

STUDENT NAME:

VCE PSYCHOLOGY

Units 3 & 4 Trial Examination 2024

Reading time: 15 minutes

Writing Time: 2 hours 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	9	9	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 correction fluid/tape.
- No calculator is allowed in this examination.

Materials supplied

- Question and answer booklet of 30 pages.
- Answer sheet for multiple-choice questions.
- Additional space is available at the end of the booklet if you need extra paper to complete an answer.

Instructions

- Write your **student name** in the space provided above on this page.
- Write your **student name** on your answer sheet for multiple-choice questions.
- All written responses must be in English.

At the end of the examination

- Place the answer sheet for multiple-choice questions inside the front cover of this book.

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

Disclaimer: This practice examination has been written for students of VCE Psychology. This does not imply that it has been endorsed by the Victorian Curriculum and Assessment Authority (VCAA). Teachers are advised to preview and evaluate this resource before using or distributing it to students.

Section A – Multiple Choice Questions**Instructions for Section A**

Answer **all** questions on the answer sheet provided for multiple-choice 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 of the following is correct regarding the process of a spinal reflex?

- A. Interneurons in the brain are responsible for initiating the behaviour.
- B. It can be a conscious or an unconscious behaviour.
- C. The response is initiated before the brain has conscious awareness of it occurring.
- D. The process involves sensory neurons, motor neurons and the enteric nervous system.

Use the following information to answer questions 2-3.

A study recruited 54 male participants. Each participant was randomly allocated to play either a violent or non-violent videogame for 25 minutes. To measure the effects of gaming, they assessed participants' levels of cortisol both before and after gameplay. To do this they took saliva samples and investigated cortisol levels. The results were quite unexpected, cortisol levels decreased in the group playing the violent game.

Source: Adapted from <https://www.psypost.org/2024/01/violent-video-games-decrease-stress-hormones-study-finds-220834>

Question 2

Which of the following could be a correct interpretation of the results?

- A. Playing violent videogames activated the participants' freeze response, so the parasympathetic nervous system was temporarily dominant.
- B. No conclusion can be made as measuring someone's cortisol levels through a saliva swab is not an accurate way of measuring stress.
- C. Existing cortisol in the participants' nervous system was used as they played violent videogames.
- D. Playing violent videogames is not a situation where people are likely to feel stressed so it's expected that their cortisol levels would decrease.

Question 3

Identify the investigation methodology used in this research.

- A. Case study
- B. Controlled experiment
- C. Correlation
- D. Literature review

Use the following information to answer questions 4-6.

Positive reframing, acceptance and humour are the most effective coping strategies.

A sample of 149 students completed daily diary reports between 3 - 14 days. They reported on the failures they experienced during the day and what strategies they used to cope with the failure, and how satisfied they felt at the end of the day.

Of these strategies, using social support (both emotional and practical), denial, venting, disengagement, and self-blame coping had negative effects on satisfaction at the end of the day: the more students used these coping strategies in dealing with the day's failure, the less satisfied they felt at the end of the day.

In contrast, positive reframing (i.e. trying to see things in a more positive light, looking for something good in what happened), acceptance and finding humour had positive effects on satisfaction: the more students used these coping strategies in dealing with failures, the more satisfied they felt at the end of the day.

Source: Adapted from University of Kent. "Positive reframing, acceptance and humor are the most effective coping strategies." ScienceDaily. ScienceDaily, 14 July 2011.
www.sciencedaily.com/releases/2011/07/110704082700.htm

Question 4

With reference to the explanatory power of Richard Lazarus and Susan Folkman's Transactional Model of Stress, identify how someone who used positive reframing might interpret the situation.

	Primary Appraisal	Secondary Appraisal
A.	The situation was stressful (harm/loss)	Their resources were inadequate
B.	The situation was stressful (challenge)	Their resources were adequate
C.	The situation was irrelevant	Their resources were adequate
D.	The situation was stressful (threat)	A secondary appraisal was not required

Question 5

The research stated that some participants used denial and venting as their strategies when experiencing failure throughout the day. This information was made available to participants, one participant decided to try and use positive reframing next time they encountered a perceived failure.

- A. This demonstrates low context specific effectiveness.
- B. If the participant did this, they would be demonstrating coping flexibility.
- C. It doesn't matter whether they change their perception, they will still experience characteristics of the fight-flight freeze response.
- D. This would be effective as it would result in long term depression between the stressor and an appropriate method.

Question 6

Participants in this research completed a self-report questionnaire to indicate how satisfied they felt at the end of the day. Which of the following is correct?

- A. Self-reports can be an effective way to measure the true value of a concept that is psychological, such as satisfaction levels.
- B. Self-reports are an objective way to collect data about how satisfied the person felt at the end of the day.
- C. Self-reports are limited as they can only collect quantitative data.
- D. Self-reports generally cannot be administered to a large sample.

Question 7

As part of her final psychology assessment at university, Valerie is investigating suitable treatments that can help people who are experiencing phobias. She has collected and analysed a range of data from other people's scientific findings. Which of the following is true regarding the scientific investigation method she used?

	Research Investigation	Data collected
A.	literature review	secondary data
B.	literature review	primary data
C.	fieldwork	primary and secondary data
D.	fieldwork	primary data

Use the following information to answer questions 8-9.

Eating more fruit and vegetables linked to less stress

Eating a diet rich in fruit and vegetables is associated with less stress, according to new research. The findings revealed people who ate at least 470 grams of fruit and vegetables daily had 10 per cent lower stress levels than those who consumed less than 230 grams.

Source: Adapted from Edith Cowan University. (2021, May 14). Eating more fruit and vegetables linked to less stress, study finds. *ScienceDaily*. Retrieved June 25, 2024 from www.sciencedaily.com/releases/2021/05/210513100030.htm

Question 8

The research states that a diet rich in fruit and vegetables can promote good gut health and is associated with less stress. Which of the following provides a correct reason for this?

- A. There is a bidirectional relationship between the gut and the brain. The gut communicates with the brain via the vagus nerve.
- B. There is a bidirectional relationship between the gut and the brain. The gut and brain can consistently communicate with each other via the spinal cord.
- C. There is a bidirectional relationship between the gut and the brain. The gut and brain can consistently communicate with each other via the spinal cord.
- D. There is a bidirectional relationship between the gut and the brain. The gut and brain can consistently communicate with each other via the vagus nerve.

Question 9

During the study the researcher wanted to find out more from the group that were eating at least 470 grams of fruit and vegetables daily, Vera reported that eating well improved her sleep. Another participant, Jeremy, reported that their frequency of headaches had decreased since eating more fruit and vegetables. With reference to operant conditioning, identify the appropriate consequences for Vera and Jeremy.

	Vera	Jeremy
A.	Negative reinforcement	Positive reinforcement
B.	Positive reinforcement	Negative reinforcement
C.	Positive punishment	Negative reinforcement
D.	Negative reinforcement	Negative punishment

Question 10

Identify the correct explanation and example that relates to unconscious and conscious behaviours.

	Explanation	Example
A.	Unconscious behaviours are only activated by the spinal cord	An unconscious behaviour is a spinal reflex
B.	Conscious and unconscious behaviours can occur outside of the person's awareness	A conscious behaviour is choosing which chocolate biscuit to eat from the cupboard
C.	Conscious behaviours are voluntary and completed with awareness	Your pupils dilating when you are scared
D.	Unconscious behaviours are involuntary and completed without conscious awareness	The activity of the gut-brain axis

Question 11

Which of the following is a difference between a social cognitive perspective and a behaviorist perspective on learning.

	Social cognitive theory	Behaviourist theory
A.	Learning will have occurred when learners demonstrate observable behaviours	The learner is required to think about the behaviour being learnt and make decisions about whether they will replicate the behaviour
B.	The learner is required to think about the behaviour being learnt and make decisions about whether they will replicate the behaviour	Learning will have occurred when learners demonstrate observable behaviours
C.	The learner learns by watching and observing a model and their consequences in the environment	Learners can learn a behaviour, but it could remain latent, until a suitable motivation is present
D.	Learners can learn a behaviour, but it could remain latent, until a suitable motivation is present	The learner learns by watching and observing a model and their consequences in the environment

Use the following information to answer questions 12-14.

Draganski wanted to investigate whether any changes occurred in the brain while learning to juggle. Participants who had never juggled before, were randomly allocated to one of two conditions. Before the study commenced each participant had an MRI scan, and no distinct differences were noticed between the two groups' brains.

Phase One:

12 participants were assigned to learn how to juggle and the other 12, were asked not to practise juggling at all. Three-months after, all participants had another MRI scan. This time they noticed a significantly large volume of grey matter in specific areas of the neocortex.

Phase Two:

After this second scan the experimental group, were told not to juggle anymore. After a further three months, a final MRI was administered, and it was observed that the jugglers still had more grey matter after the study than in their first scan but had less compared with the second scan. The non-jugglers' brains showed no changes across all the scans.

Sources: Adapted from Neuroplasticity: changes in grey matter induced by training

https://www.researchgate.net/publication/305381230_Neuroplasticity_changes_in_grey_matter_induced_by_training

Question 12

Identify the investigation methodology used in this research.

- A. Fieldwork
- B. A controlled experiment using a mixed design
- C. A controlled experiment using a within subjects design
- D. A controlled experiment using a between subjects design

Question 13

Which of the following best explains the results.

	After Phase One	After Phase Two
A.	The control group and the experimental group both displayed long term potentiation	The control group demonstrated some signs of long-term depression compared with their initial brain scan
B.	The experimental group displayed long term potentiation	The experimental group displayed some signs of long-term depression compared with phase one
C.	The experimental group displayed long term depression	The control group and the experiment group both displayed long term depression compared with phase one
D.	The experimental group displayed long term depression	The experimental group demonstrated long term potentiation compared with phase one

Question 14

Some participants may have found undertaking a brain scan stressful, as an MRI can be very noisy, and the confined space can make people feel uncomfortable. Outline how one ethical guideline would have been upheld in the research.

	Ethical Guideline	Application
A.	Informed Consent	The participants were told the true nature and the risks involved at the end of the study, as the researchers were concerned that participants may not want to participate if they knew the negative effects of having a brain scan at the start of the study.
B.	Withdrawal rights	Participants were told that if they felt uncomfortable, they could stop the MRI at any time and not be coerced to stay.
C.	Debriefing	The participants were told about the aim and the rationale of the study at the start before they gave their informed consent.
D.	Integrity	When searching for knowledge about neuroplasticity the researchers honestly reported the results and permitted scrutiny so that the results could contribute to public knowledge and understanding.

Use the following information to answer questions 15-17.

Researchers are constantly looking for ways to improve memory. One piece of research showed that when a fragrance was released in the bedrooms of older adults for two hours every night for six months, memories increased greatly. “Participants in this study experienced a 226% increase in cognitive capacity compared to the control group. The researchers say the finding transforms the long-known tie between smell and memory into an easy, non-invasive technique for strengthening memory.”

Source: University of California - Irvine. (2023, August 1). Sweet smell of success: Simple fragrance method produces major memory boost. *ScienceDaily*. Retrieved June 25, 2024 from www.sciencedaily.com/releases/2023/08/230801131700.htm

Question 15

Why might the researchers have reported on the percentage change in the participants’ cognitive capacity?

- A.** To control for the participants’ natural memory ability, so it didn’t become a confounding variable.
- B.** It is the quickest and easiest way to collect data.
- C.** It is the only viable way to measure improvement when conducting a controlled experiment that uses a within subjects design.
- D.** It is not possible to calculate the median or mean in this situation, percentage change is the only option.

Question 16

Yijun's teacher asked them to read about the experiment above for homework. As Yijun was reading they wondered which brain areas would be active when we encode the events that occurred throughout the day. Which of the following would be correct?

	Brain Area	Role
A.	Neocortex	It consolidates implicit emotional memories which are often associated with smell
B.	Basal ganglia	It stores explicit memories that have occurred throughout the day
C.	Hippocampus	It consolidates explicit memories and converts short term memories into long term memories
D.	Amygdala	It encodes and stores memories that are related to movement and posture, especially if they are related to emotional events

Question 17

The research team were surprised by the results and were keen to see if they could receive the same results if they carried out additional studies under the same conditions, incorporating the same methodology, the same location and same research team. If there is agreement between the results of the two studies, it can be concluded that the study demonstrates

- E. precision
- A. repeatability
- B. reproducibility
- C. low internal validity

Question 18

As she was completing an activity in class, Asha realised that she has aphantasia. Which of the following is the most likely scenario that Asha would experience?

- A. She is able to remember the school formal but is unable to remember what people wore.
- B. She is likely to have difficulties visualising where the formal took place but will be able to recall factual information about the event.
- C. She will not be able to remember any of the events due to her hippocampus being damaged.
- D. She is likely to have experienced excessive neural pruning.

Question 19

Vincenzo has always wanted to be a basketball player and compete at a high level. Unfortunately, he was involved in an accident and is struggling with some motor activities due to his brain injury. He respects his coach greatly and is watching him intently as he demonstrates some of the technical points regarding how to shoot the ball. Identify the stage of observational learning involved in this scenario for Vincenzo.

	Watching his coach	Wanting to compete at a high level
A.	attention	motivation
B.	retention	reinforcement
C.	attention	reinforcement
D.	retention	motivation

Question 20

Vincenzo is currently practising how to implement the new shooting technique. With reference to terminology related to neural plasticity, outline what would happen in Vincenzo's brain as he learns the new technique.

- A. Long term potentiation; neural pathways that have been damaged would be actively repairing themselves to help Vincenzo relearn how to shoot the ball.
- B. Sprouting; neural pathways would be adapting and reorganising connections to help Vincenzo shoot the ball.
- C. Pruning; in order to regain his ability to play, it's important that Vincenzo's brain actively eliminates unwanted neural networks to then enable him to learn new skills.
- D. Rerouting; his brain would be recreating and reorganising pathways with undamaged neurons to help him relearn how to shoot the ball.

Question 21

Farrah and Julia are worried about their sister Lailah who has recently been diagnosed with claustrophobia (fear of confined spaces). They are currently attending sessions with a psychologist to understand what claustrophobia is and the various ways that they can assist Lailah to manage day-to-day.

What is the evidence-based intervention that they are undertaking?

- A. Psychoeducation
- B. Breathing retraining
- C. Systematic desensitisation
- D. CBT

Question 22

Which of the following is correct?

	EMG	EOG
A.	Detects, amplifies and records the electrical activity of the brain	Electrodes are attached to the skin around the jaw and sometimes the legs
B.	Electrodes are attached to the skin around the jaw and sometimes the legs	Electrodes are attached to the scalp
C.	Detects, amplifies and records the electrical activity of the brain	Electrodes are attached to the skin around the eyes
D.	Electrodes are attached to the skin around the jaw and sometimes the legs	Electrodes are attached to the skin around the eyes

Question 23

A cognitive effect of sleep deprivation is

- A. lack of motivation.
- B. feeling annoyed.
- C. impulsive behaviour.
- D. irritability.

Question 24

All of the following are ways of undertaking cultural continuity except

- A. Elders teaching Songlines to other community members
- B. community members preserving rock art in their local area
- C. interviewing members in an Indigenous community to write down their collective knowledge about their language
- D. writing books about Indigenous histories from the perspective of non-Indigenous people

Question 25

Christina and Erika went to a 60th birthday party last night. On her way home, Christina used a breathalyser on herself and the BAC reading was 0.05%, and Erika was falling asleep in the car on the way home because she'd been awake for 24 hours without sleeping.

Which of the following is true?

- A. Christina's sleep deprivation would be similar to being awake for 24 hours without sleep
- B. Erika's sleep deprivation would be similar to having a BAC of 0.10%
- C. Christina's level of functioning is similar to someone who has been sleep deprived for 12 hours
- D. Erika's sleep deprivation would be similar to having a BAC of 0.05%

Question 26

Bright light therapy is a useful treatment for circadian rhythm sleep disorders. Which of the following is correct?

	DSPS	APSD
A.	Light exposure occurs early evening	Light exposure occurs early morning
B.	Light exposure occurs early morning	Light exposure occurs early evening
C.	Only daylight exposure for at least 2 hours each day	Light exposure occurs at 6pm each evening
D.	Light exposure occurs at 6pm each evening	Only daylight exposure for at least 2 hours each day

Question 27

All of the following are examples of ways to promote sleep hygiene except

- A.** avoid eating a big meal right before going to sleep.
- B.** having a room temperature of 18°C.
- C.** avoid exercising during the day.
- D.** having a regular bedtime routine.

Use the following information to answer questions 28-31.

Hannah went to a carnival when she was 10 years old with a group of friends. When they were walking around the carnival, there was this clown who jumped out of nowhere and gave Hannah and her friends a big scare. Hannah's heart rate increased immediately, and she could feel herself shaking. She turned to her friends, grabbed their arms and ran away from the clown.

For weeks after the carnival, Hannah felt really upset by what had happened. A year later, Hannah and her friends went to the carnival again, but as soon as Hannah saw the entrance to the carnival, she felt scared. Since then, Hannah told herself that she would never again put herself in a position where there is the possibility of seeing a clown, such as at kids' birthday parties, party shops or certain movies.

Question 28

The type of responses that Hannah experienced when the clown initially scared her and when she ran away from the clown are

	When the clown initially scared her	When she ran away from the clown
A.	Conscious response	Unconscious response
B.	Unconscious response	Unconscious response
C.	Conscious response	Conscious response
D.	Unconscious response	Conscious response

Question 29

Throughout the past couple of years, Hannah's phobia of clowns has become increasingly impactful on her day-to-day life. Which of the following statements is correct?

- A. Classical conditioning has acted as a precipitating biological factor in her phobia of clowns.
- B. Classical conditioning has acted as a precipitating psychological factor in her phobia of clowns.
- C. Operant conditioning has acted as a precipitating biological factor in her phobia of clowns.
- D. Operant conditioning has acted as a precipitating psychological factor in her phobia of clowns.

Question 30

Hannah's psychologist recommended some potential treatment options to Hannah. One of them involves Hannah challenging her current thought patterns about clowns. This type of treatment option is most likely

	Biological, psychological or social	Name of treatment
A.	Psychological	CBT
B.	Psychological	Systematic desensitisation
C.	Social	Psychoeducation to challenge unrealistic or anxious thoughts
D.	Social	Breathing retraining

Question 31

Hannah's friends Mimi and Chiara remember the carnival in detail, and while they were scared by the clown, they don't have the same persistent fear as Hannah. Which of the following best describes Hannah and her friends' responses?

	Hannah	Mimi	Chiara
A.	It is likely that Hannah has acquired a phobia of clowns since she has a persistent and irrational fear	Mimi could be described as experiencing stress during the initial encounter with the clown	Chiara sometimes experiences a phobia when thinking about going back to a carnival one day, but she perseveres and goes anyway
B.	Hannah could be described as experiencing stress during the initial encounter with the clown	It is likely that Mimi has acquired a phobia of clowns due to her persistent and irrational fear	Chiara is likely to have a phobia of clowns due to her avoidance of carnivals
C.	It is likely that Hannah has acquired a phobia of clowns since she has a persistent and irrational fear	Mimi could be described as experiencing acute stress during the initial encounter with the clown	Chiara sometimes experiences anxiety when thinking about going back to a carnival one day and seeing a clown
D.	Hannah could be described as experiencing anxiety when seeing a clown	Mimi sometimes experiences anxiety when thinking about going back to a carnival one day and seeing a clown	It is likely that Chiara has acquired a phobia of clowns due to her persistent and irrational fear

Question 32

Gio's friend recently passed away. Gio was sad initially but thought he would get over it quickly, so he was really surprised when he had been feeling flat for a number of weeks and was struggling with a lack of motivation. Which of the following best describes Gio's level of mental wellbeing at the moment?

- A. Mentally healthy
- B. Mental health problem
- C. Mental disorder
- D. Mentally fluctuating

Question 33

One of the key differences between non-Indigenous frameworks on mental wellbeing and Aboriginal and Torres Strait Islander people's social and emotional wellbeing framework is

- A. non-Indigenous frameworks include spirituality
- B. Aboriginal and Torres Strait Islander frameworks emphasise relationships and connection to culture
- C. both are considered holistic
- D. Aboriginal and Torres Strait Islander frameworks emphasise Country and history

Question 34

A group of researchers are really interested in learning more about the cultural significance of Country for Aboriginal Australians. Before conducting this research, the researchers would need to consider all of the following except

- A. respect by valuing the perspectives and opinions of those involved.
- B. using deception to ensure the results aren't biased.
- C. the language options given during informed consent.
- D. adhering to integrity by using Aboriginal Elders to inform the research process to make it more culturally responsive and appropriate.

Question 35

When conducting sleep studies, researchers should be aware of

- A. Random errors such as the EEG recording data from 30 minutes after sleep onset each time it is used.
- B. Systematic errors such as the researcher interpreting each stage of sleep for 5 minutes longer than it actually was.
- C. Personal errors such as the researcher not putting all of the electrodes from EOG machine onto the participant's face.
- D. No errors are likely to occur in sleep studies.

Question 36

A group of sleep researchers calculated the median number of minutes that teenagers were in each stage of sleep for. They most likely used the median because

- A. there was an outlier in the data.
- B. there was a small range of data points.
- C. there was a number that repeated several times throughout the data sets.
- D. there were not enough data points.

Question 37

Last year, Christine had a job promotion where her working hours increased to 60 hours per week instead of 40 hours per week. On top of this, Christine was kicked out of the house she was renting and had to stay with friends until she could find another place to live in. She has been sick for a few months and can't seem to shake the infection that she has. She feels exhausted and that she can't catch a break, and she has been telling this to her colleagues at work.

What stage of GAS is Christine most likely in?

- A. Alarm shock
- B. Alarm countershock
- C. Resistance
- D. Exhaustion

Question 38

The secretion of melatonin occurs via the following sequence

- A. Less light – suprachiasmatic nucleus sends inhibitory messages – pineal gland – inhibits release of melatonin
- B. More light – suprachiasmatic nucleus sends secretory messages – pineal gland – releases melatonin
- C. Less light – suprachiasmatic nucleus sends secretory messages – pineal gland – releases melatonin
- D. More light – suprachiasmatic nucleus sends secretory messages – pineal gland – inhibits melatonin

Question 39

While sleeping, Remi's body temperature is starting to drop, and she wakes up straight away when her brother drops his drink bottle in the bedroom next door. What stage of sleep is Remi most likely in?

- A. NREM Stage 1
- B. NREM Stage 2
- C. NREM Stage 3
- D. REM

Question 40

All of the following would be considered zeitgebers except

- A. light
- B. temperature
- C. eating patterns
- D. clothing

END OF SECTION A

Section B - Short Answer Questions**Instructions for Section B**

Answer **all** questions in the spaces provided.

Question 1 (8 marks)

Benny has been concerned about his memory as he has been forgetting appointments. Last week he forgot that he had started cooking dinner and was alerted to his burnt meal when the smoke alarm rang throughout his apartment. His nephew sometimes visits and is concerned about his memory too. After visiting the doctor, Benny is now undergoing a series of tests to determine whether he has Alzheimer's disease. When Benny and his nephew were visiting the doctor, they were offered the opportunity to take part in psychological research. The doctor had a colleague who was currently recruiting for an Alzheimer's study and thought that Benny might be a suitable participant.

- a. If a research team wanted to investigate Benny's condition explain how the ethical concept of beneficence would be upheld. 2 marks

- b. From the perspective of the participant, outline an advantage and disadvantage of being involved in a case study. 2 marks

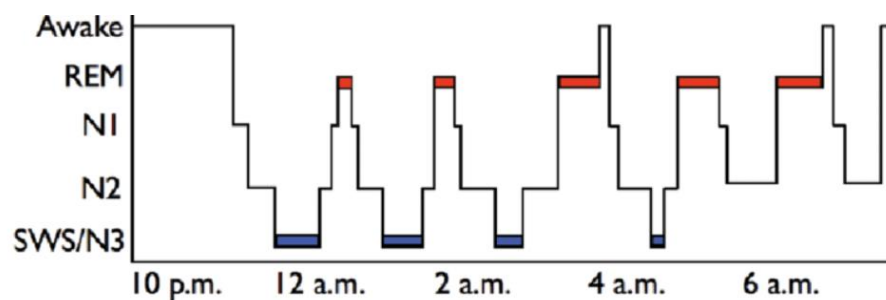
Advantage:

Disadvantage:

- c. As part of the case study, it was found that Benny had trouble constructing imagined futures. Using your knowledge of Alzheimer's disease and with reference to the relevant brain structures, outline why Benny would find this task difficult. 4 marks

Question 2 (7 marks)

Use the following hypnogram to answer the questions below.



- a. Identify whether this hypnogram is more likely to represent the sleep patterns of a young adult or an elderly person. Justify your response by referring to the information in the hypnogram. 2 marks

- b.** Explain the role of GABA by referring to the process of neurotransmission. 3 marks

- c.** Describe the type of data collected using hypnograms. 2 marks

Question 3 (10 marks)

As part of their folio of practical activities, Sofia and Victoria's teacher asked them to play musical chairs in a circle. They removed the tables from the classroom and then set up the chairs. They walked around the room, and then when the music stopped, they quickly found a chair. If they missed finding a chair they were out of the game and needed to sit on the side. After each round another chair was removed until a winner was found.

- a.** Outline an implicit and an explicit memory associated with this activity. Justify why these behaviours are implicit and explicit. 4 marks

- b.** Izzi had never played this game before and was eager to learn, however, she had broken her foot. With reference to observational learning, outline the most likely stage that would have prevented her from playing musical chairs. 2 marks

- c.** A week later their teacher played the same music as they entered the classroom. Many of the members of the class started laughing and smiling as they spoke about the game they played previously. Jackson shared with the class that the music was making his heart rate increase.

Name the behaviourists approach to learning that Jackson experienced and outline the three-phase process of conditioning that resulted in his heart rate increasing when he heard the music. 4 marks

Question 4 (8 marks)

A group of researchers investigated the influence of the gut microbiota on stress levels experienced by Year 12 students across their final year of secondary school.

Across a period of 10 months during Year 12, including Year 12 exams, researchers collected poo samples from 50 of the students each month, and then asked them to rank their level of stress on a scale from 1-10.

Table 1: Year 12 Gut Microbiota and Stress Levels across 10 months

	Gut Microbiota Levels	Mean Stress Levels (out of 10)
Month 1	90	5
Month 2	80	6
Month 3	76	7
Month 4	62	7
Month 5	53	8
Month 6	46	8
Month 7	34	8
Month 8	22	9
Month 9	20	9
Month 10	15	9

a. Identify the investigation methodology used in this study and provide one feature of this methodology. 2 marks

b. Explain the process of neurotransmission for a neuromodulator. 3 marks

c. Comment on the reproducibility of this study. 2 marks

d. State the trend in the data from this study. 1 mark

Question 5 (15 marks)

Researchers have developed a virtual reality app for smartphones to reduce phobias of spiders. They have conducted a controlled experiment to study its efficacy. 48 teenaged participants from Victoria were assigned to either the simulation group or the control group. Researchers used an allocation method where each participant had an equal chance of being allocated to either condition. The simulation group was required to complete an interactive program for two hours each week for five weeks. They were then timed to determine how long they would keep their hand in an enclosure with spiders.

	Number of seconds compared to pre-training levels	
	After 2 weeks	After 4 weeks
Simulation group	Increase in 53 seconds	Increase in 165 seconds
Control group	Increase in 7 seconds	Decrease in 20 seconds

a. Justify why this experiment used a mixed design methodology. 2 marks

b. Identify the allocation method used above and outline why researchers would have used this allocation method. 2 marks

c. The research implemented a simulation into the design, outline a strength and weakness of this methodology. 2 marks

- d.** The app helps participants to overcome their fear by using a fear hierarchy. Outline how a participant would overcome their fear using this psychological treatment. 4 marks

- e.** With reference to data, provide a conclusion for the study. 3 marks

- f.** The researchers are concerned about the wellbeing of the participants. In relation to the control group, outline why they might be particularly concerned about upholding non-maleficence. 2 marks

Question 6 (7 marks)

Rhea is a ballet dancer. She arrives at the studio early to ensure that she can dance from her favourite spot on the barre. As she arrives her teacher is putting up some new photos in the foyer. Rhea accidentally steps on a pin that was dropped. She instantly displays a spinal reflex.

- a.** Outline the process involved in her displaying a spinal reflex. 3 marks

- b.** As Rhea is dancing, her cerebellum and amygdala would have been activated. Outline how they could help her dance successfully. 2 marks

Cerebellum

Amygdala

- c.** Rhea loves dancing especially when it's busy at school, she finds that it's a great way to look after her mental wellbeing. However, she is also looking for other ways to enhance her wellbeing. Outline how she could use mindfulness meditation to enhance her mental wellbeing. 2 marks

Question 7 (8 marks)

Songlines are a significant cultural practice for Australia’s Aboriginal peoples.

- a.** Describe the significance of Country for Australia’s First Nations peoples. 2 marks

- b.** Compare and contrast the Multistore Model of Memory with Aboriginal understandings of Songlines and how they assist memory. 3 marks

- c.** Outline how Songlines contribute to cultural continuity for Australia’s Aboriginal peoples. 3 marks

Question 8 (7 marks)

Before starting Year 12, Asaf decided to go to a memory seminar. Asaf was taught many techniques that could help him consolidate his knowledge and achieve his potential.

The presenter suggested that Asaf reads the chapter of the topic they will be covering that week on the weekend prior to learning about it in class.

- a. Asaf implemented this suggestion and read about the upcoming topic over the weekend. With reference to the multistore model and the relevant stores and processes, outline how he learnt this information and was able to retrieve it in class the following week. 3 marks

- b. Over the term Asaf has increased his results across many assessments. One of the beneficial strategies he learnt was to set a 25-minute timer. He now works for 25 minutes without listening to music or looking at his phone and then has a 5-minute break. He is always happy when the alarm goes off. Outline how this strategy might result in negative reinforcement. 2 marks

- c. Outline one similarity and difference between positive and negative reinforcement. 2 marks

Similarity

Difference

Question 9 (10 marks)

Australian researchers have developed new sleep goggles called ‘BetterSleep’. These goggles are designed to optimise the amount of light that enters a person’s eyes based on their sleep cycles. The researchers were interested in investigating whether the BetterSleep goggles influence the quality of sleep that participants have.

The researchers are required to submit a detailed proposal of their study to an ethics committee to be approved before they are able to run the study. Their aim was to recruit 2000 university students from across Australia.

They submitted the two options below.

	Research Option #1	Research Option #2
Sampling technique	Random sampling	Stratified sampling
Allocation method	Non-random allocation	Random allocation
Experimental design	Mixed design	Between subjects
Sleeping location	Participants were required to sleep in a university sleep laboratory for a week of the study	Participants slept in their own bed for the duration of the study
Controlled variables	Timing of sleep onset Diet Medications	Timing of sleep onset Diet Medications
Measurements	EEG EOG	EMG Participant’s rating of their sleep quality

Write a report, as if you were one of the researchers, to the ethics committee to outline a hypothesis for this study and to evaluate the strengths and weaknesses of each research option. You should conclude your report by justifying which option you think would be most reproducible.

[illegible]

END OF TRIAL EXAMINATION

Extra space for responses.

Clearly number all responses in this space.

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This image shows a single sheet of white paper with horizontal ruling lines. The lines are evenly spaced and run across the width of the page. There are no margins, text, or other markings on the paper.