ARANMORE CATHOLIC COLLEGE TRUST

Aranmore Catholic College

Psychology Examination, 2015

Question/Answer Booklet

PSYCHOLOGY

Year 11

Please place your student identification label in this box

ANSWER KEY

Time allowed for this paper

Reading time before commencing work: ten minutes
Working time for paper: three hours

MATERIALS REQUIRED/RECOMMENDED FOR THIS PAPER

To be provided by the supervisor:

- This Question/Answer Booklet

To be provided by the candidate:

- Standard items: Pens, lead pencils, eraser or correction fluid, ruler, highlighter.
- Special items: Non-scientific calculators.

IMPORTANT NOTE TO CANDIDATES

- No other items may be taken into the examination room. It is your responsibility to ensure that you do not have any unauthorised notes or other items of a non-personal nature in the examination room. If you have any unauthorised material with you, hand it to the supervisor before reading any further.

ANSWER KEY

Structure of this paper

Section	Number of questions available	Number of questions to be answered	Suggested working time (minutes)	Marks available	Percentage of total exam
Section One: Research methods	4	4	40	25	25
SECTION TWO: Short answers	7	7	100	60	60
SECTION THREE: Extended answers	3	1	40	15	15
				Total	100

Instructions to candidates

1. The rules for the conduct of Western Australian external examinations are detailed in the *Year 11 Information Handbook 2015*. Sitting this examination implies that you agree to abide by these rules.

2. Write your answers in this Question/Answer Booklet.

3. You must be careful to confine your responses to the specific questions asked and to follow any instructions that are specific to a particular question.

4. Spare pages are included at the end of this booklet. They can be used for planning your responses and/or as additional space if required to continue an answer.
   - Planning: If you use the spare pages for planning, indicate this clearly at the top of the page.
   - Continuing an answer: If you need to use the space to continue an answer, indicate in the original answer space where the answer is continued, i.e. give the page number.
     Fill in the number of the question(s) that you are continuing to answer at the top of the page.

Section One: Research methods **25% (25 marks)**

This section has **four (4)** questions. Answer **all** questions. Write your answers in the spaces provided.

Spare pages are included at the end of this booklet. They can be used for planning your responses and/or as additional space if required to continue an answer.

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- Continuing an answer: If you need to use the space to continue an answer, indicate in the original answer space where the answer is continued, i.e. give the page number. Fill in the number of the question(s) that you are continuing to answer at the top of the page.

Suggested working time: 40 minutes.

Question 1 **(6 marks)**

Researchers wanted to determine whether eating a healthy lunch improved mood. A sample of 10-year old boys was provided with a healthy lunch consisting of a sandwich and fruit. The boys were then asked to rate their mood on a 10-point scale. The responses were rated to give a 'mood score' where 20 was the most positive. The results are shown in the table below.

Participant	Mood score
1	2
2	1
3	7
4	6
5	2
6	2
7	1

(a) This research method was criticised for having poor reliability. Define reliability as it is used in psychological research. (1 mark)

The extent to which an assessment tool measures what it is supposed to measure each time it is used / consistently.

(b) This research method was criticised for having poor validity. Define validity as it is used in psychological research. (1 mark)

Refers to the extent to which an assessment tool actually measures what it is designed to measure.

(c) Write an operational hypothesis for this study. (3 marks)

It is hypothesised that young people/children who eat a healthy lunch (sandwich and fruit) will have a greater mood (measured using the 10-point scale) compared to young people/children who do not eat a healthy lunch.

population (1)

operationalised variables (1) prediction between variables (1)

d) The factor that is being manipulated in an experiment is called the: (1 mark)

Independent variable

Question 2 **(4 marks)**

The ages of participants used in a research study are listed below.

22, 32, 21, 25, 31, 33, 27, 21

Calculate the mean, mode, median and range from these ages.

Mean: 212 ÷ 8 = 26.5 (1)

Mode: 21 (1)

Median: 21, 21, 22, 25, 27, 31, 32, 33

25 + 27 = 52 52 ÷ 2 = 26 (1)

Range: 33 − 21 = 12 (1)

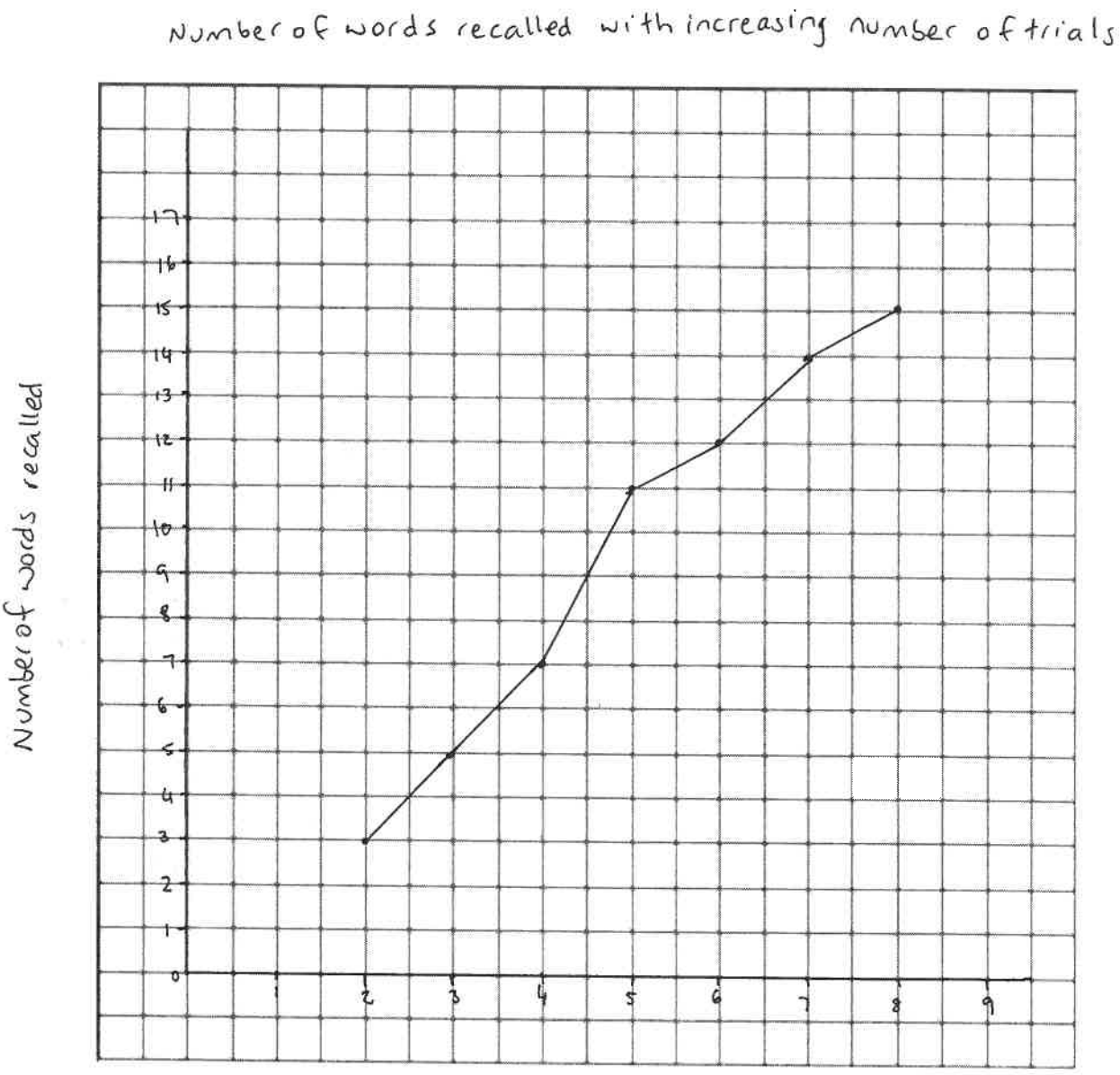
Question 3 **(7 marks)**

An experiment was conducted to determine whether the number of times people heard a list of 20 words increased their memory as measured by their ability to recall those words. The data from the experiment are shown below.

Number of words recalled with increasing number of trials

Number of trials	Number of words recalled
2	3
3	5
4	7
5	11
6	12
7	14
8	15

(a) Construct a graph to display these data on the grid below. A spare grid is provided at the end of this Question/Answer booklet. If you need to use it, cross out this attempt. (5 marks)



(b) Name the operationalised independent variable and the operationalised dependent variable.
(2 marks)

Operationalised independent variable: The number of trials (2-8) (1)

Operationalised dependent variable: Memory (number of words recalled) (1)

Question 4 **(8 marks)**

Researchers are designing an experiment to determine whether listening to music while exercising causes people to exercise harder. There will be 100 participants in the experiment, 50 in the experimental group, and 50 in the control group.

(a) Identify whether the study described above is an experimental or non-experimental study. Explain briefly the reason for your answer.
(2 marks)

Experimental study (1) Any 2 for 1 mark

Can be replicated to produce similar results, has a cause-effect relationship, independent variable can be changed.

(b) List **two** variables that should be controlled in this experiment. ANY 2 (2 marks)

One: Previous health history, diet, exercise, fitness level, ability to hear,

Two:

(c) Identify **one** ethical consideration relevant to this study. Explain how the researchers would deal with this consideration in their research.
(2 marks)

(1) for stating ethical consideration: confidentiality, informed consent, voluntary participation, withdrawal rights, equitable treatment

(1) For how researchers would deal with consideration: assign numbers rather than use names, ensure participants understand research and sign to indicate consent.

(d) Describe one method the researchers could use to determine which participants will be in the control group and which participants will be in the experimental group.
(2 marks)

Randomisation (1)

Computer randomly generates codes assigned to each student for allocation into groups. OR (1)
draw names/numbers from a hat.

Section Two: Short answer **60% (60 marks)**

This section has seven (7) sections. Answer all questions. Write your answers in the spaces provided.

Spare pages are included at the end of this booklet. They can be used for planning your responses and/or as additional space if required to continue an answer.

- Planning: If you use the spare pages for planning, indicate this clearly at the top of the page.
- Continuing an answer: If you need to use the space to continue an answer, indicate in the original answer space where the answer is continued, i.e. give the page number. Fill in the number of the question(s) that you are continuing to answer at the top of the page.

Suggested working time: 100 minutes.

Question 1 **(7 marks)**

a) Complete the table below. (6 marks)

Class of recreational drug	List **one** (1) effect on behaviour	Example of this class of drug
Hallucinogen	reduces inhibitions OR Boosts self confidence OR causes aggressive outbursts (1)	Cannabis LSD Ketamine magic mushrooms (psilogybin) (ANY) (1)
Depressant	Reduces inhibitions OR Boosts self confidence OR Causes aggressive outbursts (1)	Cannabis Heroin Codeine Methadone Morphine Alcohol (ANY) (1)
Stimulant	Reduces inhibitions OR Boosts self confidence OR Causes aggressive outbursts (1)	Methamphetamine Cocaine Amphetamines Ecstasy Speed Ice (1) (ANY)

b) State why exercise is frequently used in combination with or even as an alternative for drug therapy for people suffering from anxiety or depression. (1 mark)

Exercise is very effective in altering mood OR Releases dopamine, endorphins, serotonin or norepinephrine in brain OR strengthens the heart by increasing blood flow & lowering blood pressure & blood pressure reaction to stress.

Question 2 **(5 marks)**

Researchers conducted an investigation into hemispheric specialisation with two groups of healthy, male, right-handed adults with intact brains. The research is summarised in the table below.

Group	Details	Average response time	
		Right visual field	Left visual field
1	Participants were required to focus on a central point on a screen. **A word was flashed to one side of the screen and participants had to say the word aloud as quickly as possible.** Half of the words were presented to the participants' right visual field and half to the left visual field.	350 milliseconds	450 milliseconds
2	Participants were required to focus on a central point on a screen. **A picture was flashed to one side of the screen and participants were required to press a space bar on a keyboard with either hand as quickly as possible when they saw the picture.** Half of the pictures were presented to the participants' right visual field and half to the left visual field.	450 milliseconds	350 milliseconds

(a) Explain why there is a difference in the average response times for the right and left visual fields for groups 1 and 2. **(3 marks)**

(1) Information presented to the right visual field is processed in the left hemisphere & vice versa. Where verbal information is processed in the left hemisphere it does not have to cross via the corpus callosum before being articulated, as the left hemisphere contains the language centres of the brain & is therefore responded to more quickly than information processed in the right hemisphere. similarly, recognition of a picture occurs more rapidly if the picture is processed in the right hemisphere.

(b) What do the results of this information indicate about hemispheric specialisation and the processing of verbal and non-verbal information? **(2 marks)**

(1) The results demonstrate that hemispheric specialisation does occur: the left hemisphere is more specialised for verbal tasks and the right hemisphere for non-verbal tasks.

Question 3 **(6 marks)**

a) State the name given to the part of the brain that connects the two cerebral hemispheres and describe the function of this part. (2 marks)

Corpus Callosum (1) which connects the two hemispheres of the brain and allows messages (1) to be sent from one hemisphere to the other.

b) Name the hemisphere of the brain responsible for judging rhythm and time. (1 mark)

Left (these are 'logic' abilities)

c) Name the hemisphere of the brain responsible for speaking, writing and comprehending language. (1 mark)

Left

d) Name the hemisphere of the brain responsible for logical thought and encompassing mathematical ability. (1 mark)

Left

e) Name the hemisphere of the brain responsible for painting a picture of a landscape. (1 mark)

Right

Question 4 **(11 marks)**

Functional magnetic resonance imaging (fMRI) is a neuroimaging technique that may be used to identify changes in the brain during learning.

a) Describe an advantage of using fMRI when a person is undertaking a learning task. (2 marks)

Any of below points, (1) mark for description (1) mark for correct answer

- fMRI indicates active area (structure) of the brain by showing increased blood flow.
- fMRI gives high resolution (or highly contrasted) information.
- changes can be observed in real time during the learning task.

b) If a person has a metallic implant in their body, such as a heart pacemaker or a pin in a bone, they are advised not to undertake a certain brain scanning technique. What is the name of this technique? (1 mark)

MRI scan

c) What does an electroencephalograph (EEG) measure? (1 mark)

Brain waves (electrical activity in the brain).

OR 9 Movement of electrons in the brain

d) 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 (CAT) scan of the patient's brain. Why might the doctor order **both** scans? (ANY 2) (2 marks)

- PET scans can distinguish between benign and malignant lesions while CAT scans cannot.
- The CAT scan can help see if the tumour is still present (structure). PET scan can help identify amount of glucose brain is using (function).
- CAT scan gives clear image of the structure of the brain but not the function. PET scan gives information about the functioning of different parts of the brain

e) A CAT scan is an example of a still picture. Explain what this means. (3 marks)

The still pictures are single, (1) static images (1) that are 2D. (1)

f) A sugar tracer (fluorodeoxyglucose) is the most common type of tracer used in which type of scanning technique? (1 mark)

PET scan

g) State one negative factor of using fMRI scans. (ANY (1)) (1 mark)

More expensive than other scanning types
Patient must stay completely still to get a clear image.
Researchers still don't completely understand how it works.
Results from the scan can be difficult to interpret
Not suitable for pregnant women
should not have metal on or in body
BOLD response can be affected by drugs, age, attention, amount of CO_2 in blood
scan takes longer than most to run.

Question 5 **(17 marks)**

a) The brain can be broken up into three major parts, the hindbrain, midbrain and forebrain.

(i) Which of these three parts is the largest and most highly developed part of the brain? (1 mark)

Forebrain

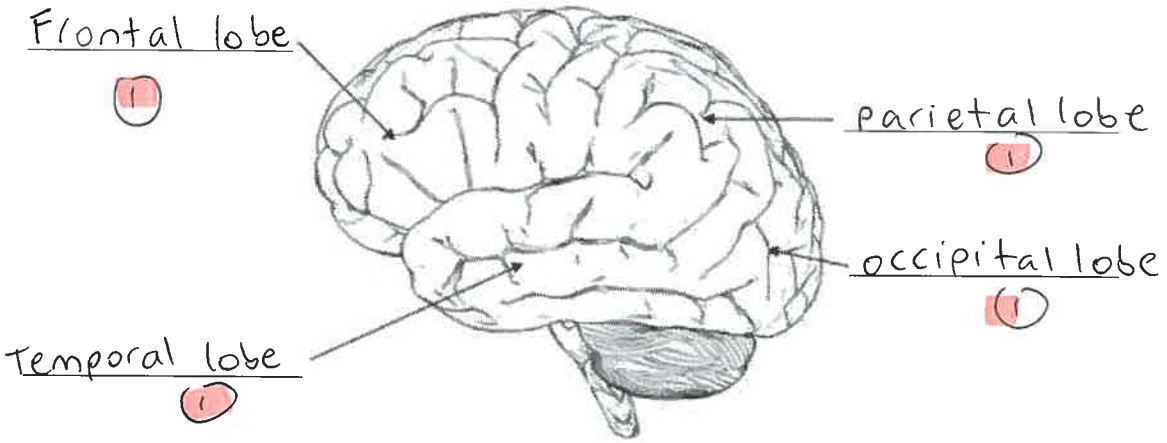
(ii) Which of these three parts receives all messages from the senses except smell? (1 mark)

Midbrain

(iii) Which of these parts plays a major role in how we think, feel and behave? (1 mark)

Forebrain

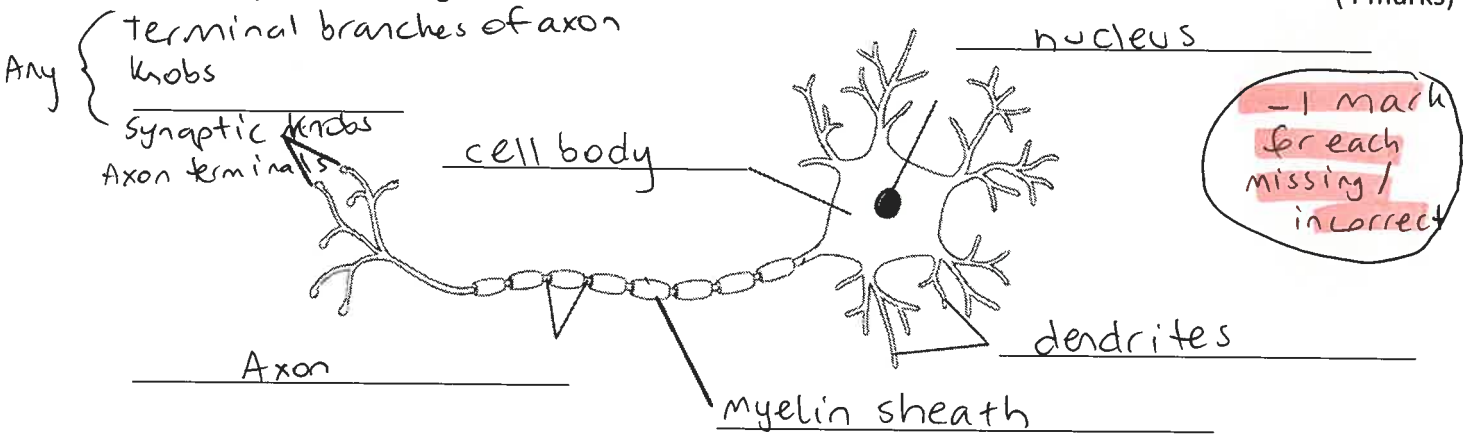
b) Correctly label the brain lobes indicated on the diagram below. (4 marks)



c) Andy fell heavily from her horse while riding in a cross-country event, and suffered head injuries as a result. Following the accident, her vision has become impaired. Which lobe of the brain did Andy most likely damage? (1 mark)

Occipital lobe

d) Correctly label the diagram below. (4 marks)



e) Write a definition for the term 'neuron'. (1 mark)

Cells in the nervous system (nerve cells) that communicate with one another to perform information-processing tasks.
OR
A nerve cell that transmits nerve impulses
A nerve cell that receives & sends electrical or chemical signals within the body

f) Describe how neurotransmitters work in communicating messages between neurons at a synapse. (3 marks)

Receive incoming information & send a signal to other neurons, muscles or glands

Neurotransmitters carry a message from one neuron (1) across a synapse / synaptic gap (1) to the dendrite of another neuron (1).

g) Describe the location of the cerebral cortex. (1 mark)

Located on the very outside of the brain / outer layer of cerebrum.

Question 6 **(5 marks)**

a) Describe two (2) key ideas in Francis Galton's (1869) theory of intelligence. (2 marks)

- Intelligence is a general ability that shows itself in different ways, depending on the environment.
- Intelligence can be measured by a simple test.
- measures of the senses could be used to assess intellect

ANY 2

b) According to Howard Gardner (1999) there are nine different types of intelligence. Name and describe any two (2) of these types of intelligence. (2 marks)

Musical: learning through songs, patterns, rhythms, instruments & musical expression.

Visual spatial: learning visual aids & organising ideas spatially, think in images & pictures. 'see' things in one's mind.

Existential: learning to see the 'big picture'. connects real world understandings & application to new learning.

Naturalist: learning through classification categories & hierarchies, ability to pick up on subtle differences. sees patterns & relationships in nature.

Bodily / kinesthetic: learning through interaction with one's environment & concrete experiences.

Mathematical-logical: learning through reasoning, problem-solving & numbers.

Verbal linguistic: learning through spoken & written words; reading, listening speaking & writing.

Interpersonal: learning through interactions with others, working collaboratively & cooperatively.
Ability to understand & interpret with other people.
Skilled at assessing emotions & motivations of those around them

Intrapersonal: learning through feeling, values & attitudes, understands other people.
Good at being aware of own emotional states, feelings & motivations.

c) State the name of the person who came up with the theory of Emotional Intelligence. (1 mark)

Daniel Goleman

Question 7 **(6 marks)**

The Stanford-Binet Intelligence Scale, Wechsler's Intelligence Scale and Intelligence Quotient are three tests which are used to measure intelligence.

a) Describe the Stanford-Binet Intelligence Scale, explain who was involved with developing the test and describe its relevance in society today. (3 marks)

Alfred Binet and Theodore Simon first came up with the test then Lewis Terman revised it for North America. (1)

The test is made up of age-ranked questions. (1)

Today the test is used to measure the intelligence of individuals from 2 to 85+ years of age. (1)

b) Describe the Wechsler's Intelligence Scale, explain who was involved with developing the test and describe its relevance in society today. (3 marks)

David Wechsler (1)

Empirical tests designed to measure intelligence (1)

used extensively in Australia today (1)

Section Three: Extended answer **15% (15 marks)**

This section has two (2) sections. You must answer **one** (1) question.

Pages are included at the end of the questions for planning and writing your answers.
- Planning: If you use a page for planning, indicate this clearly at the top of the page.
- Answering the question: In the pages provided indicate clearly the number of the question you are answering.
- You should refer to relevant psychological concepts, theories and research in your answer.

Two (2) marks are allocated for paragraph structure and grammar/spelling.

Suggested working time: 40 minutes.

Question 12 (15 marks)

Roger Sperry was a neuropsychologist and neurobiologist who, together with David Hubel and Torsten Wiesel won the 1981 Nobel Prize in Physiology and Medicine for his work with split-brain research.

In your answer, you should
- a) Explain the procedure involved in a split-brain operation. (2)
- b) Describe one reason why the split-brain operation would be used on a patient. (1)
- c) Explain why split-brain patients shown an image in only their left visual field cannot vocally name what they have seen. (3)
- d) Explain why split-brain patients touching a mysterious object with only the left hand, while also receiving no visual cues in the right visual field, cannot say out loud the name of that which the right side of the brain is touching. (3)
- e) Explain what the term 'hemispheric specialisation' refers to and provide examples. (1)

left - (1)
right - (1)

OR

Question 13 (15 marks)

Intelligence has been defined in many different ways such as in terms of one's capacity for logic, abstract thought, understanding, self-awareness, communication, learning, emotional knowledge, memory, planning, creativity and problem solving. There have been numerous tests designed to test ones intelligence.

In your answer, you should
- a) Define the term 'intelligence tests'.
- b) Refer to an example of a group intelligence test and an individual intelligence test.
- c) Describe two advantages of group intelligence testing.
- d) Describe two disadvantages of group intelligence testing.
- e) Describe two advantages of individual intelligence testing.
- f) Describe two disadvantages of individual intelligence testing.

Question number: 12

a) The corpus callosum is cut (1) to stop communication between (1) the hemispheres of the brain.

b) The split-brain operation could be used to stop epileptic fits in a patient. (1) (1 mark for description)

c) Image shown in the left visual field, the image is sent only to the right side of the brain. (1) The speech-control center is on the left side of the brain (1). communication between the two hemispheres is stopped thus the patient cannot say out loud the name of that which the right side of the brain is seeing (1).

d) The left hand touches the object but the sensory information is sent to the right side of the brain (1).

The speech-control center is on the left side of the brain (1) communication between the two sides of the brain is stopped so the patient cannot say out loud the name of that which the left hand is touching. (1)

e) Hemispheric specialisation is the idea that (1) each hemisphere has specialised functions. ... the left hemisphere controls the right hand, is responsible for reasoning, scientific functions, spoken language, written language and number skills. The right hemisphere controls the left hand, is responsible for creativity, insight, music, art awareness, spatial orientation. (Any 2 1 mark) (Any 2 1 mark)

Question number: 13

a) Tests that measure what a person can do with or without the benefit of specific training or education.

OR

Tests designed to determine the relative mental capacity of a person. (1)

b) Example of group intelligence test: The Cognitive Abilities Test, Scholastic Assessment Tests, Bar-On Inventory test (can be either). (1)

Example of individual intelligence test: Stanford-Binet Intelligence test, Wechsler Intelligence Scale, IQ test (1)

c) Two advantages of group intelligence testing

- Test takers can complete it on their own without interacting with the examiner
- The tests take less time than individual intelligence tests.
- Test conditions are the same for all in the group.
- Instructions are more simple than for individual intelligence tests.

Any 2

d) Two disadvantages of group intelligence testing.

- No one-on-one interaction with examiner (test taker may not understand question)
- Scoring format is less flexible & gives less diagnostic information.
- Examiners are not as highly trained (may break standardization)

Any 2

e) Two advantages of individual intelligence testing

- Allows for comparisons to be made between others in the same age group.
- Examiner must be highly trained.
- Examiner must have rapport and positive relationship with test taker.

Any 2

f) Two disadvantages of individual intelligence testing

- More expensive procedure than group intelligence testing.
- Tests must be presented to each person in exactly the same way
- Time taken for test is longer than for group intelligence testing.
- Examiner must build rapport & have a positive relationship with test taker.

Any 2

2 marks allocated for detailed descriptions

-1 mark for each missing detail / description