



**Victorian Certificate of Education
2005**

SUPERVISOR TO ATTACH PROCESSING LABEL HERE

STUDENT NUMBER

Figures
Words

Letter

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PSYCHOLOGY
Written examination 1

Tuesday 7 June 2005

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

<i>Section</i>	<i>Area of study</i>	<i>Number of questions</i>	<i>Number of questions to be answered</i>	<i>Number of marks</i>
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	5	5	14
	3. States of consciousness	4	4	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 electronic communication 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 major function of the corpus callosum is to

- A. coordinate autonomic functions such as breathing and heart rate.
- B. connect the somatosensory cortex to the motor cortex.
- C. transfer information between the right and left hemispheres.
- D. connect Wernicke's area to Broca's area.

Question 2

Which one of the following parts of your body occupies the most space on the somatosensory cortex?

- A. back
- B. toes
- C. tongue
- D. elbow

Question 3

Patient A has damage to her right parietal cortex.

She might experience

- A. loss of sensory function for her right hand.
- B. loss of sensory function for her left hand.
- C. loss of motor function for her right hand.
- D. loss of motor function for her left hand.

Question 4

Patient B has damage to her left frontal cortex.

She might experience

- A. loss of sensory function for her right hand.
- B. loss of sensory function for her left hand.
- C. loss of motor function for her right hand.
- D. loss of motor function for her left hand.

Question 5

Mark has acquired damage to Wernicke's area in his brain.

Which of the following is he most likely to experience as a result of the damage to this area?

- A. fluent but incoherent speech
- B. nonfluent but coherent speech
- C. difficulty coordinating the muscles that move his mouth
- D. nonfluent and incoherent speech

Question 6

In which lobe is Wernicke's area located?

- A. right frontal lobe
- B. left frontal lobe
- C. left temporal lobe
- D. right temporal lobe

Question 7

Which one of the following is **not** a right hemisphere function?

- A. creating a poem
- B. completing a jigsaw puzzle
- C. feeling sensations on the left side of the body
- D. admiring artwork

Question 8

The specialisation of the function of each of the cerebral hemispheres is referred to as

- A. lateralisation of functioning.
- B. verbal functioning.
- C. nonverbal functioning.
- D. sensory functioning.

Question 9

Arthur has agreed to participate in a research study. In the study a small amount of radioactive substance will be injected into his blood vessels and transported to his brain. At the same time as the injection he will be asked to think of as many words as he can beginning with the letter 'L'.

What is this recording procedure known as?

- A. EEG
- B. PET
- C. CT
- D. MRI

Question 10

When Trevor undertakes a particularly difficult series of steps in his jazz ballet performance his motor movements are controlled by the

- A. somatic division of the central nervous system.
- B. autonomic division of the central nervous system.
- C. somatic division of the peripheral nervous system.
- D. autonomic division of the peripheral nervous system.

Question 11

Which one of the following nervous systems stimulates the digestive system in the body?

- A. somatic
- B. sympathetic
- C. parasympathetic
- D. cerebral

Question 12

You are walking alone on a dark street. Suddenly you hear footsteps behind you.

At this point, your _____ nervous system becomes activated.

- A. somatic
- B. sympathetic
- C. parasympathetic
- D. cerebral

Question 13

A few minutes after Ken had witnessed a serious traffic accident, he observed that his heart rate had slowed down again and that he was starting to relax.

The division of the nervous system responsible for this change is

- A. somatic.
- B. sympathetic.
- C. parasympathetic.
- D. cerebral.

Question 14

The first stage of general adaptation syndrome (GAS) is divided into two parts: _____ and _____.

- A. attack; counterattack
- B. alarm; resistance
- C. adaptation; stress
- D. shock; countershock

Question 15

Which of the following is a direct effect of the release of hormones during prolonged arousal?

- A. decreased blood pressure
- B. limited supply of energy to the muscles
- C. decreased respiration
- D. less efficient functioning of the immune system

Question 16

Studies of people who are suffering long-term stress indicate that they

- A. show some ill-effects early on but recover quickly.
- B. recover gradually from any ill-effects but do not have lasting effects of the stress.
- C. are more likely to have ulcers than problems with high blood pressure.
- D. are more likely to show poor health later in life.

Question 17

Professor Springer, a respected neuropsychologist, plans to present a lecture on his research into Parkinson's disease. He wants to discuss and display the MRI scans of participants.

For Professor Springer to do this, he

- A. must not reveal the identity of the participants involved in the research.
- B. can reveal the names of the participants if people ask him privately after the lecture.
- C. can reveal some details of the participants which may lead to their identification.
- D. can reveal the identity of the participants if they are over 18 years old.

Question 18

Professor Springer is about to undertake a study with his patients which involves deception (that is, he is going to intentionally mislead the patients in the experimental situation). This research has been approved by an ethics committee.

The participants should be

- A. sworn to secrecy so that they do not tell other possible participants.
- B. debriefed about the nature and the purpose of the deception.
- C. debriefed only if there is a possibility of physical harm arising from this study.
- D. debriefed only if it is possible that they might discover the true purpose of this study.

AREA OF STUDY 2 – Visual perception

Question 19

Samuel is looking down a road at a row of buildings receding into the distance. The buildings are all made of brick. When Samuel looks at the buildings closest to him he can see the fine details of the brickwork in the walls of the building, but he can not see this fine detail in the walls of the buildings that are further away. Samuel's differing perception of the fine detail of the brickwork aids his depth perception by providing a _____ cue called _____ .

- A. binocular; relative size
- B. monocular; texture gradient
- C. binocular; linear perspective
- D. monocular; convergence

Question 20

The process of relaying information from one neuron to another is known as

- A. reception.
- B. selection.
- C. action potential.
- D. transmission.

Question 21

An experimenter wishes to establish the absolute threshold for the detection of a light stimulus. Seven equally spaced intensities of light are presented to the observers 10 times in random order. The observers respond after each presentation by saying 'yes' or 'no' to indicate whether or not they have seen the stimulus. The table shows the percentage of correct responses for each intensity of light.

Stimulus intensity	Percentage of correct responses
1	0
2	10
3	35
4	50
5	90
6	100
7	100

What is the approximate absolute threshold?

- A. 1
- B. 4
- C. 6
- D. 7

Question 22

To determine the difference threshold for light, the same procedure is followed except that the observers are asked to indicate whether the second pair of light intensities is brighter or dimmer than the first. The table shows the percentage of 'brighter than' responses for each pair of intensities.

Stimulus intensity	Percentage of 'brighter than' responses
11	0
12	10
13	50
14	80
15	90
16	100
17	100

What is the approximate difference threshold?

- A. 12
- B. 13
- C. 16
- D. 17

Question 23

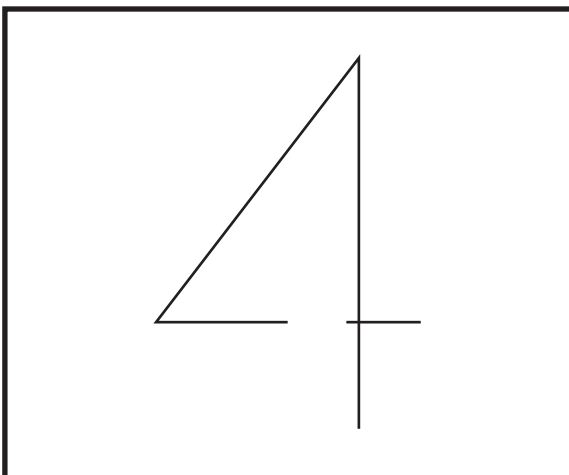
The fact that we see a truck at some distance as large, even though the size of the image that it casts upon the retina is relatively small, is an illustration of the principle of

- A. retinal disparity.
- B. texture gradient.
- C. interposition.
- D. perceptual constancy.

Question 24

The tendency to see the figure in the box below as the number four rather than as a set of intersecting lines is an example of the Gestalt principle of

- A. similarity.
- B. proximity.
- C. figure-ground.
- D. closure.



Questions 25 and 26 relate to the following information.

Ricky incorporates many pictorial depth cues in his landscape paintings.

Question 25

In one painting, two fence lines converge as they recede into the distance.

This depth cue is known as

- A. convergence.
- B. interposition.
- C. proximity.
- D. linear perspective.

Question 26

Ricky uses relative size to convey depth.

Which of the following is a description of relative size?

- A. An object is perceived as maintaining its size despite changes in size of the retinal image.
- B. An object that is closer to the horizon in a painting is seen as being further away than other objects.
- C. An object casting the larger retinal image is seen as being closer to the viewer than a similar object that casts a smaller retinal image.
- D. The smaller of two unfamiliar objects is perceived as being further away than the larger object.

Question 27

Selection, a stage of visual perception, is

- A. a preference for one visual object over another.
- B. a method used by the retina to detect the incoming stimulus.
- C. a technique used to choose participants for an experiment.
- D. a process of sorting and isolating perceptual features of a stimulus and discarding irrelevant information.

Question 28

You perceive a book as having the same shape whether you see it from the side or the front.

This is an example of

- A. similarity.
- B. accommodation.
- C. interposition.
- D. perceptual constancy.

Question 29

Although the two lines in the Müller-Lyer illusion are _____ length, the line with the outward-directed angles at each end is perceived to be _____ than the line with the inward-directed angles at each end.

- A. equal; longer
- B. equal; shorter
- C. unequal; longer
- D. unequal; shorter

The following information relates to Questions 30 and 31.

Cate has designed a new logo for her town. The logo consists of a shape that is an example of the Gestalt principle of closure. She decides to survey a sample of people who are representative of the township's population to see if they can perceive the correct shape.

Question 30

Cate divides the population up into groups based on age. Each person within their age group has an equal chance of being selected for the sample. The sample has the same age group proportions as in the population.

This type of sampling is most accurately known as

- A. random sampling.
- B. stratified sampling.
- C. convenience sampling.
- D. stratified random sampling.

Question 31

Cate explains the nature and purpose of the study to the participants and obtains their permission to participate.

Which ethical guideline is she following?

- A. debriefing
- B. minimal but necessary deception
- C. right to withdraw
- D. informed consent

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

Consciousness can be described as

- A. a drug-induced state of altered reality.
- B. awareness of self, others and external events.
- C. a dream state over which there is control.
- D. an enlightened state of awareness.

Question 33

Altered states of consciousness

- A. do not occur naturally.
- B. are always characterised by high levels of focused, selective attention.
- C. can lead to either a heightening or a dulling of the senses.
- D. cannot occur during sleep.

Question 34

Angelo is a very experienced taxi driver.

While Angelo is driving his taxi along an unfamiliar main road in search of the street where he needs to pick up his next fare, he is reading the street signs of the streets that run off the main road. For Angelo, the basic skills involved in driving the taxi involve mostly _____, whereas searching for the correct street involves mostly _____.

- A. focused attention; selective attention
- B. selective attention; divided attention
- C. automatic processing; controlled processing
- D. controlled processing; automatic processing

Question 35

During a typical night's sleep, a complete cycle of REM and NREM sleep occurs about every

- A. 90 minutes.
- B. 4 hours.
- C. 30 minutes.
- D. 1 hour.

Question 36

When delta waves comprise more than 50 per cent of recorded brain activity, a person has entered Stage _____ sleep.

- A. 1
- B. 2
- C. 3
- D. 4

Question 37

In a study, participants are deprived of sleep for 8½ days.

When the study ends, it is likely that the participants will

- A. have trouble falling asleep as soon as they go to bed.
- B. suffer a range of long-term psychological and physiological effects.
- C. sleep longer than normal on the first night and then gradually work their way back to a normal sleep pattern.
- D. immediately fall asleep, have a normal night's sleep, and wake at their usual time.

Question 38

Sam's employment involves shift work. He finds it difficult to get adequate sleep and is often tired.

As a result, he

- A. often experiences hallucinations.
- B. finds it difficult to complete complex tasks.
- C. finds it difficult to complete simple tasks.
- D. is more emotionally stable than usual.

Question 39

Sleep apnea can be defined as

- A. difficulty in falling asleep.
- B. cessation of breathing during sleep.
- C. a disorder that is related to the prolonged use of sleeping pills.
- D. extremely loud snoring.

The following information relates to Questions 40, 41 and 42.

Last night Danny had a scary dream. In his dream he was being chased by a very angry monster. He woke up during the dream and was frightened. In the morning he could still vividly remember his dream.

Question 40

Danny most likely experienced a

- A. nightmare.
- B. night terror.
- C. sleep-talking episode.
- D. somnambulism episode.

Question 41

During this dream, Danny's brainwaves would most likely have been _____ waves, which are _____ frequency and _____ amplitude.

- A. delta; low; high
- B. delta; high; low
- C. beta; low; high
- D. beta; high; low

Question 42

During this dream, Danny's arms and legs would have been

- A. copying what was happening in his dream.
- B. moving as if he were having a sleepwalking episode.
- C. twitching slightly.
- D. motionless.

Question 43

A limitation of a matched-participants design, when compared with an independent-groups design, is that

- A. the results can only be generalised to a very small population because the participants all have the same participant variables.
- B. the results will be the same for both groups because the participants all have the same participant variables.
- C. order effects may occur.
- D. matching participant variables can be time consuming.

Question 44

Krystal plans to incorporate a placebo group in her research design.

Using a placebo group means that Krystal will be able to reliably evaluate whether

- A. the difference in the results between the placebo group and experimental group is due to the independent variable, and not the participants' expectations.
- B. the difference between the placebo group and experimental group is due to the dependent variable, and not the participants' expectations.
- C. the results of the experimental group give a true indication of the effectiveness of the drug because participant expectations will only influence the results for the placebo group, not the experimental group.
- D. the results of the experimental group give a true indication of the effectiveness of the drug because experimenter expectations will only influence the results within the placebo group, not the experimental group.

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**

- a. The deeply furrowed or grooved layer of tissue that covers the cerebral hemispheres is known as the

_____ .

1 mark

- b. List two main functions of this grooved layer of tissue.

1. _____

2. _____

2 marks

Question 2

A picture of an apple is flashed to Mario's left visual field.

- a. In which hemisphere(s) (left **or** right **or** both) would this information first register?

1 mark

- b. If Mario's corpus callosum were completely severed, what would be the best way for him to demonstrate what he had seen? Why?

2 marks

Question 3

- a. The brain stimulation method (as pioneered by Penfield) has been a valuable method to study the human brain. Briefly outline this method and **one** contribution it has made to our understanding of the brain.

2 marks

- b. What is **one** limitation with this method?

1 mark

Question 4

- a. What information about the brain does positron emission tomography (PET) provide?

1 mark

- b. When compared to computerised tomography (CT), outline one advantage of using positron emission tomography (PET).

1 mark

- c. What is the difference in the information provided by magnetic resonance imaging (MRI) and functional magnetic resonance imaging (fMRI)?

1 mark

Question 5

a. The _____ monitors a number of physiological responses and has been used in some countries as a lie detector.

1 mark

b. Discuss **two** limitations in the use of this device to determine whether someone is telling the truth.

2 marks

Question 6

Prolonged stress may contribute to a psychosomatic illness.

a. Explain why a psychosomatic illness is not an imagined illness.

1 mark

b. i. At which stage (name and number) of the general adaptation syndrome is a major psychosomatic illness most likely to occur?

ii. Why?

1 + 1 = 2 marks

AREA OF STUDY 2 – Visual perception

Question 7

In visual perception, transduction involves the conversion of _____ (or light) energy into _____ energy. This process is carried out by the _____ located in the retina.

3 marks

Question 8

Using an example, clearly explain the Gestalt principle of **similarity**.

2 marks

Question 9

a. What is meant by **retinal disparity**?

1 mark

b. Explain the link between retinal disparity and the perception of depth or distance.

1 mark

Question 10

a. What is meant by the term **perceptual set**?

1 mark

b. Past experience can influence visual perception through perceptual set. Use an example to demonstrate how past experience influences visual perception.

2 marks

Question 11

- a. Clearly state how the Ames room is constructed in terms of its shape and the position of the peephole to create an illusion.

2 marks

- b. Bernadette has never heard of the Ames room illusion while Kane is familiar with the Ames room illusion and has an understanding of why this illusion is thought to exist. Both look through the peephole and watch a person walk from one corner to the other.

What would you expect Bernadette and Kane to perceive?

Bernadette

Kane

1 + 1 = 2 marks

AREA OF STUDY 3 – States of consciousness**Question 12**

Distinguish between selective attention and divided attention.

2 marks

Question 13

a. The brain's electrical activity can be measured to determine different states of consciousness.

The brainwave patterns during a very relaxed but awake state of consciousness are _____ waves,

while during an alert state they are _____ waves.

2 marks

b. Name and describe the brainwave patterns during Stage 1 NREM sleep.

2 marks

Question 14

a. Lucy is suffering from insomnia. List **three** problems with her sleep pattern that may have led to this diagnosis.

3 marks

b. Taylor has been diagnosed with hypersomnia.

i. What is hypersomnia?

ii. Typically, how much sleep per night would Taylor require as a result of his hypersomnia?

1 + 1 = 2 marks

Question 15

Professor Hoffman has developed a theory that students who have 9 or more hours of sleep each night will perform better at complex mathematical tasks than students who have less than 8 hours of sleep each night. He conducts an experiment and records the results himself. He finds a statistically significant difference between the two groups, with the students who sleep longer demonstrating superior performance.

- a. With reference to experimenter effects, why should this finding be viewed with caution?

1 mark

- b. Name and describe a procedure Professor Hoffman could use to deal with the problems associated with experimenter effects.

2 marks