



Victorian Certificate of Education 2010

SUPERVISOR TO ATTACH PROCESSING LABEL HERE

STUDENT NUMBER

Letter

Figures

Words

PSYCHOLOGY

Written examination 1

Wednesday 9 June 2010

Reading time: 9.00 am to 9.15 am (15 minutes)

Writing time: 9.15 am to 10.45 am (1 hour 30 minutes)

QUESTION AND ANSWER BOOK

Structure of book

Section	Area of study	Number of questions	Number of questions to be answered	Number of marks
A	1. Brain and nervous system	18	18	18
	2. Visual perception	13	13	13
	3. States of consciousness	13	13	13
B	1. Brain and nervous system	6	6	18
	2. Visual perception	4	4	14
	3. States of consciousness	3	3	14
				Total 90

- Students are permitted to bring into the examination room: pens, pencils, highlighters, erasers, sharpeners and rulers.
- Students are NOT permitted to bring into the examination room: blank sheets of paper and/or white out liquid/tape.
- No calculator is allowed in this examination.

Materials supplied

- Question and answer book of 19 pages.
- Answer sheet for multiple-choice questions.

Instructions

- Write your **student number** in the space provided above on this page.
- Check that your **name** and **student number** as printed on your answer sheet for multiple-choice questions are correct, **and** sign your name in the space provided to verify this.
- All written responses must be in English.

At the end of the examination

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

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

SECTION A – Multiple-choice questions**Instructions for Section A**

Answer all questions in pencil on the answer sheet provided for multiple-choice questions.

Choose the response that is **correct** or that **best answers** the question.

A correct answer scores 1, an incorrect answer scores 0.

Marks will **not** be deducted for incorrect answers.

No marks will be given if more than one answer is completed for any question.

AREA OF STUDY 1 – Brain and nervous system**Question 1**

The human brain structure which contains almost three quarters of the brain's neurons and which is responsible for processing information as well as reasoning, planning and imagining is the

- A. frontal lobe.
- B. temporal lobe.
- C. cerebral cortex.
- D. cerebral hemisphere.

Question 2

Which of the following statements best describes the corpus callosum?

- A. The corpus callosum transfers information between the cerebral hemispheres of the brain.
- B. Patients with brain damage are unable to send neural information through the corpus callosum.
- C. The corpus callosum ensures that each hemisphere of the brain is able to function independently.
- D. The corpus callosum is found in the cerebral cortex, and connects the two hemispheres of the brain.

Question 3

Visual images received in the left visual field are processed in the

- A. occipital lobe of the left and right hemispheres.
- B. temporal lobe of the right hemisphere only.
- C. occipital lobe of the right hemisphere only.
- D. occipital lobe of the left hemisphere only.

Question 4

Mandy fell off her bike and suffered some mild brain damage. Doctors tested her and found that Mandy could pronounce the word 'accident' but she was unable to give a meaningful verbal description of her accident.

The doctors were most likely to conclude that the part of Mandy's brain affected was

- A. Broca's area.
- B. the frontal lobe.
- C. the parietal lobe.
- D. Wernicke's area.

Question 5

Akmal bumped his head in a heavy fall at a skate park. When he was still recovering in hospital, he could describe a man who came to visit him each day but he could not recognise this man as his father.

Akmal has most likely sustained damage to the association area in the cortex of the _____ lobe.

- A. occipital
- B. parietal
- C. frontal
- D. temporal

Question 6

Mazin's grandmother suffered a mild stroke. The doctor was concerned that the stroke had caused some damage to the right hemisphere of her brain.

The doctor informed Mazin that his grandmother may have some difficulty with

- A. moving her hand, understanding language, recognising family members.
- B. understanding language, recognising emotion, reading a magazine.
- C. recognising a tune, reading her shopping list, reading a map.
- D. imagining, completing a jigsaw puzzle, recognising emotion.

Question 7

A researcher was interested in the possible link between brain tumours and depression in elderly patients. She conducted an intensive study of six individual patients in a hospital using diagnostic tests, patients' interviews, and examination of the patients' medical records.

One limitation of this method for her research is that

- A. the research is not controlled for potential confounding variables.
- B. the reliance on patients' reports will not produce very detailed information.
- C. the patients cannot be randomly allocated to the control and experimental groups.
- D. it is too easy to generalise the results of this type of research.

Question 8

_____ neurons carry information from organs and muscles to the central nervous system while _____ neurons carry information to organs, muscles and glands from the central nervous system.

- A. Sensory, motor
- B. Motor, sensory
- C. Peripheral, autonomic
- D. Autonomic, peripheral

Question 9

The motor function of the somatic nervous system can be demonstrated by

- A. experiencing the cold sensation of ice on your skin.
- B. reflexively moving your hand away from a hot stove.
- C. feeling muscle soreness after playing sport.
- D. scratching your head.

Question 10

Hamish, a patient with severe epilepsy, had an operation in which his corpus callosum was severed to divide the right and left hemisphere of his brain.

A likely consequence of this operation is that

- A. Hamish's memory is affected.
- B. Hamish is unable to make verbal responses.
- C. Hamish has difficulty waving his right hand.
- D. Hamish has difficulty coordinating actions such as dressing himself.

Question 11

Which of the following is true of the autonomic nervous system (ANS)?

- A. The ANS is a vital part of the central nervous system (CNS).
- B. It is impossible to consciously influence the functioning of the ANS.
- C. The ANS ensures that the constantly changing energy requirements of the body are met.
- D. The ANS relays messages between the CNS and the voluntary muscles that control our internal organs and glands.

Question 12

The sympathetic and parasympathetic nervous systems

- A. are part of the reflex arc.
- B. cannot both be active at the same time.
- C. have opposite effects although they work together.
- D. are inactive unless the fight/flight response is activated.

Questions 13, 14 and 15 relate to the following information.

Nicole was attending a job interview for a promotion that was very important to her. Just before her interview, she felt her heart beating very fast and noticed that the palms of her hands were sweating. During the interview, Nicole noticed that her heart rate decreased and her palms felt much drier after about ten minutes.

Question 13

Which part of Nicole's nervous system was most likely to be dominant just before her interview?

- A. the fight/flight response
- B. the somatic nervous system
- C. the sympathetic nervous system
- D. the parasympathetic nervous system

Question 14

Which part of Nicole's nervous system was most likely to be dominant ten minutes after the start of her interview?

- A. the fight/flight response
- B. the somatic nervous system
- C. the sympathetic nervous system
- D. the parasympathetic nervous system

Question 15

What other symptoms might Nicole have experienced just before her interview, even though she may not have been aware of them?

- A. dilated pupils, increased release of glucose
- B. contracted airways, stimulated release of bile
- C. constricted pupils, increased digestive contractions
- D. increased hormone secretion, decreased release of glucose

Question 16

Stuart was accused of stealing money from his employer. He knew he was innocent of the crime, so he volunteered to take a polygraph test. Stuart failed the test even after it was repeated.

Stuart may have failed the test because

- A. he may have felt very relaxed and produced low physiological arousal during both the control and relevant questions.
- B. he may have unintentionally bitten his tongue and induced high physiological responses to the control questions.
- C. the polygraph measures physiological arousal which can be due to emotions other than guilt.
- D. the polygraph cannot accurately measure blood pressure and heart rate.

Question 17

A stressor is defined as any event, object or condition that

- A. an individual perceives as threatening.
- B. poses an actual threat to an individual.
- C. causes an individual to experience psychosomatic symptoms.
- D. stimulates an individual to activate the General Adaptation Syndrome.

Question 18

Alzheimer's disease causes serious disruption to memory and cognitive abilities.

A researcher wanted to use fMRI technology to investigate which areas of brain function are impaired in patients with advanced Alzheimer's disease.

This research may be seen as unethical if

- A. the patient's personal details remain confidential.
- B. the patient becomes unwell during the experiment.
- C. the researcher ends the experiment because the patient is distressed.
- D. the researcher proceeds on the basis of obtaining verbal consent from the patient.

AREA OF STUDY 2 – Visual perception**Question 19**

Perception refers to the process by which

- A. sense organs transmit information to the brain for initial processing.
- B. perception receptors gather information from the environment.
- C. the brain organises and interprets sensation.
- D. the brain selects which stimuli to respond to.

Question 20

One key difference between visual sensation and visual perception is that

- A. visual perception can be consciously controlled while visual sensation cannot.
- B. visual perception involves a cognitive process while visual sensation does not.
- C. visual perception can only occur when visual sensation is completed.
- D. the process of selection only occurs during visual sensation.

Question 21

Two major processes occurring in the eye are

- A. selection and perception.
- B. reception and transduction.
- C. organisation and interpretation.
- D. transduction and interpretation.

Question 22

When entering a darkened cinema from bright afternoon sunlight you have difficulty finding your seat because

- A. the photosensitive substances in your rods and cones take time to adapt.
- B. it takes time for your cones to take over the function of your rods.
- C. your cones cannot function in such circumstances.
- D. the absolute threshold has not been met.

Question 23

Feature detectors respond to

- A. figure-ground distinctions.
- B. the intensity of light on the retina.
- C. specific objects selected from the visual scene.
- D. specific elements of a visual stimulus such as lines and edges.

Question 24

A person who loses sight in one eye could still perceive depth and distance by using the cues of

- A. interposition and relative size.
- B. convergence and retinal disparity.
- C. linear perspective and convergence.
- D. texture gradient and retinal disparity.

Question 25

Accommodation

- A. is a binocular depth cue.
- B. is possible because our eyes are 6 to 7 cm apart.
- C. enables an image to be sharply focused onto the retina.
- D. enables our eyes to turn inwards to focus on an object.

Question 26

Imagine that you are in a museum. A statue is in the middle of the room. You walk around it and examine it from many places in the room. The retinal image of the statue changes, but you do not perceive the statue as changing.

This is known as

- A. convergence.
- B. motion parallax.
- C. interpositioning.
- D. perceptual constancy.

Question 27

Three types of perceptual constancy are

- A. size, texture and form.
- B. form, shape and texture.
- C. size, shape and brightness.
- D. brightness, texture and form.

Questions 28–31 relate to the following information.

In a well-known study by Bugelski and Alampay (1961), participants were allocated to three groups. Group 1 was shown a set of 50 human face images, Group 2 was shown a set of 50 animal images and Group 3 was not shown any images (see table below). All three groups were then shown an ambiguous rat/man image.

Group	Images viewed prior to being shown the ambiguous rat/man image
Group 1	Human faces (drawn in a similar style to the rat/man image)
Group 2	Animals (drawn in a similar style to the rat/man image)
Group 3	No images shown

Participants were asked to say what they perceived when presented with the ambiguous rat/man image. The dependent variable was the number of 'rat' or 'man' responses made by each group.

Question 28

The outcome of this experiment would most likely be that

- A. Group 2 would report perceiving a man more often than a rat.
- B. Group 1 would report perceiving a man more often than a rat.
- C. there would be no difference between the results of the three groups.
- D. Group 3 would report perceiving the rat more often than the man.

Question 29

The best explanation for the outcome of the experiment is that

- A. perceptual errors occurred in Group 2.
- B. perceptual constancies were maintained to view the ambiguous image.
- C. immediate prior experience can bias perception of an ambiguous image.
- D. participants had insufficient prior experience with either rats or animals to form an expectancy of what they would see.

Question 30

This research study provides an example of a principle that psychologists call

- A. perceptual set.
- B. perceptual bias.
- C. perceptual ambiguity.
- D. figure-ground perception.

Question 31

A researcher wishing to repeat Bugelski and Alampay's study believes that the age and gender of participants may influence the results. The researcher ensures that these characteristics are represented in the sample in the same proportion as in the population of research interest.

This is known as

- A. random sampling.
- B. stratified sampling.
- C. matched sampling.
- D. random allocation.

AREA OF STUDY 3 – States of consciousness**Question 32**

Tom is concentrating on completing his Psychology examination paper.

His level of consciousness is best described as

- A. an altered state of consciousness.
- B. normal waking consciousness.
- C. controlled consciousness.
- D. automatic processing.

Question 33

Jack was on a long bus trip to the country. Although he wanted to enjoy the scenery, he found that he was drifting off to sleep for one or two minutes at a time and then waking again with a jerk.

Jack was most likely to be in

- A. rapid eye movement (REM) sleep.
- B. stage 2 sleep.
- C. stage 3 sleep.
- D. a hypnagogic state.

Question 34

Trinh is learning how to drive a car. She has difficulty driving well while listening to the radio or having a conversation, but her mother is able to conduct complex work conversations with another passenger while driving. The difference between Trinh and her mother in the ability to drive while undertaking other activities is that

- A. Trinh's mother is a more experienced driver and practice has turned driving a car into an automatic process for her.
- B. Trinh requires greater concentration when driving as she is still learning and driving a car is an automatic process for her.
- C. Trinh's mother is a skilled driver due to many years of practice and driving is a controlled process for her.
- D. Trinh's mother is not as anxious as Trinh, which allows her to carry out more than one activity at a time.

Question 35

A student is standing nervously outside the examination room, waiting to enter and start her examination.

If the electrical activity of the student's brain was measured, the brain wave pattern would most likely show

- A. alpha waves.
- B. beta waves.
- C. theta waves.
- D. delta waves.

Question 36

The presence of sleep spindles and occasional K-complexes is typical of stage _____ sleep.

- A. one
- B. two
- C. three
- D. four

Question 37

A typical night's sleep for an adult includes four to five sleep cycles.

Which of the following patterns best describes a typical sleep cycle from early in the night?

- A. awake, NREM stage 4, NREM stage 3, NREM stage 2, NREM stage 1, REM, NREM stage 4, NREM stage 3, NREM stage 2, NREM stage 1
- B. awake, NREM stage 1, NREM stage 2, NREM stage 3, NREM stage 4, REM, NREM stage 1, NREM stage 2, NREM stage 3, NREM stage 4
- C. awake, REM, NREM stage 4, NREM stage 3, NREM stage 2, NREM stage 1, NREM stage 2, NREM stage 3, NREM stage 4, REM
- D. awake, NREM stage 1, NREM stage 2, NREM stage 3, NREM stage 4, NREM stage 3, NREM stage 2, NREM stage 1, REM

Question 38

John's mother has expressed concern to the psychologist visiting his kindergarten that John has recently been waking at night in a distressed state after only a couple of hours of sleep. John is unable to recall what has caused him to be distressed.

The psychologist explains that John has most likely experienced

- A. a nightmare.
- B. sleep apnea.
- C. a night terror.
- D. a sleep disorder.

Question 39

Tran and Serge both complain about being tired. Tran complains of difficulty falling asleep and not staying asleep for enough time to be rested. Serge says he falls asleep quickly and finds it difficult to wake up.

It is likely that Tran is suffering from _____ whereas Serge is probably suffering from _____.

- A. hypersomnia; night terror
- B. insomnia; sleep apnea
- C. insomnia; hypersomnia
- D. hypersomnia; insomnia

Question 40

A researcher who is interested in studying the effect of soft music on the sleep patterns of infants would find it an advantage to use a repeated measures experimental design because

- A. she can use a double-blind procedure.
- B. it would eliminate participant differences.
- C. it would increase the number of participants she could use.
- D. it would eliminate the experimenter effect.

Questions 41, 42 and 43 all refer to the following information.

Doctor Goode conducted an experiment to investigate the claim that a particular herb helps people to focus their attention. She used an independent-groups design experiment with randomly allocated participants. The participants were not told whether they had been allocated to the experimental group or the control group.

She began with a test of attention (Attention Test A) to establish a baseline measure for all participants. Then, for the experiment, all participants were given a drink of water in identical cups. The drinks given to the experimental group also contained the herb which was treated to remove its taste and smell.

Finally, all participants sat a different version of the attention test (Attention Test B).

The results of Attention Test B indicated that the experimental group had improved its ability to focus attention compared to the initial baseline measure, but the control group had not. The results were statistically significant.

Question 41

Doctor Goode used a single blind procedure to control for

- A. placebo effects.
- B. practice effects.
- C. individual differences.
- D. experimenter expectations.

Question 42

It is likely that the results of this experiment were due to

- A. the effect of the independent variable on the dependent variable.
- B. lack of counterbalancing.
- C. the order effect.
- D. biased allocation.

Question 43

To control for experimenter expectations, Doctor Goode could have used

- A. a repeated measures experimental design.
- B. an independent-groups experimental design with counterbalancing.
- C. an independent-groups experimental design with a double blind procedure.
- D. a matched-participants experimental design with a single blind procedure.

Question 44

When studying human sleep patterns, a researcher has the responsibility to

- A. ensure participant confidentiality.
- B. debrief the participants at the start of the study.
- C. withhold information from the participants about the nature of the study.
- D. avoid short-term disruption of participant sleep patterns for the purpose of the study.

SECTION B – Short answer questions**Instructions for Section B**

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

AREA OF STUDY 1 – Brain and nervous system**Question 1**

What does an electroencephalograph (EEG) measure?

1 mark

Question 2

Explain how electrical stimulation of the brain (ESB) may be used to locate which parts of the primary somatosensory cortex are responsible for sensation in the hands.

3 marks

Question 3

Describe one benefit of functional magnetic resonance imaging (fMRI) compared to ESB for conducting research on intact living brains.

1 mark

Question 4

A patient experiencing speech difficulties was treated for a brain tumour. A doctor wishes to check that treatment of the patient's brain tumour has been successful. He conducts both a positron emission tomography (PET) scan and a computerised tomography (CT) scan of the patient's brain.

Why might the doctor order **both** scans?

2 marks

Question 5

Tasha is a doctor in a busy general practice. Tasha returned to work after six months maternity leave to a very busy flu season that required working twelve-hour days to cope with the extra patient load. As well as being very busy at work, Tasha missed her baby son. After six weeks of this workload she developed a severe tension headache by the end of almost every working day. After a few days, Tasha's headaches went away although she was still working long hours in the busy surgery. When she caught the flu herself, Tasha had to take a week off work. After recovering and being back at work for a few days, Tasha was unable to get up to go to work one morning. When she consulted her own doctor, she was diagnosed as being extremely stressed and physically drained.

- a. Which stage of the General Adaptation Syndrome (GAS) was Tasha most likely in when she contracted the flu?

1 mark

- b. Explain why an illness such as the flu is experienced by Tasha during this stage of the GAS.

3 marks

- c. State one psychological symptom Tasha may have experienced during the GAS stage when she was unable to get up for work.

1 mark

- d. Explain the role of Tasha's sympathetic nervous system in stage 3 of the GAS.

2 marks

Question 6

A waiter brings Karen some coffee in a glass. Karen picks the glass of coffee up in her right hand. She decides that it is too hot to hold comfortably and puts it back down on the table after a few seconds.

Using psychological terms, explain the role of the sensory receptors and the brain in Karen's action of putting the glass of hot coffee back down on the table.

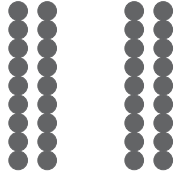
4 marks

AREA OF STUDY 2 – Visual perception

Question 7

For each of the images below, provide the name of the Gestalt principle it relates to and explain how this principle accounts for the way in which we organise our perception and interpretation of the elements within the image.

a.

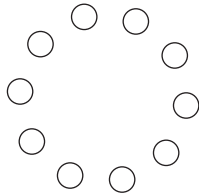


Gestalt principle _____

Explanation _____

2 marks

b.



Gestalt principle _____

Explanation _____

2 marks

Question 8

A film director wants to create the illusion that an actor has been shrunk. The director uses an Ames room and puts the camera at the peephole.

The scene is a battle between a witch and a father who wants to rescue his children. The witch and the father are both positioned at the back right-hand corner of the Ames room. The witch pushes the father away. The father staggers to the back left-hand corner of the Ames room. As he moves to the back left-hand corner the father appears to shrink.

- a. Explain why the father appears to shrink.

2 marks

- b. Why is the camera viewpoint so important in this example?

2 marks

Question 9

Interposition and linear perspective are pictorial depth cues. Explain how each cue produces the appearance of a three-dimensional world in artwork.

- a. Interposition _____

1 mark

- b. Linear perspective _____

1 mark

Question 10

A researcher wants to test the sensitivity of night-vision goggles for use in the army. He takes a group of soldiers out on a field experiment on a moonless night. It is important to determine two aspects of the goggles' performance.

- a. Firstly, the researcher wants to know the maximum distance at which the soldiers can detect movement at night.

This requires determining the _____ threshold for movement detection at night.

1 mark

- b. Secondly, the researcher also wants to know at what distance the wearer is able to detect changes in the number of moving targets.

This relates to determining a _____ threshold.

1 mark

- c. Describe how the first of these two thresholds could be determined for an individual soldier wearing the goggles.

2 marks

AREA OF STUDY 3 – States of consciousness

Question 11

Peter experienced a severe bout of fever when he became ill with the flu. On the day that he had a fever, he lay on the sofa but did not sleep, and his mother regularly brought him food and water. Later, when he had recovered, he asked his mother where she had been during the day when he had the fever. He had been unaware that she had been there, giving him his food and water. Although he had not been asleep, the fever had put Peter into an altered state of consciousness.

- a. Describe two psychological characteristics Peter may have demonstrated to indicate he was in an altered state of consciousness when he had the fever.

i. _____

ii. _____

1 + 1 = 2 marks

- b. Describe two physiological characteristics which may have indicated that Peter was in an altered state of consciousness when he had the fever.

i. _____

ii. _____

1 + 1 = 2 marks

Question 12

Roman is a distance runner who trains hard every day. He has volunteered to be a participant in a research study of sleep patterns of athletes. For the study, he is required to spend a night in a sleep laboratory where his sleep-wake cycle is recorded by the researcher.

- a. Name **one** device that the researcher might use to identify when Roman is in rapid eye movement (REM) sleep and describe what this device would indicate for this specific stage of sleep.

i. Device _____

ii. Description _____

1 + 1 = 2 marks

- b. The researcher observes Roman sleep-talking during the night. What stage of sleep is Roman likely to be in when he sleep-talks?

1 mark

Question 13

A psychologist, Dr Pradesh, wanted to study the effects of sleep deprivation on Year 9 male students. He observed students' hand-eye coordination after the students had been deprived of sleep. Dr Pradesh measured the students' coordination by their ability to catch a tennis ball thrown from a distance of five metres. He used a matched-participants experimental design.

- a. Compared to an independent-groups experimental design, explain **one** disadvantage of using a matched-participants experimental design.

1 mark

- b. Identify a participant characteristic which Dr Pradesh must match for his experiment. Explain why Dr Pradesh must match for this before he conducts his experiment.

Participant characteristic _____

Explanation _____

2 marks

- c. Describe what Dr Pradesh must do in order to obtain informed consent for this study.

2 marks

- d. Identify **two** psychological symptoms of one day's sleep deprivation that the participants are likely to experience.

2 marks

