

2025 VCE Psychology external assessment report

Note: Student responses reproduced in this report have not been corrected for grammar, spelling or factual information.

This report provides sample answers or an indication of what answers may have included. Unless otherwise stated, these are not intended to be exemplary or complete responses.

The statistics in this report may be subject to rounding resulting in a total more or less than 100 per cent.

Section A

Grey shading indicates the correct response, bold text indicates the most commonly chosen answer.

Question	Correct answer	% A	% B	% C	% D	Comment
1	D	1	6	6	87	
2	B	9	65	9	18	
3	D	4	6	12	78	
4	A	57	4	7	33	This was an example of a spinal reflex. Option A was correct as spinal reflexes are unconscious survival responses that are initiated independently of the brain. Option D was incorrect because nervous system responses do not involve neurons themselves travelling. Rather, neurons (e.g. sensory neurons) carry/transmit the travelling neural messages.
5	C	9	10	76	5	
6	A	34	8	11	47	The study involved elements of both a between-subjects design (separate groups with experimental conditions and a control condition) and a within-subjects design (testing participants' gut microbiota and negative mood across time – both before and after the study). As such, comparisons could be made between groups, as well as within groups (across time). This was, therefore, a mixed design, making Option A correct. Option D was incorrect because this study did not solely employ a between-subjects design. Rather, a mixed design was used.
7	D	5	10	4	82	
8	A	35	4	53	7	Graph 2 demonstrates that the participants who consumed 30 g of dark chocolate (Group 3) had a greater percentage increase in gut microbiota diversity levels compared to participants who consumed 15 g of dark chocolate (Group 2) and participants who consumed no chocolate (Group 1). As such, conclusion 1 is a valid conclusion to draw, making Option A the correct option. Option C was incorrect because conclusion 2 is not an appropriate conclusion to draw, as conclusions are statements based on the results of a particular study.

Question	Correct answer	% A	% B	% C	% D	Comment
						Linking dark chocolate consumption to improved mood via the gut–brain axis refers instead to possible consequences or broader impacts of dark chocolate consumption, providing a foundation for future research on the gut–brain axis – thus making it an implication of the study findings, and not a conclusion.
9	B	20	74	3	4	
10	B	15	77	4	4	
11	D	2	18	20	59	
12	C	9	13	62	15	
13	C	0	28	36	36	<p>The behaviourist approach used in the study was classical conditioning. The outcome of the study was that ‘after many trials, the presence of a human had a calming effect on the cows’, meaning that ultimately, the presence of the human was the conditioned stimulus, and the calm feeling was the conditioned response. The goal of the study was for the human to become a calming cue for the cows.</p> <p>As such, the presence of a human was originally the neutral stimulus, which was paired with the calming music (unconditioned stimulus) during conditioning. Given that the neutral stimulus should be presented immediately before the unconditioned stimulus (as per classical conditioning principles), the presence of the human should directly precede the calming music – making Option C correct.</p> <p>Option D was incorrect because the unconditioned stimulus (calming music) should not be presented before the neutral stimulus (presence of a human), as per classical conditioning principles.</p>
14	C	8	18	58	15	
15	A	69	9	11	11	
16	C	8	4	83	5	
17	C	1	27	59	12	
18	B	9	50	18	23	<p>Option B was correct as yarning circles are an Indigenous Australian practice that is identified as a type of fieldwork (scientific investigation methodology) listed in the study design (page 14) that could be used to research Aboriginal and Torres Strait Islander ways of knowing.</p> <p>All other options were incorrect, as they were not scientific investigation methodologies that could be used in the research context provided.</p>
19	B	10	54	3	33	<p>Option D was incorrect, as literature reviews do not present new research. Rather, as per the study design, literature reviews involve ‘the collation and analysis of secondary data related to other people’s scientific findings and/or viewpoints in order to answer a question or provide background information to help explain observed events’ (page 14). Therefore Option B was correct.</p>
20	A	57	18	12	13	<p>In this scenario, the data gathered using the five-point scale would be quantitative data. This means that the data could be easily summarised, such as through measures of central tendencies (mean, median, mode). Because the questionnaire relies on self-report, participants’ responses could vary across time depending on mood, insight or current sleep patterns, reducing repeatability. This makes Option A correct.</p> <p>Option B was incorrect because the accuracy of data obtained through the</p>

Question	Correct answer	% A	% B	% C	% D	Comment
						questionnaire would not be high. A self-report questionnaire about sleepiness does not directly measure SDB (e.g. disordered breathing events, loud snoring, gasping), and objective measures like polysomnography would be required for accurate diagnosis.
21	B	7	68	10	15	
22	C	1	26	28	45	The study results showed that a night of partial sleep deprivation had an impact on <i>behavioural</i> measures of sleepiness (i.e. it had an impact on a person's behavioural functioning). Option B and Option D were therefore incorrect, as impaired decision-making and concentration are not behavioural effects of sleep deprivation. Higher percentage of eye closure is a behavioural effect of sleep deprivation, therefore Option C was correct.
23	D	18	2	9	71	
24	D	15	13	17	55	Option D was correct, as it outlined the most suitable comparison – given that the affective and cognitive effects of one night of full sleep deprivation are considered comparable to those associated with a blood alcohol concentration reading of 0.10 – and focused on mood (levels of emotional regulation). Options A and C were incorrect, as they focused on cognitive effects of sleep deprivation, which are not mood-related variables.
25	A	66	6	17	11	
26	B	17	66	4	12	
27	D	10	11	42	37	Option A was incorrect, as shift work is an external stressor, not an internal one. Option B was incorrect, as bright light therapy is used to shift circadian (not ultradian) rhythms, and shift work disrupts the circadian rhythm. Option C was incorrect, as it describes DSPS rather than shift work circadian rhythm disorder. Shift work disorder involves misalignment between work schedule and circadian rhythm, not a consistent delay. Option D was correct, as alternating day and night shifts continually disrupt the circadian rhythm, making sleep disorders more severe and noticeable, and therefore more likely to be diagnosed.
28	A	24	48	9	20	Option A was correct, because for night shift workers, 'evening' may actually be the start of their work period, not their sleep period. Therefore, sleep hygiene advice for night shift workers should be based on when they plan to sleep, not clock time. This means that 'avoid caffeine in the evening' would not be an effective sleep hygiene recommendation for night shift workers. All other options provide more effective recommendations to help support sleep hygiene. Option B supports adequate sleep opportunity despite unconventional schedules, and Option D reduces sleep disruption from waking to urinate.
29	B	24	43	10	23	Option A was incorrect as the SCN is located in the hypothalamus, not the pineal gland (the SCN regulates the pineal gland's release of melatonin). Option C was incorrect as the SCN is a brain structure, not part of the peripheral nervous system. Option D was incorrect as the SCN regulates circadian rhythms, not ultradian rhythms. Option B was correct, since light information is used to reset (entrain) the circadian rhythm approximately every 24 hours, keeping it aligned with the external light–dark cycle. As stated in VCE Psychology 2023–2027 – Frequently asked questions , students 'should understand that daylight is the main naturally

Question	Correct answer	% A	% B	% C	% D	Comment
						occurring zeitgeber that influences the functioning of the suprachiasmatic nucleus and that daylight allows the SCN to reset every 24 hours' (page 13).
30	C	15	9	60	16	
31	B	4	59	17	20	
32	D	2	2	34	61	
33	B	15	15	64	5	Option B was correct, as the evaluation found a strong correlation between self-determination and improved mental wellbeing. A correlation shows that two variables are related, but it does not establish causation. Therefore, the evidence supports statement 2: 'There is a relationship between self-determination and mental wellbeing.' The evidence does not support statements 1 and 3 because cause-and-effect relationships cannot be concluded from correlational data. Other factors (e.g. community engagement, cultural safety, program delivery) may also explain the relationship, making Option B the only correct response.
34	C	4	1	88	6	
35	C	12	11	67	10	
36	A	78	3	8	10	
37	D	1	4	8	88	
38	C	1	2	88	8	
39	B	8	75	9	7	
40	D	9	8	19	64	

Section B

Question 1a.i.

Marks	0	1	2	Average
%	7	16	77	1.7

To be awarded full marks, students were required to provide a relevant example of a conscious response and a relevant example of an unconscious response relating to high-temperature environment.

Examples of a conscious response included:

- moving under shade, moving to a cooler location
- taking off a jumper, putting on a hat, putting on sunglasses
- any conscious decision that is made by the brain.

Examples of an unconscious response included:

- pupils dilating
- sweating
- blood pressure increasing
- heart rate increasing
- breathing rate increasing.

Common errors included:

- listing a physiological response without change (e.g. heart rate) unless inherently directional (e.g. sweating)
- mislabelling autonomic responses like sweating as spinal reflexes. Thermoregulation is mediated by the brain and is not a spinal reflex.

Question 1a.ii.

Marks	0	1	2	Average
%	39	41	19	0.8

To be awarded full marks, students were required to outline the role of one subdivision of the central nervous system (CNS) and one subdivision of the peripheral nervous system (PNS) in coordinating the unconscious response provided in Question 1a.i.

High-scoring responses:

- identified a CNS structure (brain or spinal cord) and described its role in processing sensory information and coordinating an autonomic response
- identified a PNS subdivision (somatic, autonomic or sympathetic nervous system) and correctly described a role, such as activating sweat glands or causing vasodilation. If somatic nervous system was named, a suitable role was carrying sensory information of high temperature from the thermoreceptors to the brain.

Common errors included:

- naming subdivisions without describing their functions
- ambiguous use of 'SNS' without clarifying whether the abbreviation stood for 'sympathetic nervous system' or 'somatic nervous system'
- incorrect reference to spinal reflexes when discussing autonomic thermoregulation.

The following is an example of a high-scoring response:

The brain is a subdivision of the CNS that interprets from sensory information that the temperature is high and initiates an unconscious response of sweating. As an automatic response, the autonomic nervous system is the branch of the peripheral nervous system that co-ordinates this response.

Question 1b.

Marks	0	1	2	Average
%	41	39	20	0.8

To be awarded full marks, students were expected to provide two congruent differences between neurotransmitters and neuromodulators (i.e. each difference needed to compare the same feature for both, such as speed of action or range of effect).

Accepted contrasts included any two of the following:

- Neurotransmitters transmit across a synapse whereas neuromodulators transmit across larger areas of tissue.
- Neurotransmitters have a direct effect on their target cell/receptors whereas neuromodulators can indirectly influence multiple receptors.
- Neurotransmitters generally have shorter effects compared to neuromodulators which have long-lasting effects.
- Neurotransmitters initiate a specific inhibitory or excitatory response whereas neuromodulators modulate/regulate neural activity.

High-scoring responses clearly related contrasts to function and extent of action, making distinctions in method of effect and impact duration.

Common errors included:

- presenting features of only one chemical type without contrasting it with the other (e.g. stating only neurotransmitter features)
- providing two facts that were not congruent (e.g. comparing medium of action for one and duration for the other)
- repeating synonyms rather than providing distinct differences.

Students should be familiar with the specific requirements of the command terms that may appear in the VCE Psychology examination. Refer to the [VCAA Glossary of command terms](#) for more information.

Question 2a.

Marks	0	1	Average
%	50	50	0.5

Possible responses included:

- produces/contributes to the regulation of neurochemicals (e.g. serotonin, GABA)
- supports/maintains gut health
- aids with digestion
- increase/support immune function.

A common error was providing a general description of the gut–brain axis (GBA) as opposed to the gut microbiota.

Students should also be aware that when only one answer is required, only the first answer is assessed if more than one is provided.

Question 2b.

Marks	0	1	2	Average
%	31	41	28	1.0

To be awarded full marks, students were required to make reference both to a biological change (brain atrophy/shrinkage, neural degeneration, neuronal death) that occurs in Alzheimer's disease, and a brain region involved in the retrieval of autobiographical events (hippocampus or neocortex).

High-scoring responses explicitly outlined the negative impact of the identified biological change(s) on the retrieval of explicit memories.

The following is an example of a high-scoring response:

Alzheimer's disease results in progressive neural degeneration in brain areas involved in memory, like the hippocampus. Since the hippocampus is involved in the retrieval of explicit memories, the disease makes it difficult for individuals to access personal past autobiographical events.

Question 2c.i.

Marks	0	1	2	3	Average
%	66	22	10	3	0.5

This question was generally not well answered. To be awarded full marks, students were required to demonstrate knowledge of a controlled experiment and correlational study in the context given, and provide reasoning why a correlational study would be a more ethically appropriate investigation methodology.

High-scoring responses clearly distinguished between a controlled experiment, which would involve manipulating the independent variable of antibiotic use (e.g. assigning participants to an 'antibiotics' condition or a 'no antibiotics' condition), and a correlational study, which would not involve this manipulation.

Accepted reasons why a correlational study would be more ethically appropriate than a controlled experiment included:

- Participants could continue to take an antibiotic medication they are already on or may need.
- It would not involve giving antibiotics to people who may not need them (which may have negative effects).
- It would support the ethical concept of respect, as it would minimise the risks for a vulnerable population of people with Alzheimer's disease who may not be able to understand the possible risks associated with taking a new medication.
- It would support the ethical concept of beneficence, as it would minimise the risks/harms of giving people antibiotics they may not need.

Students are reminded to respond directly to the specific question being asked. Some lower-scoring responses explained possible ethical issues of a controlled experiment rather than why a correlational study may be a more ethical scientific investigation methodology in this context.

Other common errors included inaccurate descriptions of what the two scientific investigation methodologies involve (e.g. stating that correlational studies assess the cause-and-effect relationship between variables).

Students should be familiar with the scientific investigation methodologies relevant for VCE Psychology (refer to page 14 of the [VCE Psychology Study Design](#), which provides an overview of each methodology).

Question 2c.ii.

Marks	0	1	Average
%	93	7	0.1

This question was generally not well answered. Students were required to identify the population from which a sample would need to be sourced for this correlational study as people with Alzheimer's disease who are taking antibiotics.

A very common error was identifying the population as simply 'people with Alzheimer's disease'.

It is important for students to be able to recognise that the target population for a correlational study must include all characteristics required to measure the variables of interest – in this case, both Alzheimer's disease and antibiotic use. It is also important that students are provided with opportunities throughout the year to apply key science skills to unfamiliar contexts and a variety of scientific investigations methodologies relevant for VCE Psychology.

Question 2d.

Marks	0	1	2	Average
%	33	48	19	0.9

Accepted evidence from brain imaging included:

- neural atrophy
- brain shrinkage
- decreased neural volume
- decreased/changes in neural activity in brain regions known to involve explicit memory
- presence of (amyloid) plaques and/or (neurofibrillary) tangles.

High-scoring responses clearly outlined what changes would be observed over time to indicate disease progression.

A common error was excluding reference to tracking data across time. Students are reminded to read questions carefully and craft responses that directly address all elements of a question.

The following is an example of a high-scoring response:

Brain imaging could show amyloid plaques and neurofibrillary tangles. By comparing scans taken at multiple time points researchers can track the increase of plaques and tangle over time, indicating the progression of Alzheimer's disease.

Question 3a.

Marks	0	1	2	Average
%	31	47	22	0.9

Students were asked to identify two limitations of the provided student's model. They were required to focus on what was visually inaccurate or omitted from the model, not provide general knowledge of sleep.

Accepted limitations included any two of:

- inaccurate representation of the time spent in each sleep stage
- no indication of how the proportion of REM and NREM changes over the night
- implication that stages cycle in a strict linear sequence
- absence of awakening periods
- lack of distinction in sleep patterns between younger and older adults
- inaccuracies such as REM always following NREM3
- that the model assumes continuous, uninterrupted sleep cycles.

Responses that provided separate statements for REM and NREM that represented only one limitation were only eligible for one mark.

Other common errors included:

- listing sleep facts without linking them to errors or omissions in the model itself
- describing correct features of sleep (e.g. that REM occurs more later) without linking these to the model's inaccuracy.

Question 3b.

Marks	0	1	2	3	4	Average
%	27	18	23	16	17	1.8

To be awarded full marks, students needed to name an appropriate device, outline what it measures and describe how this could be used to support aspects of the student's model.

Accepted devices included:

- EEG measuring electrical brain activity
- EOG measuring electrical activity of muscles controlling eye movement
- EMG measuring electrical activity of muscles
- EKG/ECG measuring electrical activity of the heart
- heart rate monitor measuring beats per minute or how fast the heart is beating.

Reference to the measurement of electrical activity was required for the EEG, EOG and EMG, and ECG/EKG, but not for a heart rate monitor.

Accepted descriptions of how the selected physiological measure could be used to support aspects of the student's model included:

- how the measure will show when the adult is in REM
- how the measure will show when the adult is in NREM
- how the measure can verify the number of sleep episodes
- how the measure can verify the order of the sleep stages
- how the measure can verify the proportion of time spent in sleep stages.

Where an EEG was identified, described and used to support aspects of the student's model, any correct description of a change in EEG-measured brain activity between REM and NREM sleep was accepted. Reference to specific brain waves was not required, although many students chose to include them in their responses.

Common errors included:

- naming a measure without describing how it would show differences in the model (e.g. stating that EEG shows REM without specifying how)
- describing typical sleep features without linking them to what the model represents
- using vague phrases such as 'records eye movement' without specifying rapid versus slow or absent movement
- providing no link to the model itself and/or general statements of how the physiological measure could be used.

The following is an example of a high-scoring response:

One physiological measure is an EEG, which is a device that detects, amplifies and records the electrical activity of the brain, as measured in brain waves. REM sleep is characterised by high electrical activity (low amplitude, high frequency brainwaves) whilst NREM sleep is characterised by lower levels of electrical activity. NREM-1 (low-medium amplitude & high frequency), NREM-2 (medium-high amplitude, medium-low frequency brainwaves) and NREM-3 has high amplitude, low frequency brain waves. Given the frequency and amplitude of the brainwaves, the student can determine when each individual is in each phase of the sleep cycle, for how long and for what proportion, enabling them to support their model.

Question 3c.

Marks	0	1	2	Average
%	34	49	17	0.9

Accepted reasons why sleep is characterised as an altered state of consciousness included any two of:

- reduced levels of awareness
- reduced content limitations/lack of control over thoughts
- occurrence of perceptual and cognitive distortions
- reduced/lack of emotional awareness
- lack of self-control
- lack of time orientation
- reduced responsiveness to internal and external stimuli.

A common error was including generic statements, such as 'you are less aware' or 'dreaming occurs', without providing a measurable change.

The following is an example of a high-scoring response:

Sleep is considered an altered state of consciousness as those who are asleep are not aware of the passage of time passing or aware of their environment around them, which those in a NWC are.

Question 3d.

Marks	0	1	2	Average
%	18	45	37	1.2

Accepted changes to the model included any two of:

- a bigger proportion of REM (40–50%) or smaller proportion of NREM (50–60%)
- inserting awakenings into the cycle / showing frequent awakening
- moving the start to 'REM' / sleep beginning in REM
- a reference to more sleep cycles
- no defined cycles / displaying irregular cycles
- reference to more than one sleep episode.

Common errors included:

- simply stating that infants sleep longer without proposing a change to the diagram
- providing general facts about infant sleep patterns without explaining how the model's structure would need to be altered to reflect those differences.

Question 4a.

Marks	0	1	2	Average
%	37	29	34	1.0

To be awarded full marks, students were required to explicitly name 'support' (from family, friends and/or community) as the social protective factor, and provide a brief description of what support from family, friends and/or community involves.

Responses could include the following points:

- having trusted people to talk to
- receiving encouragement during difficult times
- feeling connected to others through reliable relationships
- having a supportive network that can assist an individual to overcome challenges without feeling overwhelmed
- ability to seek help to protect from the occurrence or re-occurrence of mental disorders
- providing help to develop and maintain resilience
- a description of what 'authentic' or 'energising' support would look like.

High-scoring responses described how supportive behaviours can be used to increase a person's coping ability or resilience.

Common errors included:

- referring to psychoeducation, which was already provided in the question stem and is not a social protective factor of mental wellbeing.
- describing actions such as teaching coping strategies or correcting negative thoughts, which represent psychoeducation rather than social support.

The following is an example of a high-scoring response:

The social protective factor is support from family and friends. When family and friends provide support that is energising and authentic, this enables individuals with a network they can rely on to facilitate resilience and maintain high levels of functioning.

Question 4b.

Marks	0	1	2	Average
%	30	36	35	1.1

To be awarded full marks, students needed to include the term 'stigma' in their response and describe the feeling of shame/embarrassment/disgrace associated with having a specific phobia that may prevent people from seeking help (from a psychologist).

When considering how stigma, around seeking treatment, contributes to the development of a specific phobia, it is advised that students understand how emotion mediates behaviour, i.e. stigma → shame → avoidance of seeking treatment → maintenance of specific phobia.

High-scoring responses stated that stigma produces shame/embarrassment, reducing help-seeking and therefore maintaining the phobia.

Common errors included naming stigma without referencing its internal emotional effect (e.g. shame) and subsequent reluctance to seek treatment.

The following is an example of a high-scoring response:

Stigma, which involves those with a phobia from avoiding treatment, as they are afraid they will be judged or ostracised for having a phobia. This is a perpetuating factor that contributes to phobia development.

Question 4c.

Marks	0	1	2	3	Average
%	34	32	30	4	1.1

Accepted responses included:

Attention:

- Actively watches the family member avoid a phobic stimulus *and* the relief/reduction in anxiety (consequence).

Reproduction:

- Person has the physical/psychological capability to also avoid the stimulus.

Reinforcement (any one of the following):

- Might be (positively) reinforced by the family member with praise.
- Might be (negatively) reinforced when the fear response is removed.
- Might receive vicarious reinforcement from watching family member/friend feel relieved.
- The removal anxiety/fear response makes them more likely to avoid the stimulus in the future.

Common errors included:

- mentioning behaviour without consequence when describing attention
- naming positive reinforcement while describing relief (negative reinforcement).

The following is an example of a high-scoring response:

Attention: The individual would closely observe the model as they interact with the phobic stimulus and any consequences they incur such as negative reinforcement of relief.

Reproduction: The individual must be physically and cognitively able to avoid the phobic stimulus – e.g. if the phobic stimulus is a dog, they must be able to run away or distance themselves from it.

Reinforcement: The individual's avoidance behaviour must be negatively reinforced through the removal of an unpleasant stimulus, increasing the likelihood of it recurring in the future.

Question 4d.i.

Marks	0	1	2	Average
%	21	44	35	1.2

To be awarded full marks, students were required to describe catastrophic thinking (a cognitive style involving predicting or imagining the worst possible outcome).

The description needed to be future-oriented to avoid overlap with memory bias, which relates to the past. Responses also needed to state that catastrophic thinking can maintain/perpetuate/continue/worsen a person's fear/anxiety or behaviours associated with the phobic stimulus, or that it involves the process of long-term potentiation (LTP) / strengthening of the phobic response.

A common error was to state that catastrophic thinking causes a phobia rather than perpetuates/maintains/worsens it.

Question 4d.ii.

Marks	0	1	Average
%	34	66	0.7

The only correct and acceptable response was 'memory bias'.

Question 4e.

Marks	0	1	Average
%	14	86	0.9

The only acceptable response was 'positive reinforcement' (as praise was added to strengthen the likelihood of the behaviour reoccurring).

Some responses incorrectly provided the answer of negative reinforcement based solely on relief, rather than the stimulus provided in the scenario (praise).

Question 5a.

Marks	0	1	Average
%	14	86	0.9

Students were required to clearly distinguish between acute stress and chronic stress, in terms of their duration.

The most common error was incorrectly identifying acute and/or chronic stress as *stressors*, rather than forms or types of stress.

The following is an example of a successful response:

Acute stress occurs for a short duration of time, while chronic stress is long-lasting.

Question 5b.

Marks	0	1	Average
%	43	57	0.6

Accepted responses included:

- Cortisol is released according to the body's internal 24-hour clock.
- Cortisol follows a daily biological rhythm that repeats every 24 hours.
- Cortisol levels fluctuate over the course of each day in a predictable pattern.
- Cortisol secretion changes across the day, following a daily rhythm.

Common errors included stating that:

- cortisol is only released once per day
- cortisol is only released in the morning
- cortisol release is a type of sleep–wake cycle.

Question 5c.

Marks	0	1	2	Average
%	46	38	15	0.7

Accepted suggestions included:

- Service animals provide veterans with an opportunity for social interaction.
- The presence of the animal could increase veterans' confidence.
- Service animals could provide a calming presence for the veterans.
- Service animals act as a source of support and comfort for the veterans.

High-scoring responses outlined a link between the provided suggestion and improvement in resilience.

The [VCE Psychology Study Design](#) defines resilience as 'the ability to cope with and manage change and uncertainty' (page 40). A common error was inaccurately referring to resilience as a *strategy* for coping with stress or a *response* to stress.

Students are reminded to respond directly to the question being asked – including providing a suggestion when a question asks for one. Lower-scoring responses often did not clearly outline a suggestion for *how* service animals could support the mental wellbeing of military veterans.

The following is an example of a high-scoring response:

Resilience involves being able to cope and adapt during change or adversity. A service animal can provide emotional support and a calming presence, helping veterans manage uncertainty and bounce back from challenges they may face.

Question 5d.

Marks	0	1	2	Average
%	18	38	43	1.3

Accepted strengths included one of:

- increases internal validity
- increases accuracy of results
- minimises extraneous variables.

Accepted limitations included one of:

- decreases external validity
- laboratory setting does not reflect the real world/everyday stressors the veterans may face
- may cause participants stress which may impact cortisol levels (decreasing internal validity).

The most common error was suggesting a general strength and/or limitation of the investigation that was not directly related to the concept of validity.

Question 5e.

Marks	0	1	2	Average
%	53	7	40	0.9

To be awarded full marks, students were required to identify operant conditioning as the behaviourist approach to learning that was used in the animal training and provide a justification for this.

Accepted justifications included:

- The learner is active/not passive.
- The behaviour performed by the animals is voluntary.
- A consequence (e.g. a dog treat) can be provided during training following the desired behaviour.

Common errors included identification of other (not behaviourist) approaches to learning (e.g. observational learning), or incorrectly identifying classical conditioning as the approach used.

It is important that students can accurately identify and clearly describe the behaviourist approaches to learning (classical conditioning and operant conditioning) listed in the study design.

Question 6a.

Marks	0	1	Average
%	21	79	0.8

Students were required to propose one recommendation about caffeinated beverage intake that would improve the sleep quality of long-distance runners.

Accepted responses referred to consuming less than one cup per day or drinking less/no coffee/caffeinated beverages to improve sleep.

It was not necessary to specifically use the word 'caffeine'; the word 'coffee' was also acceptable. Responses did not need to refer to the data provided.

Question 6b.

Marks	0	1	2	Average
%	28	20	52	1.3

To be awarded full marks, students were required to identify 1–2 servings per day as the serving size for fruits with the highest precision in the ASBQ scores, and then justify their choice by explaining that this group had the smallest standard deviation in the data table.

It was not enough to only quote the mean or the standard deviation value when justifying their choice. Students needed to show they understood that this value was the smallest compared to the other standard deviations.

Common errors included referring to the mean data, not the standard deviation value for the justification, or simply stating what the standard deviation was.

Question 6c.

Marks	0	1	2	Average
%	43	26	31	0.9

Accepted affective effects included any one of:

- may be more irritable towards other competitors
- may feel sad about their running performance
- reduced motivation to run or to win (in terms of low mood).

Accepted cognitive effects included any one of:

- may have a reduced ability to make decisions about running/performance under stress
- may make poor decisions during a close race
- may experience illogical or irrational thoughts, meaning they may not believe in their abilities to successfully complete a race
- low self-efficacy
- reduced motivation to run or to win (in terms of decision-making/goal-directed thinking).

Common errors included not linking the affective and/or cognitive effect to the performance of long-distance runners. It is important where a context or scenario is provided that students link their response to this context/scenario.

Note: 'reduced motivation' was accepted as the outcome on performance for either an affective or cognitive effect listed, but was not accepted as the named effect for both.

The following is an example of a high-scoring response:

Affective: increased emotional reactivity – the runners may be more susceptible to increased feelings of fear or stress before the race, negatively affecting their running performance.

Cognitive: decreased ability to think logically. Runners may not be able to logically pace themselves throughout the race negatively affecting their running performance.

Question 6d.

Marks	0	1	2	3	Average
%	16	25	33	26	1.7

To be awarded full marks, students needed to:

- refer to zeitgebers as external environmental cues that regulate circadian rhythms
- recommend that meals should not be consumed close to desired sleep time
- explain why this recommendation helps sleep, such as that it:
 - reduces digestive disruption to NREM3 sleep
 - supports melatonin release at the appropriate time
 - prevents circadian phase delays
 - ensures alignment between circadian rhythm and desired bedtime
 - stabilises energy availability for sleep rather than wakefulness
 - prevents the SCN from inhibiting the release of melatonin at an inappropriate time.

Common errors included giving generic nutritional advice without referring to zeitgebers or circadian rhythm regulation; suggesting meals provide energy for sleep; and not explaining why timing affects sleep, only stating that it does.

The following is an example of a high-scoring response:

Zeitgebers are external time cues that help to regulate the sleep–wake cycle. Runners should avoid eating large meals or snacking before sleep as this stimulates digestion, delaying sleep onset. Runners should avoid eating in the close hours before bedtime to promote sleep onset and reduce digestive disruption to improve sleep quality and quantity.

Question 6e.

Marks	0	1	2	3	Average
%	12	20	26	42	2.0

Students were required to predict the impact on ASBQ score of frequent electronic device use before bed and justify the prediction.

To be awarded full marks, students were expected to:

- predict that ASBQ score will increase (worsen)
- provide a justification for this change, referring to the effect of electronic device use on sleep through melatonin suppression or disrupted sleep onset
- explain that a disrupted sleep onset leads to poor sleep quality, or a decrease in sleep quality, or reduced restorative sleep.

Common errors included:

- not referring to the ASBQ score at all
- confusing the ASBQ direction, predicting scores would decrease
- describing the effects of device use without clearly linking them to sleep quality.

The following is an example of a high-scoring response:

Frequently using devices before going to bed is likely to increase the mean ASBQ score. This is because when light from device is received by the SCN, it signals to the pineal gland to inhibit the release of melatonin (sleep hormone responsible for drowsiness), increasing wakefulness. Hence, individuals who use electronic devices before going to bed are likely to be more alert later at night, decreasing sleep onset and leading to a reduced self-reported sleep quality.

Question 7a.

Marks	0	1	2	3	Average
%	11	20	20	50	2.1

Students were required to write a hypothesis for the given experiment, including the independent and dependent variable and a clear direction. This question was generally well answered.

To be awarded full marks, both levels of the independent variable were required in the hypothesis, and the dependent variable needed to refer to the severity of stress appraisals. Either direction (lower or higher severity of stress appraisals) was accepted.

Lower-scoring responses were typically not phrased as a hypothesis with a clear prediction.

The following is an example of a high-scoring response:

It is hypothesised that students who are aware of Lazarus and Folkman's Transactional Model of Stress and Coping will appraise the stressful situation as less stressful compared to students who haven't learned about this model.

Question 7b.

Marks	0	1	Average
%	39	61	0.6

As the stem of the question already identified the situation as 'stressful', 'challenge' was the only primary appraisal accepted.

Question 7c.

Marks	0	1	2	Average
%	48	36	16	0.7

To be awarded full marks, responses needed to demonstrate an understanding that *deception* had been used in this experiment, and provide a clear, justified assessment on whether this constitutes an ethical breach. Both directions of the assessment (yes or no) were accepted if clear justification was provided.

The following are examples of high-scoring responses.

Example 1:

This would not breach ethical guidelines if participants are debriefed after the study and given contact numbers to support services. This is because the study needed to use deception and hide the true aim in order to get honest answers from participants.

Example 2:

Deception was necessary in this experiment to get accurate participant data. This breaches ethical guidelines because Arlo did not do debriefing after the study.

Question 7d.i.

Marks	0	1	Average
%	81	19	0.2

This question was generally not well answered. Students were required to outline a clear benefit of using a between-subjects design for this experiment (i.e. a reason why a between-subjects design is preferable over other experimental designs).

Accepted responses included any one of:

- time efficient because both groups can be tested at the same time
- lower rate of participant withdrawal because participants only complete one condition
- no effect of prior participation influencing results because participants are only participating in one group.

Common errors included:

- simply stating a feature of a between-subjects design (e.g. ability to compare results of an experimental and control group)
- simply stating a general strength of a between-subjects design (e.g. time efficient) without outlining how this is beneficial.

Question 7d.ii.

Marks	0	1	2	3	Average
%	36	12	16	36	1.5

To be awarded full marks, students needed to:

- demonstrate an understanding of within-subjects design by stating that this would involve using the same participants in both conditions
- demonstrate an understanding of the aim of this experiment by stating that the control condition must be administered first/before the experimental condition
- demonstrate an understanding of how a within-subjects design would be applied in the specific context of this experiment, for example, explaining that researchers would need to take the time to teach participants the model, or use two different scenarios for the control and experimental condition.

Students are reminded to familiarise themselves with the [VCAA Glossary of command terms](#); 'summarise' requires a concise account of relevant and major details of one or more methodologies, processes, outcomes and/or sequences of events.

The following is an example of a high-scoring response:

Within-subjects designs are when participants are exposed to both conditions of the experiment. In this experiment, the sample would be made up of students who are unfamiliar with the Lazarus & Folkman model (L&F). Participants would undergo the first condition, where they appraise a scenario and their responses are recorded. Then, they would be taught the L&F model and undergo the second condition, where they appraise another scenario, now with the knowledge of the model. Researchers can compare these results.

Question 8

Marks	0	1	2	3	4	5	Average
%	14	14	20	26	15	12	2.5

To be awarded full marks, students were required to (in any order):

- demonstrate an understanding of long-term potentiation as the strengthening of the neural pathways due to repeated co-activation
- demonstrate an understanding of long-term depression as the weakening of the neural pathways due to low levels of stimulation/firing
- make accurate reference to sprouting and/or rerouting as the mechanism (physical modification/change) involved in long-term potentiation
- make accurate reference to pruning as the mechanism (physical modification/change) involved in long-term depression
- demonstrate an understanding of how long-term potentiation and long-term depression ‘work together’ to modify neural connections for holding a pencil, such as:
 - by increasing the efficiency of neural connections for holding a pencil
 - long-term depression occurring for the old/inaccurate/basic grip to allow for/simultaneously with long-term potentiation of the new/accurate/advanced grip
 - pruning occurring for neural connection for the old/inaccurate/basic grip to allow for/simultaneously with sprouting of the neural connection for the new/accurate/advanced grip.

Students could access a maximum of four marks (out of a possible five) if their answer was generic/non-contextual and did not mention the pencil-holding scenario.

A common error was explaining that ‘working together’ meant that the new grip would simply replace the old grip, rather than explaining *how* this process happens at a neural level with reference to psychological terminology. Another common error was stating that long-term depression involves *no* stimulation/neural firing, which is inaccurate.

The following is an example of a high-scoring response:

As a child learns to hold a pencil, long-term potentiation (LTP) strengthens the neural pathways involved in the new grip through the repeated co-activation of these pathways each time the child practices their grip. This involves sprouting, where new synaptic connections form to support the new hand movements needed for pencil gripping.

Long-term depression (LTD) weakens neural pathways that are involved in incorrect grips due to low levels of activation (child not using the incorrect grip as often), leading to pruning of those connections. LTP and LTD work together by weakening the old pathways for holding a pencil (LTD) while at the same time, strengthening the connections for the correct pencil grip (LTP), so the child can learn how to hold their pencil much better.

Question 9

Marks	0	1	2	3	4	5	6	7	8	9	10	Average
%	8	5	7	10	13	15	14	13	8	5	2	4.8

The extended-response question was assessed holistically using the assessment criteria published in the [VCE Psychology Examination specifications](#) (also published at the end of the examination on page 35).

The assessment criteria are:

- identification and explanation of appropriate psychological terminology in novel and unfamiliar contexts
- analysis and discussion of relevant psychological information, ideas and/or concepts and the connections between them
- analysis and evaluation of data, and/or scientific methodologies and methods, and/or models, and/or theories
- construction of evidence-based arguments and/or drawing of conclusions and/or discussion of implications and findings.

Students were required to compare mnemonics (method of loci and songlines) using the provided diagram and evaluate the ability of a person with aphantasia to use each method.

This question rewarded reasoning rather than long narrative writing.

High-scoring responses demonstrated clear use of psychological terminology, strong comparative analysis, explicit reference to the diagram, and justified evaluative reasoning. Responses using paired comparisons, direct quotes and because-statements often scored highly.

To be awarded a high or very high score, responses needed to:

- correctly use key terminology
- explicitly reference details from the provided diagram
- describe similarities and differences between the two mnemonics, including at least one detailed similarity and one detailed difference
- draw justified evaluations about the suitability of each mnemonic for people with aphantasia, using because-statements linked to cognitive processes.

The following sections outline each assessment criterion in relation to this year's question.

Criterion 1: Identification and explanation of appropriate psychological terminology in novel and unfamiliar contexts

High-scoring responses correctly integrated terminology such as 'method of loci', 'songlines', 'mnemonic device', 'aphantasia', 'encoding', 'retrieval', 'retrieval cues', 'narrative structure', 'spatial memory', 'hippocampus' and 'oral cultural knowledge'. Applying correct terminology allowed students to explain how both mnemonics aid encoding, storage and sequential retrieval.

Common errors in addressing this criterion included:

- only defining terms rather than using them functionally (e.g. defining 'mnemonic' but not applying it)
- using vague phrasing such as 'memory trick' instead of 'mnemonic device'
- incorrectly stating that 'aphantasia' means an inability to imagine, instead of difficulty forming mental imagery in the mind's eye.

The following is an example of a high-scoring response incorporating the first criterion:

Mnemonics are strategies aimed to enhance the encoding, storage and retrieval of information. Encoding includes converting information from the world into a suitable form to be processed, storage refers to holding memories in long-term memory, and retrieval refers to bringing stored memories into conscious awareness. Aphantasia is a phenomenon where individuals are unable to form or imagine mental imagery.

The method of loci is a mnemonic that involves an imagined route (step 1 – making a memory palace). They then imagine how they would walk through the route (step 2 – creating a path). They would then associate information with landmarks in the route in the order they want to retrieve it (step 3 – encoding the list). They would then use these associations as retrieval cues and remember as they imagine walking through the route (step 4 – recalling the list). Songlines are multimodal performances conducted by First Nations peoples and communities, typically on Country or spaces in the landscape that record a journey. They can link significant sites and describe how to live, care for and nurture Country.

Criterion 2: Analysis and discussion of relevant psychological information, ideas and/or concepts and the connections between them

This criterion required students to compare the mnemonics referred to in the question, considering similarities and differences between the two. High-scoring responses included at least one detailed similarity and one detailed difference.

Accepted similarities included:

- Both mnemonics use spatial/geographical cues paired with other information, aiding sequential retrieval as the person travels mentally through locations.
- Both mnemonics involve narrative or vivid associative elements that strengthen encoding by increasing meaning.

Accepted differences included:

- Method of loci relies heavily on visual mental imagery to encode items at imagined locations, whereas songlines are multimodal, using music, rhythm, movement and story performance, allowing encoding without relying solely on imagery.
- Songlines transmit cultural knowledge deeply tied to Country, whereas method of loci typically uses familiar but less culturally meaningful locations, reducing emotional salience. Emotional significance can enhance encoding and retrieval.

Common errors in addressing this criterion included:

- listing general statements without elaboration (e.g. that they both use 'place')
- repeating similarities as differences (e.g. stating that songlines use place differently without specifying how)
- comparing content (e.g. Aboriginal culture versus palaces) rather than mnemonic processes.

The following is an example of a high-scoring response incorporating the second criterion:

The method of loci and songlines both place emphasis on mapping navigational routes and using associations with landmarks and information to enhancing encoding and retrieval. They can also both allow for information to be retrieved in sequential order. However, Aboriginal peoples' use of songlines is deeply rooted in culture and connection to Country, the traditional land of language and cultural groups that consider both geographical locations, and the social and emotional connections to and with it. The method of loci does not involve such cultural connection.

Method of loci is often a mnemonic that one conducts themselves, whereas songlines are communal and collaborative, and include singing songs and sharing stories of emotional significance. This enhances the strength of encoding the stories. Furthermore, the musical element of songlines, which is not present in method of loci, involves rhythm and harmony, which can further aid encoding, storage and retrieval when compared to method of loci.

Overall, method of loci and songlines both aid the encoding, storage, and retrieval of information through associations of information and landmarks along a navigational route. However, they differ as songlines incorporate song, rhythm and harmony and are patterned on Country, unlike the method of loci which involves mainly mental imagery.

Criterion 3: Analysis and evaluation of data, and/or scientific methodologies and methods, and/or models, and/or theories

High-scoring responses explicitly used elements from the diagram, such as the instruction to create a palace or 'making a memory palace', to illustrate the use of spatial landmarks in the method of loci. Responses needed to reference the diagram's content, not merely state 'as shown in the diagram'.

Accepted examples of references to the diagram included:

- quoting 'making a memory palace' to emphasise the need for visual construction
- referring to items being placed at specific positions or locations as shown in the schematic path
- identifying sequential movement through locations to cue retrieval.

Students are encouraged to directly quote or describe diagram features and connect them to cognitive processes (e.g. spatial encoding), using explicit linking phrases such as 'The diagram shows ... This demonstrates that ...'

Common errors in addressing this criterion included using vague statements such as 'the diagram shows places', without quoting or making an explicit connection, or talking about the method of loci in general without linking it to the visual sequence depicted.

The following is an example of a high-scoring response incorporating the third criterion:

As seen in the diagram above, in order to utilise a method of loci, a person must bring a familiar location to memory, such as their house. They will then memorise a route, such as walking from the right side of their second floor to the entrance, as indicated in the diagram. They will then visually link the information that needs to be retrieved with the route. For instance, they may link the tennis racquet with their bedroom to remember to take it to school, and also the rabbit with the kitchen to remember to feed the rabbit before leaving for school. In this way, they will strengthen the encoding, storage and retrieval of these memories, with the locational route acting as a retrieval cue for the information.

Criterion 4: Construction of evidence-based arguments and/or drawing of conclusions and/or discussion of implications and findings

This criterion required students to evaluate the use of each mnemonic device by an individual with aphantasia. High-scoring responses made two justified evaluations, one for each mnemonic, using because-statements. Responses that scored very highly explicitly employed reasoning, rather than only making conclusions.

Accepted evaluations included:

- Method of loci: Those with aphantasia may struggle to use the method of loci because it requires forming visual mental imagery to place memory items at imagined locations, and individuals with severe aphantasia cannot generate voluntary visual images.

- Songlines: Individuals with aphantasia may be able to successfully use songlines because they are multimodal and rely on sung narratives, rhythm and performed movement rather than visual imagery alone.

Common errors in addressing this criterion included:

- stating that people with aphantasia cannot use method of loci without explaining why
- claiming songlines are also unsuitable without acknowledging multimodality, contradicting evidence
- providing vague reasoning such as that one method is easier without specifying how.

The following is an example of a high-scoring response incorporating the fourth criterion:

Aphantasia refers to where mental imagery is unable to be conjured in the 'mind's eye.' Aphantasia is not considered a mental disorder. The method of loci uses a significant amount of mental imagery to facilitate it. It involves picturing a familiar location (such as the house from the diagram), then creating and linking mental imagery of objects to each location. As such, a person with aphantasia would struggle to use the method of loci successfully. However, perceptual experience differs in individuals with aphantasia, and some may be able to use semantic memory to help recall objects.

Songlines use comparatively less mental imagery as they are often performed on Country, rather than through abstract visualisation in the mind's eye, allowing an individual with aphantasia to successfully use songlines and recall the details of the teachings on the track.