

VCE Psychology Unit 1

Written Examination

Suggested Solutions

SECTION A – MULTIPLE-CHOICE QUESTIONS

1	A	B	C	D
2	A	B	C	D
3	A	B	C	D
4	A	B	C	D
5	A	B	C	D
6	A	B	C	D
7	A	B	C	D
8	A	B	C	D
9	A	B	C	D
10	A	B	C	D
11	A	B	C	D
12	A	B	C	D
13	A	B	C	D
14	A	B	C	D
15	A	B	C	D
16	A	B	C	D
17	A	B	C	D
18	A	B	C	D
19	A	B	C	D
20	A	B	C	D
21	A	B	C	D
22	A	B	C	D
23	A	B	C	D
24	A	B	C	D
25	A	B	C	D
26	A	B	C	D
27	A	B	C	D
28	A	B	C	D
29	A	B	C	D
30	A	B	C	D
31	A	B	C	D
32	A	B	C	D
33	A	B	C	D
34	A	B	C	D
35	A	B	C	D
36	A	B	C	D
37	A	B	C	D
38	A	B	C	D
39	A	B	C	D
40	A	B	C	D

Question 1 B

B is correct. The ancient Egyptians believed that the heart was where all important mental processes took place.

A is incorrect. Descartes was not involved in the brain versus heart debate.

C and **D** are incorrect. Hippocrates and Plato took the opposite side of this debate; they believed that the brain was the source of all thoughts and emotions.

Question 2 C

C is correct. Descartes supported the theory of dualism, in which the mind and the body were separate entities. Unlike philosophers in the past – who believed the mind could control the body but the body could not influence the mind – Descartes thought the non-physical mind and the physical body could influence each other and that this influence occurred in the pineal gland.

A and **B** are incorrect. These options suggest that the influence of mind and body are unidirectional, which Descartes did not propose.

D is incorrect. Descartes did not propose the mind and body influenced each other through the thalamus.

Question 3 D

D is correct. Ablation is the process of surgically removing parts of an individual's brain and then observing the subsequent behaviour of the individuals. It is also known as brain lesioning because it causes irreversible damage in the parts of the brain involved.

A is incorrect. An autopsy is the examination of a body after death.

B is incorrect. Split-brain surgery involves the cutting of the corpus callosum only.

C is incorrect. Electrical brain stimulation involves stimulating parts of the brain with an electric current.

Question 4 D

D is correct. A PET scan is a functional neuroimaging technique, which would be needed to show how brain function changes when people listen to music.

A, **B** and **C** are incorrect. These options refer to structural neuroimaging techniques that would only capture static images.

Question 5 A

A is correct. The peripheral nervous system (PNS) is divided into two branches: the autonomic and somatic nervous systems.

B is incorrect. The sympathetic and parasympathetic nervous systems are subdivisions of the autonomic nervous systems.

C is incorrect. The spinal cord and brain are the main parts of the central nervous system (CNS).

D is incorrect. The sympathetic nervous system is a branch of the autonomic nervous system.

Question 6 D

D is correct. The somatic nervous system, which is a branch of the peripheral nervous system, controls the voluntary movement of the skeletal muscles in Sunni's legs.

A, **B** and **C** are incorrect. The sympathetic, autonomic and parasympathetic branches are all involuntary and, thus, do not control voluntary muscle movement.

Question 7 D

D is correct. The sympathetic nervous system would be dominating; therefore, adrenaline would be released and the fight-flight-freeze response would be triggered, which includes the dilation of the airways.

A is incorrect. The action of the parasympathetic nervous system would cause these changes.

B and **C** are incorrect. Increased movement in the small intestine and salivation are part of the digestive process, which is slowed when the fight-flight-freeze response occurs.

Question 8 C

C is correct. Myelin is an insulating, fatty substance that coats the axons of many neurons and enhances the speed and efficiency of the movement of neural impulse (action potential) within the neuron.

A and **B** are incorrect. These options are structural descriptions.

D is incorrect. Transmission between neurons at the synapse is chemical.

Question 9 D

D is correct. Oligodendrocytes are glial cells that form the myelin used to coat neurons in the CNS.

A is incorrect. Astroglia provide structural support for neurons.

B is incorrect. Schwann cells make the myelin used to coat neurons in the PNS.

C is incorrect. Microglia act as immune system cells.

Question 10 A

A is correct. The reticular formation is located in the midbrain, which is a central section of the brain that contains neural pathways connecting the lower and upper parts of the brain.

B is incorrect. This structure is located in the hindbrain.

C and **D** are incorrect. These structures are located in the forebrain.

Question 11 A

A is correct. The thalamus is considered a relay or filtering system in the brain.

B is incorrect. The cerebrum controls higher order functions.

C is incorrect. The hypothalamus plays a major role in maintaining homeostasis.

D is incorrect. The cerebellum helps to maintain posture, control balance and coordinate motor movements.

Question 12 B

B is correct. Sounds are processed in the auditory cortex, which is located in the temporal lobe.

A is incorrect. The parietal lobe plays a role in receiving and processing sensory information.

C is incorrect. The occipital lobe plays a major role in vision.

D is incorrect. The frontal lobe plays a role in initiating motor movement and higher order thinking functions.

Question 13 C

C is correct. Vision is processed in the visual cortex, which is located within the occipital lobe.

A is incorrect. The parietal lobe contains the primary somatosensory cortex, which plays a role in receiving and processing sensory information.

B is incorrect. The temporal lobe is where the auditory cortex is located, so it is crucial to perceiving sounds.

D is incorrect. The frontal lobe contains the primary motor cortex, which initiates motor movement.

Question 14 B

B is correct. The movement of the right hand originates from the motor cortex, which is located within the frontal lobe of the brain. Each hemisphere of the brain controls the contralateral (opposite) side of the body. Therefore, the left hemisphere of the brain controls the right side of the body and the right hemisphere of the brain controls the left side of the body. Thus, Aaron's left frontal lobe controls his right hand.

A and **C** are incorrect. The movement does not originate from the right hemisphere of the brain.

D is incorrect. The temporal lobe is not involved in motor movement. It contains the primary somatosensory cortex, which is involved in receiving and processing information from the skin and body parts.

Question 15 C

C is correct. Myelination refers to the growth of a fatty, white substance that coats the axons of most neurons. It is most rapid after birth.

A and **B** are incorrect. Myelin does not coat the terminal branches of neurons, only the axons.

D is incorrect. Myelination is most rapid immediately after birth and again during adolescence and slows down during the adult years.

Question 16 C

C is correct. Personality is a function of the frontal lobe, which explains the changes in Wenyi's behaviour.

A is incorrect. The parietal lobe is involved in processing sensory information and spatial awareness.

B is incorrect. The occipital lobe processes vision.

D is incorrect. The temporal lobe is responsible for processing sound and is involved in memory.

Question 17 A

A is correct. Amir is displaying symptoms of an attentional disorder known as spatial neglect.

B is incorrect. Split-brain surgery does not interfere with attention.

C and **D** are incorrect. These are not treatments for stroke patients.

Question 18 A

A is correct. The attentional disorder of spatial neglect originates in the parietal lobe located, in this case, in the left hemisphere.

B is incorrect. Although this is the correct hemisphere, the source is not the temporal lobe.

C and **D** are incorrect. Amir's condition stems from damage sustained in the left hemisphere, not the right hemisphere, as the left hemisphere controls movement to and receives information from the opposite side of the body.

Question 19 C

C is correct. Debriefing occurs as soon as possible after the conclusion of an experiment. Its purpose is to inform the participants of the true nature of the experiment and to explain why deception was necessary. The debrief also checks on the wellbeing of the participants.

A and **B** are incorrect. These ethical requirements occur before an experiment is conducted.

D is incorrect. Confidentiality is assured before, during and after the experiment has concluded.

Question 20 D

D is correct. The brain increases in size due to synaptogenesis, which is the proliferation of synaptic connections (as well as the process of myelination).

A is incorrect. The number of neurons remains stable after birth.

B and **C** are incorrect. Increased length of axons and changes in glial cells do not increase brain size.

Question 21 B

B is correct. The psychological term for this process is rerouting. The process of rerouting provides alternative pathways for neural communication and a bypass system around the site of the injury or damage.

A and **D** are incorrect. Although the neurons will rebranch and then reconnect with other neurons, these are not the correct psychological terms for the process.

C is incorrect. Sprouting refers to the growth of extra branches on axons or dendrites.

Question 22 B

B is correct. The variable that is being deliberately manipulated by Genevieve is exercise.

A is incorrect. This option refers to the population.

C and **D** are incorrect. These options refer to aspects of the dependent variable that is being measured in the experiment.

Question 23 C

C is correct. The people chosen for the sample were selected in response to an online post.

A and **D** are incorrect. The population was not divided into groups (strata) before being sampled.

B is incorrect. All members of the population of Australian adults did not have the chance to be selected for this experiment.

Question 24 A

A is correct. The data is collected by the researcher (primary) and is numerical (quantitative).

B and **D** are incorrect. Qualitative data is not numerical.

C is incorrect. The data in this scenario is not secondary, which refers to data collected within a different research study.

Question 25 D

D is correct. Identical twins develop from the fusion of one ovum and sperm, resulting in one zygote. The single zygote subsequently divides and results in two identical offspring.

A is incorrect. This option could refer to non-identical twins.

B and **C** are incorrect. Identical twins, although sharing almost 100% of their genes, will be influenced by environmental factors as they grow up and, thus, may show different behaviours and thinking processes.

Question 26 C

C is correct. A sensitive period refers to a time during development when an individual is more responsive to learning from environmental influences.

A is incorrect. Many rapid and important changes occur before birth.

B is incorrect. The individual is sensitive to external environmental stimuli during this period.

D is incorrect. Sensitive periods tend to last for shorter periods of time for physical characteristics and longer periods of time for psychological characteristics.

Question 27 B

B is correct. The infant monkey spent most of its time with the surrogate mother that provided contact comfort. This finding was in contradiction with Harlow's original hypothesis, which predicted the provision of food would be more important than contact comfort in the attachment process.

A is incorrect. Nourishment was not as important to the infant monkey as contact comfort.

C and **D** incorrect. The size and appearance of the surrogate mother was irrelevant.

Question 28 D

D is correct. Mental health problems are shorter in duration than mental disorders, which are more enduring.

A is incorrect. An individual experiencing a mental disorder can experience marked and ongoing distress.

B is incorrect. An individual with a mental disorder will exhibit atypical behaviours.

C is incorrect. A mental health problem may prevent an individual from completing some regular activities, such as attending their school or work for a short period of time; a mental disorder can severely impact the everyday functioning of an individual.

Question 29 A

A is correct. The test measures the type of relationship between infant and caregiver. It is administered in the same way and under the same conditions by all researchers, so it is a standardised test.

B is incorrect. The test is usually conducted on infants aged between 9 and 18 months.

C is incorrect. The test is taken in an unfamiliar environment.

D is incorrect. The test is not non-standardised as conditions and instructions cannot vary between researchers.

Question 30 C

C is correct. Charmin responds consistently to Jalani's cries, so Jalani is secure in knowing that her needs will be consistently met.

A, **B** and **D** are all incorrect. These are forms of insecure attachment between caregiver and child, where the needs of the child are not consistently and appropriately met.

Question 31 D

D is correct. Kiara's paintings are seen to be of a poor standard by her father, which makes Kiara feel that her art skills are inadequate.

A is incorrect. This scenario does not involve Kiara planning or carrying out goal-directed behaviours.

B is incorrect. This scenario does not refer to Kiara's ability to do things independently or her feelings of self-control.

C is incorrect. This scenario does not involve Kiara feeling productive in her life or able to contribute in a meaningful way to the world in which she lives.

Question 32 C

C is correct. Cheyne is a football fan going to watch their favourite team play a game, so it is considered normal for them to show support of their team by painting their face in the assumed colours of the team.

A is incorrect. Face painting does not necessarily interfere with Cheyne being able to live and carry out their daily tasks in a productive manner.

B is incorrect. There does not appear to be an underlying biological cause that would require diagnosis and treatment.

D is incorrect. From the information given, this behaviour is not dependent on the time in which the scenario is set.

Question 33 D

D is correct. Sheba's problem with falling asleep has occurred for an extended period of time and is interfering with her ability to function efficiently in daily life, as exemplified by her being consistently late for work.

A is incorrect. Although it occurs over an extended period of time, Joanna's typical behaviour of frequently attending parties has diminished, not completely stopped.

B is incorrect. Pietro's behaviour has only occurred for a few days and shows he is relaxing and enjoying the chance to sleep in after his exams.

C is incorrect. Margrit is showing goal-directed behaviour by setting her alarm to enable her to wake up at the correct time.

Question 34 A

A is correct. The *Diagnostic and Statistical Manual of Mental Disorders* (5th edition) provides the approximate age of onset of mental disorders.

B, C and D are incorrect. The manual does not provide any information about cause or treatment of mental disorders.

Question 35 B

B is correct. Genetic predisposition is the biological inheritance of offspring from parents, so it can contribute towards an individual developing mood disorders such as depression if their parent(s) also suffer from the disorder.

A, C and D are incorrect. These options are social factors.

Question 36 B

B is correct. It is most likely that Paolo is suffering from a type of anxiety disorder known as a phobia.

A is incorrect. If Paolo had major depressive disorder, he would show profound and ongoing loss of motivation and interest and he would have a depressed mood on a regular basis.

C is incorrect. Paolo's behaviours do not show a separation from reality that would occur as part of a psychotic disorder.

D is incorrect. Paolo does not exhibit maladaptive and inflexible personality characteristics that would occur as part of a personality disorder.

Question 37 A

A is correct. A diagnosis and a label for the mental disorder can promote richer discussions between medical professionals, which would enable them to provide better support and enhance their understanding of the individual's progress.

B is incorrect. This would not necessarily be in the best interests of the individual with the mental disorder.

C is incorrect. Many mental disorders cannot be cured.

D is incorrect. Having a mental disorder does not define the whole person.

Question 38 C

C is correct. This type of social support is in Marcus's external environment.

A, B and D are incorrect. These are all internal factors.

Question 39 D

D is correct. Valechka should have obtained written informed consent from each participant.

A is incorrect. Valechka has stated she will keep the data anonymous; she has not breached confidentiality.

B is incorrect. She informed the participants of their right to stop participating in the study at any time they choose.

C is incorrect. She did not deliberately mislead the participants to think that there was another purpose to the study.

Question 40 D

D is correct. The mode is the most frequently occurring number.

A is incorrect. This option calculates the mean.

B is incorrect. This option calculates the median.

C is incorrect. This option calculates the range.

SECTION B**Question 1** (2 marks)

a. the corpus callosum 1 mark

b. *Any one of:*

- The left and right hemispheres of the brain have different functions/specialisations.
- The left hemisphere of the brain specialises in language (comprehension and expression).
- The left hemisphere of the brain controls movement of the right side of the body while the right hemisphere of the brain controls movement of the left side of the body.
- The left hemisphere of the brain processes sensory information from the right side of the body while the right hemisphere of the brain processes sensory information from the left side of the body.

1 mark

Question 2 (6 marks)

a. *Any two of:*

- the central nervous system/brain
The brain interprets the incoming sensory information about the heat of the room and makes the decision to turn on the air conditioner.
- the somatic nervous system
Sensory receptors detect the heat and sensory neurons transfer the information into the brain.
- the somatic nervous system
Motor neurons transfer the information to the skeletal muscles to initiate movement to pick up the remote control for the air conditioner.

4 marks

1 mark for identifying each branch of the nervous system.

1 mark for describing the role of each branch of the nervous system.

Note: The responses must be congruent to achieve full marks.

b. the sympathetic nervous system

1 mark

Note: The autonomic nervous system is not an acceptable response as it is not specific to the changes in this scenario.

Any one of:

- dilated pupils
- increased heart rate
- dilated bronchi
- increased rate of breathing
- reduced saliva production
- glycogen released in the muscles
- relaxed muscles at the neck of the bladder
- reduced digestive processes
- glucose released from the liver

1 mark

Question 3 (2 marks)

- a. It is responsible for the production of clear and fluent/articulate speech. 1 mark
- b. the frontal lobe 1 mark

Question 4 (4 marks)

- a. case study 1 mark
- b. A case study focuses on a small group of people (or in this case, one person). Thus, the findings may not apply to a larger population. 1 mark
- c. *Any one of the following biological changes:*
- loss of motor movement in parts of the body
 - reduced facial expression
 - reduced head movements
 - reduced eye movements
- 1 mark

Any one of the following social changes:

- displaying socially inappropriate behaviour
- loss of social support
- increased risk of unemployment
- increased risk of homelessness
- increased risk of social isolation

1 mark

Question 5 (10 marks)

- a. to determine if consuming red-coloured food will affect concentration in children 1 mark
- b. consuming either the red jelly beans or the white jelly beans 1 mark
- c. concentration as measured by the number of times a child was distracted 1 mark
- d. Australian children under five years of age (population) who eat red-coloured foods (independent variable) will not be able to concentrate as well (dependent variable) as those who do not consume red-coloured foods.

3 marks

1 mark for providing the correct population.

1 mark for providing the independent variable.

1 mark for providing the dependent variable.

Note: Responses must be written in the structure of a hypothesis to receive full marks.

- e. The concentration levels of children under five years of age will decrease when they consume red-coloured foods. 1 mark
- f. Raahul would not have been able to generalise the results of his study to the population because he used convenience sampling, 1 mark
which means the sample would not be representative of the target population. 1 mark

Question 6 (3 marks)

The acquisition of a second language (in this case, French) is much easier and occurs more quickly for Luciano as he is just starting primary school and, therefore, is within the window of opportunity for optimal cognitive development, known as a sensitive period. 1 mark

During this sensitive period, the synaptic connections in Luciano's brain for the French language will be rapidly increasing (synaptogenesis) and, with sustained use, will become stronger. 1 mark

As she is in her late teenage years, Nelly has passed this sensitive period, which, for learning a second language, ends at around twelve years of age. Hence, her ease of learning is lower and her rate of acquisition is slower than Luciano's. 1 mark

Question 7 (4 marks)

a. Erikson viewed development as a progression through a number of separate stages. 1 mark
Each individual must proceed through the same stages in the same order. 1 mark

b. Psychosocial crisis refers to the personal conflict between the internal needs of the individual and the external demands placed on the individual by society. 1 mark
The way in which crisis is dealt with and resolved shapes the individual's personality. 1 mark

Question 8 (3 marks)

a. There is a progressive break down/destruction of neurons in the substantia nigra/midbrain, which results in a reduced amount of dopamine. 1 mark
1 mark

b. *Any one of:*

- muscle rigidity
- slowness of movement (bradykinesia)
- resting tremors
- postural instability
- short, shuffling gait
- reduced arm swing when walking

1 mark

Question 9 (6 marks)

a. *Any one of the following positive symptoms:*

- hallucinations
- delusions
- disorganised thinking/speech
- abnormal motor behaviour/catatonia

1 mark

Any one of the following negative symptoms:

- decreased motivation (avolition)
- decreased interest or enjoyment in normal activities (anhedonia)
- decreased intensity of emotion (affective flattening)
- decreased speech output (alogia)

1 mark

- b.** The two-hit hypothesis explains that the development of schizophrenia results firstly from a genetic vulnerability 1 mark
and secondly from an environmental stress. 1 mark

For example, an individual could have inherited the genes from a family member in the first hit 1 mark
and been involved in a traumatic incident in the second hit. 1 mark

Note: Responses may include varying examples of a second hit, such as continued exposure to a dysfunctional family, being bullied, the loss of a loved one, being subjected to abuse or any other stress-causing incident.

Question 10 (10 marks)

Piaget proposed that all children, regardless of sex or culture, develop through a series of four stages that they move in a specific order without skipping any stages. As they progress through the stages, children move from simple and self-centred thinking (cognition) to more sophisticated and abstract ways of thinking about and understanding the world around them. In each stage, Piaget described key cognitive accomplishments achieved by individuals as well as their thinking styles.

Stage 1: Sensorimotor (0–2 years of age)

Infants use their senses and movement through their environment to learn. They begin to integrate sensory processes and motor movements, and this ability continues to strengthen during this period.

Key accomplishments of this stage include object permanence and goal-directed behaviour. Object permanence occurs when an infant understands that objects still exist even if they cannot be seen, heard or touched, which is why infants enjoy games such as ‘peek-a-boo’. Goal-directed behaviour occurs when infants behave in a way that enables them to meet a goal that they have purposefully planned; for example, they can reach upwards to touch a toy suspended from a mobile.

Stage 2: Preoperational (2–7 years of age)

During this time, children begin to acquire and further develop language skills. They also develop their imaginations and begin to use symbolic thinking. For example, a pile of sand can represent a cake, or a cardboard box can represent a house.

Key accomplishments of this stage include egocentrism, animism, centration and reversibility. Egocentrism refers to the tendency to see the world only from one’s own point of view and, thus, be unable to understand the perspectives of other people. Towards the end of this stage, children can experience decentred thinking and appreciate the perspectives of others. Animism is the belief that inanimate objects have consciousness; that is, they may have feelings or personalities. Centration is shown by children when they can only focus on one feature of an object at a time, leading to the exclusion of other features. Progression through this stage leads to decentred thinking. Reversibility refers to the ability to understand that objects can change and then return to their original form; for example, a child will demonstrate the understanding that, if it melts, ice can be reformed into a solid when placed in the freezer.

Stage 3: Concrete operational (7–12 years of age)

As children move through this stage, their thinking continues to become more sophisticated. They become more logical and begin to perform certain mental operations such as mathematical equations. The mental operations, however, still need to be attached to concrete objects that are tangible; that is, objects that can be seen or touched.

Key accomplishments of this stage include conservation and classification. Conservation refers to the ability to understand that certain properties of an object can remain the same even when the object’s appearance has been changed. This can be applied to any form of measurement, including volume, mass, number and length. Classification refers to the ability to organise objects or events into groups or categories based on common features that set them apart from other groups or categories. For example, a child can separate wooden, plastic and metal pegs from each other by differentiating them according to the material from which they are made.

Stage 4: Formal operational (12+ years of age)

During this stage, children develop more complex and sophisticated thinking processes. Their ability to use reason and to think logically also develops.

Key accomplishments of this stage include abstract thinking, use of reason or logic and idealistic thinking.

Abstract thinking refers to the ability to think and process information without seeing or physically manipulating objects; for example, when children use metaphors or use the scientific method to solve problems. Children at this stage use reason or logic to consider a number of alternatives to solve a problem and come to a reasonable conclusion. Idealistic thinking develops so that adolescents can think and plan for their futures and set goals. They are also able to think about global issues and other social issues.

Criticisms of Piaget's theory

Piaget's work has been heavily criticised. Psychologists have suggested that Piaget most likely underestimated the cognitive abilities of children as they are more likely to be able to perform more complex cognitive tasks at an earlier age than Piaget identified. Piaget may have misjudged the ability of children to understand language, so it may have been that the child misunderstood the task rather than gave incorrect answers due to faulty cognition. Piaget's sample was very small and, therefore, not truly representative of children of all culture or socioeconomic groups. As he only tested European children of a middle-class background, the results may not apply to all cultures or socio-economic groups. Furthermore, as Piaget used his own children for his research, there has been much criticism about the validity of his results and the ability to generalise to the wider population.

10 marks

Note: The response should be written in prose style. The inclusion of subheadings is acceptable. The response shown here is more detailed than a student would be expected to write. This is so that teachers may advise their students of the range of information that could be included.

Marking guide*Very high (9–10 marks)*

The student has provided a highly detailed explanation of:

- the four developmental stages using the correct names and age brackets
- the overall cognitive abilities that are developed in each stage
- two appropriate key accomplishments for each stage
- the criticisms of Piaget's theory.

High (7–8 marks)

The student has provided a detailed explanation of:

- the four developmental stages using the correct names and age brackets
- the overall cognitive abilities that are developed in each stage
- two appropriate key accomplishments for each stage
- the criticisms of Piaget's theory, including at least three different points.

Medium (5–6 marks)

The student has provided a limited explanation of:

- at least three developmental stages using the correct names and age brackets
- the overall cognitive abilities that are developed in at least three stages
- two appropriate key accomplishments for at least three stages
- the criticisms of Piaget's theory, including at least two different points.

Low (3–4 marks)

The student has addressed:

- at least two developmental stages using the correct names and age brackets
- the overall cognitive abilities that are developed in at least two stages
- one appropriate key accomplishment for at least three stages
- the criticisms of Piaget's theory, including at least one point.

Very low (0–2 marks)

The student has addressed:

- at least one of the developmental stages using the correct name and/or age brackets
- the overall cognitive abilities that are developed in at least one stage
- one appropriate key accomplishment for at least two stages
- some relevant criticism of Piaget's theory.