

Trial Examination 2018

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
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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 D

The ancient Egyptians believed that out of all of the organs, the brain was the least important. They believed that organs such as the stomach, intestines, liver and lungs had use in the after-life. The heart stayed in the body, however, as it was believed to be the seat of the soul.

Question 2 B

Phrenology was an early technique used to predict human behaviour. It proposed that the bumps on the skull reflected the person's personality. However, there was no scientific (empirical) evidence to validate these claims. This lack of evidence is the reason why phrenology is said to be a pseudoscience.

Question 3 C

In the twentieth century, neurosurgeons used ESB to map the cerebral cortex of the human brain. Although it was helpful to surgeons in identifying the location of epileptic seizures, it was not used as a curative treatment for epilepsy or other illnesses. The cerebellum does not need to be mapped.

Question 4 D

The corpus callosum is the thick bundle of nerve fibres that bridges the two hemispheres to allow for communication. It was cut to stop the electrical activity of seizures within one hemisphere from moving through the corpus callosum to the other hemisphere and triggering electrical activity, causing seizures in that hemisphere.

Question 5 A

CT scans use X-rays to create black and white cross-sectional images of the brain. They are not in colour. MRI scans use magnetic fields to create computer-generated coloured images of the brain.

Question 6 C

PET scans produce coloured images of the brain, showing both structure and activity. The images are produced due to the patient receiving a glucose solution that contain radioactive tracers (markers). fMRI scans also produce coloured images and show activity in the brain. The images are taken in rapid succession, which enables an accurate image to be made. The fMRI scan measures oxygen uptake by the cells and does not require radioactive tracers to be used.

Question 7 D

The brain receives incoming sensory information which it then processes and consequently responds to.

Question 8 C

The parasympathetic nervous system is the 'rest and digest' branch; that is, after the perceived threat or danger has passed, the parasympathetic nervous system returns the body back to its normal, balanced (homeostatic) state. The sympathetic nervous system would activate the body for flight or fight. The somatic nervous system is the branch concerned with skeletal muscles. The autonomic nervous system contains both branches – sympathetic and parasympathetic.

Question 9 C

The function of the dendrites is to receive information from other neurons. The soma processes the information and an impulse will be generated and transmitted down the length of the axon to the terminal branches. Here, where synapses are located, information can be sent to other neurons.

Question 10 D

Interneurons are only found within the central nervous system.

Question 11 B

Schwann cells produce the myelin sheath around the axons of neurons in the peripheral nervous system. Oligodendroglia perform a similar function in the central nervous system. Microglia form an active immune defense for the neurons in the central nervous system. Astrocytes provide structural support for the neurons.

Question 12 D

The hindbrain consists of the cerebellum, medulla and pons. The midbrain contains the reticular formation. The forebrain contains the thalamus, hypothalamus and cerebrum.

Question 13 D

The cerebellum allows fluid, coordinated movements such as walking and helps with maintenance of balance and posture. The pons assists with sleep, dreaming and arousal from sleep. The pineal gland releases melatonin which regulates sleep–wake cycles. The medulla is essential to vital body functions such as swallowing, breathing and coughing.

Question 14 A

The reticular formation is responsible for arousal and maintaining consciousness in the brain. Memory is located in a number of areas in the brain. The pons assists with sleep and dreaming. The medulla controls breathing.

Question 15 B

The medulla is essential to vital body functions such as swallowing, breathing and coughing. The reticular formation is responsible for arousal and maintaining consciousness in the brain. The cerebral cortex assists with performing complex cognitive functions.

Question 16 B

The right hemisphere tends to demonstrate dominance in creativity, music and art appreciation, spirituality, spatial abilities, facial recognition, imagination and daydreaming. The left hemisphere tends to show dominance in logic, mathematics, language comprehension and production of speech, reading and writing.

Question 17 B

Contralateralisation of the brain means sensations from one side of the body will be processed by the opposite hemisphere; in this case, the left hemisphere recognises the feeling of velvet on the right hand. The parietal lobe contains the somatosensory cortex, responsible for detecting incoming sensory information.

Question 18 D

Broca's area, which is located in the left frontal lobe, is responsible for production of speech. Wernicke's area in the left temporal lobe is responsible for comprehension of speech.

Question 19 C

Peter is suffering from spatial neglect, an attentional disorder. This means he acts as if half of his world does not exist. Hence, the parietal lobe is damaged. As it is the left side of the world that is neglected the damage must be in the right hemisphere. The occipital lobe would not be affected as it is not a visual problem.

Question 20 A

Myelination occurs progressively and sequentially, starting in the hindbrain and moving through into the midbrain. It progresses into the forebrain with the sensory areas being myelinated before the motor areas.

Question 21 C

Synaptic pruning eliminates unused synapses. This can occur in any area of the brain. It is a lifelong process, being a process that occurs over many years. Synaptogenesis and synaptic pruning are complementary processes in neural plasticity.

Question 22 C

Damage to the frontal lobe causes a set of biological, psychological and social changes. Typically the biological changes include reduced motor activity, such as minimal eye movements and reduced facial expressions. Psychological changes include poor organisational skills, forgetfulness and inability to plan for the future. Intelligence does not seem to be affected.

Question 23 A

People with Parkinson's disease suffer from muscle rigidity that interferes with movements such as swinging their arms as they walk. Balance problems often cause the person to be stooped, and gait problems occur wherein they take short, shuffling steps.

Question 24 D

The term 'development' refers to the many changes that occur over a lifetime. The physiological and psychological changes may occur at different rates, with some changes being faster and more noticeable, while others may be imperceptible as they occur so slowly and gradually. This view of development being continuous rather than discontinuous is more likely.

Question 25 B

When a strong emotional bond exists, separation anxiety may occur when the infant and caregiver are separated. Sweta's daughter becomes distressed as a consequence of being separated from her mother. It is highly unlikely to be early signs of a mental disorder at this stage.

Question 26 C

Nicholas is not securely attached, as when his mother returns he is not comforted by close physical contact with her. When Nicholas' mother picks him up he squirms and resists her efforts to hold him close, which is typical of insecure-resistant attachment. If it was insecure-avoidant attachment, Nicholas would not have sought contact with his mother and would have treated her more like a stranger.

Question 27 C

Harlow showed with his famous experiment in 1958 that the comfort provided from the cloth surrogate was vital. Regardless of whether the surrogate provided milk or not, the infant monkeys would still seek comfort from them when frightened or distressed.

Question 28 A

Monozygotic twins are the result of one sperm fertilising one ovum and producing one zygote. This zygote separates after its first mitotic division and continues developing separately. Both embryos have an identical set of genes and chromosomes as they have come from the same zygote; thus, they share 100% genetic similarity. Dizygotic twins are like any other siblings within a family, as two separate sperm have fertilised two different ova, resulting in two zygotes.

Question 29 C

Piaget believed that all children progressively move through four separate stages of cognitive development. The stages that the children move through are always in the same order. However, the rate at which they move through these stages varies due to brain development and the set of experiences that the children are exposed to.

Question 30 C

Tasha is demonstrating goal-oriented behaviour which emerges in the later half of the sensorimotor stage of cognitive development. The other three stages follow on after the sensorimotor stage when this ability has been more firmly established.

Question 31 B

Erikson's psychosocial theory of personality development stated that individuals moved through eight separate sequential stages. Each stage related to a certain period of ages. When a child is four they are in the third stage, which Erikson termed initiative versus guilt. Trust versus mistrust is the first stage (birth to twelve or eighteen months). Autonomy versus shame and doubt is the second stage (eighteen months to three years). Industry versus inferiority is the fourth stage (five to twelve years).

Question 32 D

The population was 300 students in total. From that population a smaller group of 40 participants was selected and they formed the sample.

Question 33 A

The DSM provides information about the symptoms to enable diagnosis of a mental disorder to occur. It gives information about the prevalence of the disorder, its approximate age of onset and the gender differences. It does not provide any course of treatment.

Question 34 C

Normality is considered from a number of different approaches. Quantitative data will provide numerical data, which is the statistical approach. The functional approach considers if the person's everyday functioning is inhibited. The sociocultural approach considers if the behaviour is appropriate for that culture or society. The situational approach considers if the behaviour is appropriate for that particular situation at that particular time.

Question 35 C

Joseph is most likely to have a generalised anxiety disorder as he has persistent, unrealistic worries about a number of aspects of his life, such as his work and the family finances. A panic disorder would involve panic attacks, which Joseph does not experience. Joseph does not appear to have an unreasonable fear of social situations and so is unlikely to have a social phobia.

Question 36 C

Phobias are included within the category of anxiety disorders as they are characterised by persistent, excessive worry. Addiction disorders involve addictive behaviours (the persistent need for taking a substance or engaging in an activity). Mood disorders are characterised by the elevation or lowering of a person's mood. Personality disorders are characterised by problems with a person's personality and behaviour which cause distress.

Question 37 D

There are a number of factors contributing towards Vaughn's gambling problem. Excessive dopamine production causes feelings of pleasure and has been evident in gamblers' brains. Cognitive distortions such as believing he can calculate the odds or that he has developed a method for winning also contribute to Vaughn's problem.

Question 38 D

Ms Jende organised two groups – one the control and the other the experimental group. The participants are different in each group, with no special effort made to match them on any characteristics. Thus the research design is independent groups. Neither is the same sample used in both the control and experimental groups, which would be the case for a repeated measures research design.

Question 39 C

By definition psychosis is a mental disorder characterised by a person losing their capacity to separate what is real from what is not real. Individuals with a psychotic disorder are not necessarily violent or aggressive. The disorder does not directly interfere with memory formation. It does not always cause personality changes.

Question 40 D

CBT is used to help individuals change their maladaptive (faulty) thinking patterns so that changes to their behaviours will occur. It involves more than examining faulty or flawed thinking. CBT may use relaxation techniques but this is only part of the therapy.

SECTION B

Question 1 (2 marks)

sympathetic nervous system

1 mark

Any two of:

- dilated pupils
- dry mouth due to decreased saliva production
- accelerated heart rate
- accelerated breathing rate
- increased blood pressure
- decreased digestion
- release of glucose from the liver
- release of adrenaline
- bladder relaxes

1 mark

Question 2 (2 marks)

Neurons receive and transmit information within the nervous system.

1 mark

Any one of:

- **Schwann cells** produce the myelin sheath that surrounds the axons of neurons within the peripheral nervous system
- **Oligodendroglia** produce the myelin sheath that surrounds the axons of neurons in the central nervous system.
- **Microglia** form an active immune defense for the neurons in the central nervous system.
- **Astrocytes** provide structural support for the neurons.

1 mark

Question 3 (2 marks)

Gillian's sensory neurons are afferent neurons. They detect the sensory information (heat) and transmit the information into the central nervous system.

1 mark

Gillian's motor neurons (efferent) transmit the outgoing message from the central nervous system to the skeletal muscles in her hand, causing her to drop the spoon.

1 mark

*Note: The terms 'afferent' and 'efferent' are **not** required for full marks.*

Question 4 (3 marks)

a. the motor cortex in the left frontal lobe

1 mark

b. As part of the adaptive plasticity in his father's brain, rerouting occurred, where new neural connections were formed around the damaged brain tissue.

1 mark

Sprouting of new dendrites occurred to allow for more neural connections to form, which was necessary for creating new neural networks to replace the ones damaged by the stroke.

1 mark

Note: Award only 1 mark if students explain that other brain areas have taken over functioning of the damaged area.

Question 5 (2 marks)

Any two of:

- medication; for example, L-dopa
- deep brain stimulation of the basal ganglia
- neurosurgery, where the lesioned parts of the brain are cut out

2 marks

Question 6 (2 marks)

The sensitive period in which Sandy learns to speak her first language, her native language, is open between infancy and about twelve years of age.

1 mark

Sandy is only seven years of age and therefore should have no difficulties in learning the language, as she is within this 'window' of optimal learning.

1 mark

Question 7 (1 mark)

The prefrontal cortex is underdeveloped in teenagers and is thought to be responsible for poor decision-making and impulsivity. It only reaches maturity in adulthood.

1 mark

Question 8 (2 marks)

During this procedure, when the caregiver is present the securely attached infant confidently explores the area nearby.

1 mark

Upon the caregiver's departure the infant is somewhat distressed, but when reunited is happy and seeks the comfort of physical contact by being held.

1 mark

Question 9 (4 marks)

Studies have shown that children raised by adoptive parents have IQ scores that are more similar to that of their biological parents. This supports the important role that the inheritance of genes plays in intelligence (nature). The family environment in which the children were raised (nurture) was not as important in the development of intelligence, as evidenced by the IQ scores of the children being dissimilar to that of adoptive parents.

4 mark

1 mark for identifying similarity between the IQ scores of children and biological parents.

1 mark for stating importance of nature in intelligence.

1 mark for identifying difference between the IQ scores of children and adoptive parents.

1 mark for stating nurture is not as important as nature in determining intelligence.

Question 10 (4 marks)

a. concrete operational stage

1 mark

b. *Any one of:*

- **Conservation of mass/volume/number/length:** The principle of testing conservation is the same regardless of whether it is mass, volume, number or length. The child is shown two items of equal mass/volume/number/length. Then Soula makes differentiations between the two in front of the child; for example, for mass Soula could roll one piece of plasticine flat and ask if there is still the same amount. To be more advanced than her younger brothers, Soula's daughter must be able to conserve.
- **Classification:** Soula shows her children ten daisies and five roses set in two rows on the table. She asks if they are all flowers. She then asks if there are more daisies than roses. Lastly, she asks if there are more daisies than flowers. To be more advanced than her younger brothers, Soula's daughter must be able to classify.

3 marks

1 mark for identifying a test.

1 mark for describing a test that could be done at home.

1 mark for stating the required result for Soula's daughter to be developmentally advanced.

Question 11 (1 mark)

Any one of:

- His theory lacked empirical (experimental) evidence as support.
- His theory does not differentiate between females and males.
- His theory does not take into account the place where a person is born.
- His theory does not take into account the time period in which a person is born.
- His theory proposes that all adults experience a mid-life crisis, which is not true.

1 mark

Question 12 (4 marks)

The situational approach refers to thoughts, feelings and behaviours that may be considered suitable in one situation but not in another. An example of this is that wearing a pink tutu to go grocery shopping would be considered abnormal, but if the tutu is worn in ballet class this would be considered to be normal.

The sociocultural approach refers to thoughts, feelings and behaviours that may be appropriate in one society or culture but not in another. An example of this is that direct eye contact with authority figures may be expected in some cultures but frowned upon in another.

4 marks

1 mark for defining situational approach.

1 mark for any suitable example of this.

1 mark for defining sociocultural approach.

1 mark for any suitable example of this.

Question 13 (4 marks)

- a.** Willow is suffering from a mental disorder. 1 mark

For example, any two of:

- Her everyday functioning has been disrupted as shown by her inability to return to work.
- Distancing herself from friends indicates low levels of social wellbeing.
- Not training at the gym is an atypical behaviour for Willow.

2 marks

1 mark for each reason given.

- b.** *Any one of:*

- A person with a mental illness may not seek treatment as they may believe others will discriminate against them.
- People may feel shame at being labelled with having a mental disorder, which prevents them seeking help.
- Self-stigma could prevent a person with a mental disorder from seeking help.

1 mark

Question 14 (2 marks)

The biopsychosocial model of mental health proposes a holistic view of mental health. 1 mark

It proposes that all three factors – biological, psychological and social – combine, interact and influence mental health. 1 mark

Question 15 (5 marks)

- a.** auditory hallucinations 1 mark

delusions of persecution 1 mark

- b.** *Any one of:*

- affective flattening – emotional responses are reduced, seen through unemotional speech.
- alogia – reduced (poverty of) speech
- avolition – lack of motivation and drive with his VCE studies

1 mark

- c.** The first hit came when Riku was born prematurely. 1 mark

The second hit came when Riku began smoking marijuana, a psychoactive drug. 1 mark

Note: Other suitable examples for the second hit are acceptable.

Question 16 (10 marks)

Case studies are in-depth investigations of behaviour in an individual, group, organisation or situation. They may be used to investigate individuals in order to gain a deeper understanding of the role of attachment in the individual's emotional development, as they provide a comprehensive analysis. The psychologist may use various types of data, such as medical records, school reports or psychological test results, which are forms of secondary data. The strength of cases studies comes from the detailed, rich descriptions that form qualitative data. They allow for investigation which may otherwise be impractical or unethical. They may also provide information for further research. The main limitation of using case studies is that they may be difficult to replicate. Results may be limited to the individuals or groups involved and thus cannot be generalised to the wider population. They can also be time-consuming.

An observational study involves collection of data by watching and recording behaviour as it happens. Participants with varying types of attachment may be observed to see how their behaviours demonstrate their emotional development. The observations may be overt, where the participants know they are being studied, or covert, where the researcher keeps their identity hidden from the participants. Data collection may be structured, such as with the use of a checklist, and involve collection of primary, quantitative data. The observational study may be unstructured and the primary data collected may be more descriptive (qualitative) in nature.

The observational studies may be conducted in the field (naturalistic) or in a contrived setting such as a laboratory. The advantage of naturalistic study means that researchers can watch and record behaviour as it usually occurs in its own unique environmental setting. Thus the behaviours would be more authentic. A limitation may include the lack of control of extraneous variables which could influence behaviours. Another limitation could be that the results are only relevant to the participants observed and cannot be generalised to a wider population.

Observational studies set within a laboratory, such as the one conducted by Ainsworth, provide quantitative data which is easy to analyse. It is also easier to replicate controlled observational studies. A limitation may be, however, that in an artificial environment, participants do not behave as they normally would.

Another limitation of observational studies is that the cause of behaviours may be interpreted incorrectly. Experimenter (observer) bias also may occur.

Ethical guidelines apply to any type of research or data collection within the field of psychology. The Australian Psychological Society (APS) have set standards of behaviour for psychologists conducting research. Before a researcher may undertake any research they must apply to the ethics committee to check if the proposed research is ethically acceptable. The committee decides if the research will be of benefit to the community and if any individuals concerned have the appropriate experience or expertise, or at least will be under the supervision of someone with experience and expertise. The Code of Ethics set by the APS provides guidelines that must be followed to ensure that the physical and mental wellbeing of the participants are maintained at all times. The researcher must ensure that participants are fully informed of their rights within the research and that all participants are provided with respect and dignity. Researchers must ensure that the personal information of the participants is kept private, secure and safe from misuse. Participation in research must be voluntary, with participants being made fully aware of their withdrawal rights. When naturalistic observation is used, there is a possibility that informed consent has not been obtained, which is a violation of ethics. However, if participants are made aware of their involvement in a study, their behaviour could change which would negatively impact upon results; hence, the violation is seen as acceptable in this situation. It is imperative that the data is kept confidential. Likewise, names of participants in case studies are kept private and confidential unless permission has been granted to disclose this information.

10 marks

Marks allocated will depend on the quality of the response as follows:

9–10 high; 7–8 medium–high; 5–6 medium; 3–4 low–medium; 1–2 low; 0 not shown.

Note: While answers to short-answer questions can be expressed briefly in dot points, an extended response should be structured in full sentences in paragraphs.

The response shown here is more detailed than a student would be expected to write. This is so that teachers may advise students of the range of information that could be included.