it down the track and accelerates his gambling behaviour because it makes him feel better.

Question 18

In terms of the Lazarus and Folkman's Transactional Model of Stress and Coping, Angela and Joe's initial primary appraisal of their situation with addiction was that they were both dealing with a

- A. A challenge
- B. A threat
- C. Eustress
- D. Distress

Question 19

In terms of the Lazarus and Folkman's Transactional Model of Stress and Coping, Angela and Joe's secondary appraisal can be considered to be

- A. Both approach strategies
- B. Angela uses an approach and problem-focused coping strategy, and Joe employs an avoidance and emotion-focused coping strategy.
- C. Both use an avoidance coping strategy.
- D. Angela uses an avoidance coping approach and Joes uses an approach coping strategy.

Question 20

A maladaptive method of coping with stress would be considered to be

- A. Problem-focused approaches
- B. Denial
- C. Stress management techniques such as exercise and meditation
- D. Cognitive reappraisal

Question 21

Which is not an advantage of the Lazarus and Folkman's Transactional Model of Stress and Coping?

- A. It takes into account physiological responses to sources of stress.
- B. It takes into consideration the individual's psychological responses to stressors.
- C. It includes reappraisal options allowing for coping flexibility approaches.
- D. It explains why different people react to the same stressor in different ways.

**SECTION A - continued
TURN OVER**

The following information relates to question 22-28

Aidan began to learn to play the piano when he was in primary school, and he played it quite successfully by the time he was in Grade 6. Aidan took guitar lessons with some of his friends, and he learnt guitar throughout high school. He found he loved the guitar and he practised often and neglected playing the piano and continuing with piano lessons. He also learnt to play the guitar quite well. Years later when he tried to recall and play his piano tunes. He was rusty at first but he did remember them. Nevertheless, he played the songs with some difficulty, forgetting some of the words. He realised that he should keep up with practising his piano skills if he wanted to play well again.

Question 22

Aidan's attempts to learn the piano and the guitar occurred due to the phenomena of synaptic plasticity via the process/es of

- A. Both long-term potentiation (LTP) and Long-term depression (LTD)
- B. Long-term depression only
- C. Long-term Potentiation only
- D. Neuromodulation only

Question 23

When Aidan practises the piano or guitar the neurotransmitter of _____ causes the development of neural pathways which are strengthened by the repeated firing of the post-synaptic neuron due to the excitatory effect of this neurotransmitter.

- A. Dopamine
- B. GABA
- C. Glutamate
- D. Acetylcholine

Question 24

Aidan's memory of how to play the piano or guitar is stored as what type of long-term memory?

- A. A semantic memory
- B. An explicit memory
- C. An implicit procedural memory
- D. A flash-bulb photographic memory

Question 25

Aidan's memory of the words of the songs he plays on the piano or guitar are stored as what type of long-term memory?

- A. An implicit memory
- B. A semantic memory
- C. An autobiographical memory
- D. A photographic memory

SECTION A - continued

Question 26

Which part of Aidan's brain would be most closely associated with memory consolidation of how to play various songs on the piano and the guitar?

- A. The corpus callosum
- B. The cerebellum
- C. The hippocampus
- D. The neocortex

Question 27

As an adult when Aidan thinks of his school performances where he played his piano on stage and especially his guitar with his friends and all the fun they had, Aidan is using _____ memory which is part of _____ memory.

- A. Procedural, Implicit
- B. Episodic-Autobiographical, Declarative
- C. Echoic, Memory
- D. Iconic, Sensory Memory

Question 28

If Aidan had Aphantasia what type of memory would not be impaired?

- A. Episodic-Autobiographical memory
- B. Semantic memory
- C. Episodic Future Thinking
- D. Memory of Object and Mental Imagery

Question 29

If someone suffers from Aphantasia they have difficulty with

- A. Sensory memory
- B. Short-term memory
- C. Producing mental imagery
- D. Echoic Memory

SECTION A - continued
TURN OVER

The following information relates to question 30 -32

Joseph begins Year 7 and he has to catch the bus to get to his new high school. Joseph and his mate encounter a group of older students who go to a neighbouring school and who begin bullying him and his friend regularly. They make fun of his oversized- uniform and they call him names to get a reaction from him. They mock him further when he does not respond and consequently, yell abuse at him from the back of the bus. Joseph and his friends regularly put up with this behaviour after school. Joseph feels sick in the stomach and anxious and he has sweaty palms as it gets close to dismissal time at school knowing he will have to catch the bus soon. He tells no-one about this problem but begins dreading to go to school each day and thinks of excuses so he can take a day off.

Question 30

Which of the following most accurately describes the type of stressor Joseph was experiencing with his mate on the bus after school?

- A. External Stressor
- B. Internal Stressor
- C. External and Internal Stressor
- D. None of the Above

Question 31

Joseph's stress response can be described as

- A. Psychological only
- B. Physiological only
- C. Social
- D. Both psychological and physiological

Question 32

Joseph's approach to coping is an example of

- A. Neither an avoidant strategy nor an approach strategy
- B. Both an avoidant and an approach strategy
- C. An avoidant strategy
- D. An approach strategy

SECTION A - continued

The following information relates to question 33 -35

Joseph and his friend ask for help from his mate's older brother who begins catching the bus with them after school. The three of them begin standing up to the older boys when they start taunting them. After a couple of months of standing up to the boys in this manner Joseph becomes prone to getting physical ill by catching colds more often and having indigestion and stomach upsets. He feels especially anxious in the afternoons.

Question 33

In terms of Selye's General Adaptation Syndrome (GAS) Joseph can be described to be at the following stage

- A. Alarm Stage-Shock
- B. Resistance
- C. Exhaustion
- D. Alarm Stage-Countershock

Question 34

The effects of which longer-lasting stress hormone would have impacted Joseph's immune system in its ability to cope with sickness and disease?

- A. Noradrenaline
- B. Cortisol
- C. Adrenaline
- D. Dopamine

Question 35

Joseph's latest response to the bullying after school can best described as

- A. Distress
- B. Eustress
- C. A fight-flight-freeze response
- D. An avoidance response

Questions 36

Which of the following is not true for Songlines used by Aboriginal and Torres Strait Islander cultures

- A. Strongly relies on written information.
- B. It is based on an oral tradition.
- C. Stores multimodal information related to landscape which has been passed on for over 50,000 years.
- D. They are sung narratives linked to landscape features and information about plants, climate, animals and human beings and their culture.

**SECTION A - continued
TURN OVER**

Question 37

Which of the following is not true?

Lia uses the method of loci to learn the various parts of a speech as the ancient Greek philosophers used to do in the past. One way that she could do this is to encode each paragraph or a main point of her speech in a sequential order and link it with various familiar locations such as

- A. Different places on the way to school
- B. The layout of your house
- C. landmarks at a holiday destination that you want to visit
- D. the layout of your workplace or school or your regular supermarket

Question 38

Which statement is not true about ways of knowing and learning for the Aboriginal and Torres Strait Islander cultures?

- A. Learning is linked to a system of relationships to Country based on human connections and links to the objects of creation: the land, the animals, the plants and other life entities such as the solar system.
- B. Only certain indigenous persons within their community groups have the privilege and responsibility to pass on certain cultural knowledge.
- C. Learning in indigenous communities occurs mainly using written sacred texts being disseminated to the young members of the various aboriginal clans.
- D. Learning is achieved by multi-modal ways of encoding and retrieving information such as the use of narratives, the mapping of places being intertwined with cultural knowledge, visualisation, and intra-personal and kinaesthetic approaches such as dance.

Question 39

What type of mnemonic device are the examples of RACV, NAB, ANZ?

- A. Acrostics
- B. Method of Loci
- C. Acronyms
- D. Narrative Chaining

Question 40

The Gut Microbiota which is part of the Gut-brain Axis-

- A. Can be negatively influenced by chronic stress, anxiety, and depression.
- B. Is not affected by the neural messages carried by the vagus nerve from the brain to the gut.
- C. Cannot be modified by treatment with probiotics and other drugs.
- D. Is another name for the term dysbiosis

END OF SECTION A

SECTION B - Short-answer questions

Instructions for Section B

Answer **all** questions in the spaces provided

Question 1 (8 marks)

As a child Jacinta used to stay with her grandmother during the school holidays and after school while her mum worked. Her grandmother would have chickens roaming around the backyard most of the days until she put them in the chicken coup in the evening. Sometimes these chickens got aggressive as her grandmother would yell at them for walking into the vegetable patch area. Sometimes the chickens pecked at her and even at visitors, especially the rooster if people came too close to the hens. Consequently, Jacinta developed an intense fear of chickens, and she would remain in the house while the chickens roamed in the backyard. As an adult she still has a persistent and intense fear of chickens and avoids any contact with them. She even hates watching them on television or seeing photos of them.

a. In terms of the theory of Classical Conditioning identify the following

4 marks

The neutral stimulus

The unconditioned stimulus

The unconditioned response

SECTION B – Question 1 – continued
TURN OVER

The conditioned response

b. How did Jacinta develop this intense fear of chickens?

2 marks

c. Identify and explain which brain structures would have been involved in forming this intense emotional fear and memory.

2 marks

SECTION B – continued

Question 2 (4 marks)

Rishida is an eighteen-year-old doing Year 12 VCE. She arrives home very late on the weekends when she goes out with her friends. She constantly breaks the rules set by her parents especially that of arriving home no later than 1am. She has her driver's licence, and she is allowed to use her mum's car on the weekend. To change this behaviour her parents gave her the ultimatum that she would lose her privilege of using the family car if she came home late just one more time. Last week she came home late again even though she was warned. Consequently, she lost her privilege of using the car for a month and going out with her friends the following weekend.

- a. In terms of the theory of Operant Conditioning, what type of reinforcement are Rishida's parents using? (Explain)

2 marks

- b. Describe what type of other reinforcement Rishida's parents could use to change their daughter's behaviour based on the principles of Operant Conditioning? Explain whether this would be a more effective alternative.

2 marks

SECTION B – continued
TURN OVER

Question 3 (4 Marks)

Explain the difference between negative reinforcement, positive punishment and negative punishment. Provide an example for each one of these to show your understanding.

Question 4 (4 marks)

The Walpiri Aboriginal group near Alice Springs have a Songline called “Water Song” which reveals the secrets of how to make rain especially using fire linked to different geographical locations in that area. Describe how the use of Songlines in Indigenous and Torres Strait Islander cultures are different to the use of the mnemonic devices such as the method of loci used in Western culture.

SECTION B – continued

Question 5 (6 marks)

- a. Discuss the different “Ways of Knowing” and the passing down of cultural knowledge employed by Aboriginal and Torres Strait Islander groups as opposed to Western Cultural groups.

4 marks

- b. What is the significance of the ‘**Kinship System**’ in terms of the indigenous ways of learning and imparting knowledge? Give an example to show your understanding.

2 marks

SECTION B – continued
TURN OVER

Question 6 (7 marks)

Phil and Mariska attend a 30-year school reunion. They have been friends a long time; they enjoyed seeing all their old school friends and catching up with them. During the evening Mariska begins to picture what the next reunion would be like after another 10 years. She imagines what they all would look like and what sort of night they might have and pictures them all in that setting in 10 years' time.

- a. Identify what sort of long-term memory Mariska is using to think about her future reunion and identify whether it is explicit or implicit memory. (Explain)

3 marks

- b. If Mariska's brain was subjected to brain imaging, such as FMRI, while she thinks about her future school reunion in 10 years' time, which parts of Mariska's brain would be activated while Mariska imagines this future event? (Explain)

2 marks

SECTION B – Question 6 – continued
TURN OVER

- c. Mariska relays to Phil about what their future reunion will look like. Phil can't picture any of this future scene. His attempts only render him to be frustrated as he can only picture blurred images with no details. What sort of impairment might Phil have? Can he rectify this problem?

2 marks

SECTION B – continued
TURN OVER

Question 7 (6 marks)

Alex’s grandmother has been forgetful for a couple of years now but lately she is beginning to have difficulty with her family members’ names, and she is living more and more in the past. She talks about events in the past more like when she was a child or a young adult. Sometimes when Alex visits her, she calls him by her younger brother’s name. Moreover, Alex’s grandmother cannot remember what happened yesterday or earlier on in the day. She still remembers how to crochet jumpers and sew outfits as she was a seamstress in the past. She still can mend items of clothing and still brush her hair and teeth as well as apply a little bit of make-up as she has always done in the past. When Alex’s grandmother visited the neurologist, he carried out a number of tests and eventually, diagnosed her with Alzheimer’s Disease much to the shock of Alex’s family.

- a. What aspects of Alex’s grandmother’s behaviour would have acted as a red flag at the time, causing the neurologist to run tests to ascertain whether she has Alzheimer’s Disease or not?

2 marks

- b. What type of memory functions are impaired when it comes to Alex’s grandmother’s brain? (Explain)

2 marks

SECTION B – Question 7 – continued

c. What would brain scans reveal about various parts of Alex’s grandmother’s brain compared to a healthy brain? Why would this be the case?

2 marks

Question 8 (4 marks)

Explain what people with Alzheimer’s Disease and Aphantasics have in common when it comes to memory impairments.

SECTION B – continued
TURN OVER

Question 9 (7 marks)

For the end of year dance concert, the younger students in the Junior Ballet class watch the older Intermediate and Advanced students complete the dance sequences at the rehearsal sessions that become more frequent in the lead up to the concert in November. They practise consistently for at least 5 months before the concert evening and the more advanced students also attend their classes and mentor them and the younger students watch them perform copying the dance steps. The younger students have great admiration for the more advanced students as they seem to complete the dance steps with ease and in the future, they hope to be like them because they are the elite of the dance company. When the young ballet students complete the dance steps successfully the older dancers give them a lot of praise and the young girls are so happy. They even shout them to a McDonald's meal once they learn all the steps.

- a. In terms of the theory of Social-Cognitive Learning (Observational Learning) describe the stages that the girls would follow to learn the Ballet dance sequences by the time the end of year concert arrives.

5 marks

- b. What is the role of vicarious reinforcement in this process of observational learning for the young girls learning the dance sequences for the end of year concert?

2 marks

SECTION B – continued

Question 10 (12 marks)

As part of the investigation of caffeine on memory consolidation and recall, researchers conducted a study whereby 120 university students were equally divided into two groups of 60 students- one group was asked to consume a caffeinated coffee and one group were asked to drink a decaffeinated coffee. Neither the participants nor the researchers were aware of whether the participants were drinking the caffeinated drink or not. The participants were recruited from an advertisement that was placed around the university and on the university on-line portal as well. They were randomly assigned to either group. They were asked to drink the caffeinated drink and then they were given two passages with highlighted key words to read and consequently, they were asked to focus on and commit to memory the 20 key words within those passages. The participants were then asked to recall as many of the key words that they remembered from the passages. The participants who drank the caffeinated coffee scored higher than the group who consumed the decaffeinated coffee in their recall of the key words in the passages. The means of the words recalled were on average **15 words** (group with caffeine drink) vs **9 words** (group with no caffeinated drink) The results were statistically significant based on the **p value of $p < 0.05$** . After the researchers had finished analysing the data the participants were told which group they were part of and the aim of the study. The researchers concluded that caffeine enhances the consolidation and retrieval of items to be remembered.

a. Outline a possible research hypothesis for this study.

1 mark

SECTION B – Question 10 – continued
TURN OVER

- b. Describe the experimental design used and suggest another possible experimental design that could have been employed as an alternative. Discuss the advantages and disadvantages of both types.

4 marks

- c. Identify two confounding variables that could have impacted the results of this study:

2 marks

SECTION B – Question 10 – continued

d. Can the results of this research be generalised? Explain

2 marks

e. Discuss any other limitations of the sampling procedure, the methodology and the experimental design that could have impacted the results of the study.

3 marks

SECTION B – continued
TURN OVER

Question 11 (4 marks)

Outline the differences between neurotransmitters and neuromodulators and use at least two examples in your discussion.

Question 12 (4 marks)

In her Psychology class that day Alice reads aloud several times and tries to memorise a diagram based on the different part of the nervous system. At home that evening she reads over this diagram several times again and talks about the links in the diagram by using several examples and what she has understood so far about the Nervous System. Alice then tries to remember all the parts of the Nervous system by testing herself by attempting to reproduce the diagram. Based on the Atkinson and Shiffrin model of memory, explain the different types of memory involved and how information that Alice is learning is transferred, encoded, and consolidated into long-term memory and then retrieved when she tries to reproduce the diagram from her memory.

Question 13 (10 marks)

Jessica is a restaurant owner in the city during the height of the Coronavirus pandemic. She felt at a loss and overwhelmed when the lockdown restrictions came into place and people no longer were allowed to go to her restaurant to eat. She plunges into a state of distress, and she doesn't know what to do to keep her business afloat. Jessica does not know how she is going to pay the rent and her staff, and how to keep them employed. Consequently, Jessica has sleepless nights, and she is dumbfounded as to what to do about this unfamiliar and distressing situation. Everything she has worked for over these years seems to be disappearing before her eyes.

Eventually, she decides to keep her business going by thinking outside the box. If the customers couldn't come to her to eat, she would bring the food to them somehow. Jessica creates a delivery service on-line where she will package her pre-prepared food every day and get her staff, and family and friends to help deliver the food within a 5km radius due to the severe restrictions. Jessica also extends her business further by also delivering home-made juices and dessert boxes. She also sells the take-away packages in the morning outside her restaurant and then focuses on the delivery service in the afternoon. She does a mail-drop off in her area and she advertises her new services on-line. Jessica's initiatives, with lots of effort and struggles, have kept her business afloat during the restrictions over the last two years.

Despite withstanding this hurdle in the last two years, Jessica follows more challenges when she re-opens the restaurant given the vaccine restrictions of her being made to select only customers who are vaccinated and limiting her clientele. She is also dealing with staff shortages and a loss of clientele given that many people keep working from home and don't come back to the city to work and therefore, to eat as well. Around this time Jessica has had a fall and broke her leg and must take time off to do rehabilitation and recover. During the following months Jessica begins to have other health problems such as the stomach issues of reflux and indigestion and she must take drugs to help with this problem. She has also learnt that she has high blood pressure and that her sugar levels are too high, and that this aspect needs to be monitored or she will end up with diabetes. Despite persevering and remaining so strong during these last couple of difficult years, Jessica feels that she can no longer cope with everything and begins to lose hope.

Explain Jessica's biological and psychological responses to her stressful situation in terms of the following models- Selye's General Adaptation Syndrome (GAS) model, Lazarus and Folkman's Transactional Model of Stress and Coping and the Gut-Brain Axis (GBA) Model. Discuss the advantages and limitations of each model in terms of shedding light on Jessica's biological, psychological and behavioural responses.

SECTION B – Question 13 – continued
TURN OVER

SECTION B – Question 13 – continued

END OF QUESTION AND ANSWER BOOK