



**Semester One
Examination 2023
Question/Answer booklet**

PSYCHOLOGY UNIT 1

Name: _____

Teacher: _____

TIME ALLOWED FOR THIS PAPER

Reading time before commencing work: Ten minutes
Working time for the paper: Three hours

MATERIALS REQUIRED/RECOMMENDED FOR THIS PAPER

To be provided by the supervisor:

- This Question/Answer Booklet; Formula and Constants sheet

To be provided by the candidate:

- Standard items: pens, pencils, eraser or correction fluid, ruler, highlighter.
- Special items: Calculators satisfying the conditions set by the SCSA for this subject.

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.

Structure of this paper

Section	Number of questions available	Number of questions to be answered	Suggested working time (minutes)	Marks available	Percentage of exam
Section One Short answer	5	5	120	130	70
Section Two: Extended Answer Part A	1	1	60	20	10
Part B	2	1		41	20
Total					100

Instructions to candidates

1. The rules for the conduct of Western Australian external examinations are detailed in the *Year 12 Information Handbook 2023*. Year 11 exams use the same rules and sitting this examination implies that you agree to abide by these rules.

2. Answer the questions according to the following instructions:

Section One and Two: Write your answers in this Question/Answer booklet preferably using a blue/black pen. Do not use erasable or gel pens. Wherever possible, confine your answers the lines/spaces provided.

Section Two Part B: Consists of two questions. You must answer one question. Write your answer in this Question/Answer booklet preferably using a blue/black pen. Do not use erasable or gel pens.

3. You must be careful to confine your responses to the specific questions asked and follow any instructions that are specific to a particular question.
4. Supplementary pages for planning/continuing your answers to questions are provided at the end of this Question/Answer booklet. If you use these pages to continue and answer, indicate at the original answer where the answer is continued, i.e. give the page number.

Section One: Short Answer**70% (130 marks)**

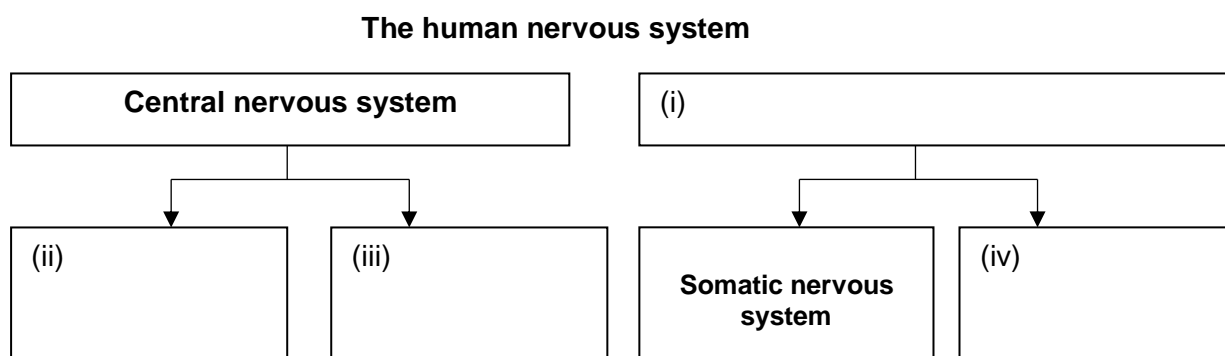
This section has **five** questions. Answer **all** questions. Write your answers in the space provided.

Supplementary pages for planning/continuing your answers to questions are provided at the end of the Question/Answer booklet. If you use these pages to continue an answer, indicate at the original answer where the answer is continued, ie – give the page number.

Suggested working time for this section is 120 minutes.

Question 1**(22 marks)**

- (a) Identify the parts of the human nervous system in the diagram below: (4 marks)



- (b) (i) Outline the role of the somatic nervous system. (3 marks)

(ii) Identify the function of an interneuron.

(1 mark)

(iii) Describe the structure and function of the myelin sheath.

(3 marks)

Bredo is riding her bicycle along a busy road and is not paying attention. She veers onto the road and a car horn blasts. Without thinking, she immediately turns her bicycle off the road and is safe.

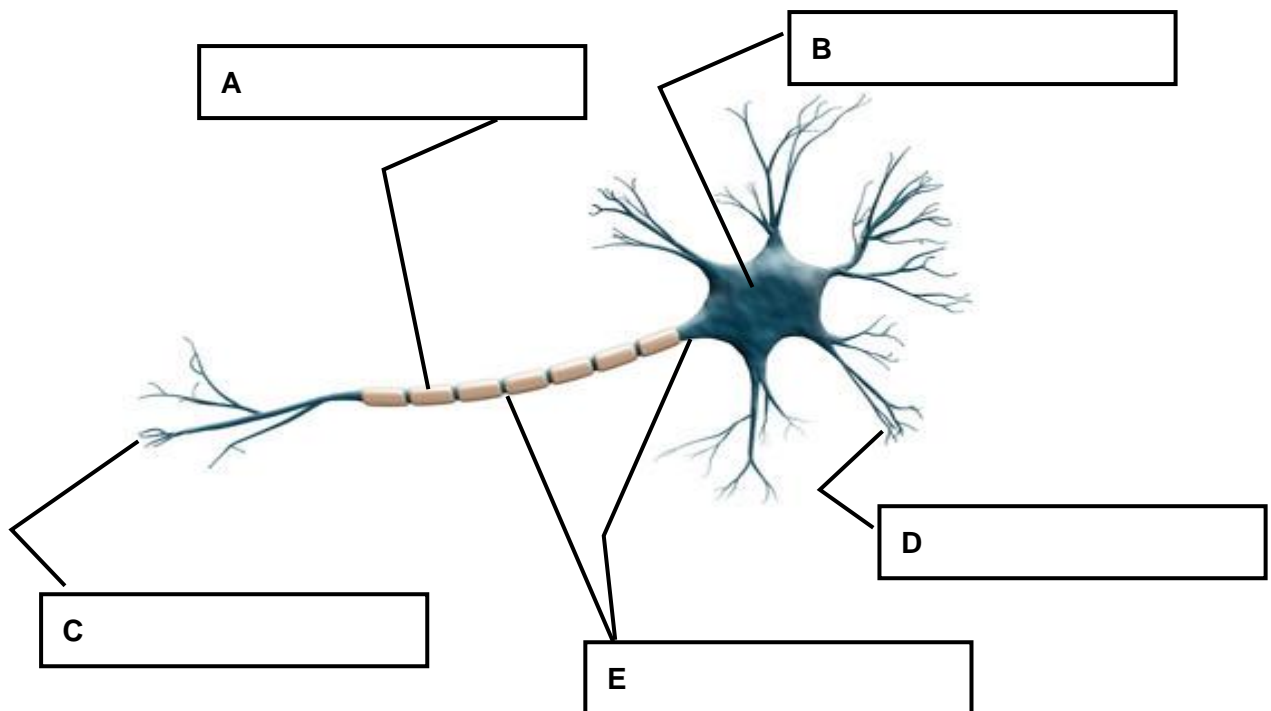
(c) (i) Name the division of the nervous system that is activated in this scenario. (1 mark)

(ii) List **two** responses related to the division in part c (i) that Bredo is likely to experience during this scenario.

(2 marks)

(d) (i) Label the diagram below.

(5 marks)



(ii) Draw a diagram below to illustrate the process of neural transmission. You must include **more than one** neuron and label the direction of transmission and synapse.

(3 marks)

Question 2**(33 marks)**

Researchers at the University of Nottingham wanted to compare the motor function of left-handed adults with right-handed adults. They recruited 13 left-handed participants aged 18-27 and 13 right-handed participants aged 18-34 for the study.

(a) Identify the population and sample for this study.

(2 marks)

Population	
Sample	

- (b) (i) The study was approved by the ethics committee of the School of Psychology at Nottingham University. Describe the role of an ethics committee after they have granted approval and the study has commenced. (2 marks)

- (ii) An ethical consideration that the committee was monitoring closely was privacy. Outline privacy and provide an example of how the researchers could ensure it is maintained at all stages of the research. (2 marks)

- (c) The researchers were interested in comparing contralateral control of finger movements in a series of tasks. With reference to the hemispheres of the brain, explain contralateral control in terms of handedness. (4 marks)

A tapping test, where participants had to press the space bar on a keyboard with their index finger as many times as possible in ten seconds was conducted. The number of times the participants pressed the space bar with each hand was measured.

- (d) (i) Identify the type of data being collected in this test. (1 mark)

- (ii) Identify **one** extraneous participant variable and describe how it could affect the results of the test. (2 marks)

Question 2 (continued)

The test was conducted three times and the mean score was reported by the researchers.

- (e) Explain why the researchers would repeat the same tapping test in this study.

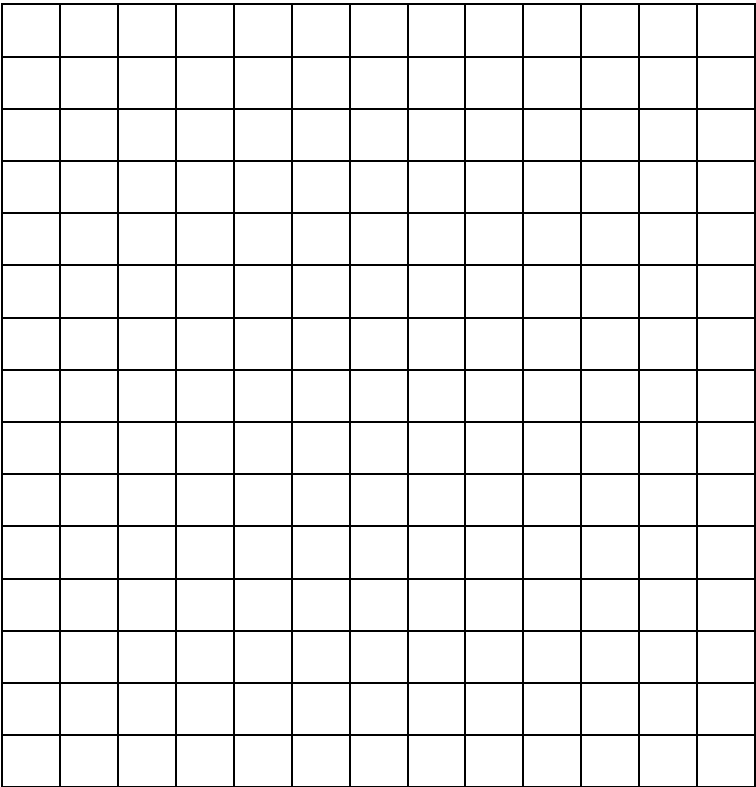
(3 marks)

A pegboard task, where participants had to place pegs in holes on a board using their left, right and both hands was also used. The number of pegs that participants were able to place on the board was recorded in the table below.

Hand used	Left handers	Right handers
Left hand	26	12
Right hand	15	24
Both hands	14	16

- (f)
- (i) Use the data provided in the table above to construct a graph on the grid provided.

(6 marks)



A spare grid is provided at the end of this Question/Answer booklet. If you need to use it, cross out this attempt and indicate that you have redrawn it on the spare page.

Question 2 (continued)

The researchers hypothesised that participants would perform better on the task when using their dominant hand.

- (ii) Explain **one** conclusion about the performance of left handers and right handers in relation to the hypothesis that can be drawn from the data on page 9.

(3 marks)

An EEG was used to measure the reaction of the brain to instructions for participants to tap a keyboard. The researchers compared the response times of participants to instructions that required them to use their dominant hand compared to their non-dominant hand.

- (g) (i) State the brain function measured by an EEG.

(1 mark)

- (ii) Propose a directional hypothesis for this experiment.

(4 marks)

- (iii) Researchers at a different university decided to repeat the experiment using an fMRI. Outline the additional information about brain function that an fMRI can provide compared to an EEG. (3 marks)

Question 3

(28 marks)

The hindbrain has been referred to as one of the most important parts of the central nervous system.

- (a) (i) State **three** functions of the hindbrain. (3 marks)

- (ii) Describe **two** functions of the cerebellum. (4 marks)

One:

Two:

The case study of Phineas Gage provided new information at the time of his injuries about the structure and function of the brain.

- (b) (i) Identify what this case study contributed to understanding the structure and function of the brain. (1 mark)

- (ii) Explain why a case study is required to study the type of brain injury suffered by Phineas Gage. (3 marks)

Snowballing is one sampling method that can be used to recruit participants with a specific brain injury.

- (iii) Explain how this method could be applied to a population of patients with damage to their occipital lobe. (4 marks)

Question 3 (continued)

- (iv) One limitation of a case study is that they are unable to be generalised to the population. Explain the concept “generalisability to the population”. (3 marks)

- (c) Complete the table below demonstrate your knowledge of the functions of parts of the forebrain: (6 marks)

Area of the brain	Location	Function
		Regulates emotional expression, sleep, blood pressure, body temperature, and motivated behaviours such as eating, drinking and sexual activity.
	Rear of the frontal lobe in both hemispheres of the brain.	
Primary visual cortex		

- (d) Compare **two** advantages of an MRI over a CT scan for identifying the impact of damage to the temporal lobe. (4 marks)

One:

Two:

Question 4

(21 marks)

Harry Harlow's (1958) study regarding emotion over physiological needs using Rhesus monkeys made an important contribution to the development of attachment theory.

- (a) (i) Identify the independent variable in Harlow's experiment. (1 mark)

- (ii) Outline the **first two** steps in the method used by Harlow to test whether emotional needs were more important than physiological needs. (2 marks)

One:

Two:

- (iii) Identify the dependent variable in Harlow's experiment. (1 mark)

- (b) Outline **one** criticism of Harlow's study with reference to its validity for testing human attachment. (2 marks)

Harlow changed the conditions of the study so that one set of infant monkeys were placed in a cage with only a cloth mother and the other set were placed in a cage with only a wire mother. He then frightened the monkeys and observed their behaviour.

- (c) Outline **two** results from this experiment. (2 marks)

One: _____

Two: _____

- (d) Based on the results of the experiments, state **one** finding about attachment relevant to Harlow's aim. (1 mark)

- (e) Mary Ainsworth (1978) devised a method titled the "Strange Situation" to assess the attachment level of young children aged between 12 and 18 months. Working with such young children has implications for ethical considerations.

- (i) Explain why a child of the age used in Ainsworth's study is **not** able to provide informed consent. (3 marks)

- (ii) List **three** pieces of information required to obtain informed consent. (3 marks)

One: _____

Two: _____

Three: _____

Question 4 (continued)

- (iii) Outline how the Strange Situation procedure ensured that the children did not suffer psychological harm. (2 marks)

- (f) Outline the behaviour observed in Ainsworth's study for each attachment type listed below: (4 marks)

Attachment type	Mother leaves	Mother returns
Type A		
Type C		

Question 5**(26 marks)**

- (a) Define the developmental stage of infancy. (1 mark)

The development of language is an important element of cognitive development.

- (b) Outline **three** features of normal development of language during infancy. (3 marks)

- (c) Explain the term, 'plasticity' with reference to adaptive and developmental plasticity. (3 marks)

Question 5 (continued)

During infancy, there are distinctive stages of plasticity.

- (d) Explain the process of circuit formation. (4 marks)

Exo is 13 years old and has a homework task to complete. The task requires him to find out whether members of his family feel drum music has a positive impact on their level of happiness.

- (e) Exo decides to use a mixed method of data collection. Explain how Exo would collect data in this way. (4 marks)

- (f) (i) Name the stage of Piaget's theory of cognitive development Exo is likely to be in.

(1 mark)

- (ii) Name and describe the indicator of cognitive development Exo will demonstrate at this stage. (3 marks)

Name:

Description:

Piaget's theory explained the process of schema formation.

- (g) (i) Define the term 'schema'.

(2 marks)

Question 5 (continued)

- (ii) Contrast assimilation and accommodation. (2 marks)

Finn wants to investigate how children's schemata regarding school changes between kindergarten, primary school and graduation from secondary school. He selects a group of 20 students from a nearby kindergarten and tracks their progress until they graduate.

- (h) (i) Name the research design he has applied to this study. (1 mark)

- (ii) Describe a limitation related to sample size for this type of design. (2 marks)

End of Section One

See Next Page

Section Two: Extended Response**30% (61 marks)**

This section has **two** parts.

You must answer **one** question in Part A and **one** question in Part B.

Part A: This part has **one** compulsory question. Write your answer in the space provided.

Part B: Answer **one** question from a choice of **two**. Write your answer in the space provided.

Supplementary pages for planning/continuing your answers to questions are provided at the end of this Question/Answer booklet. If you use these pages to continue an answer, indicate at the original answer where the answer is continued, i.e. give the page number.

Recommended working time for this section is 60 minutes.

Part A: This part has **one** compulsory question. Write your answer to Part A Question 6 on pages 21-25.

Part B: Select **either** Question 7 on page 29 **or** Question 8 on page 29. Write your answer to Part B on pages 30-36. You must include the number of the question you are answering at the start of your answer.

Question 6**(20 marks)**

Freeman (1936-1945) conducted frontal lobotomy procedures using patients that suffered a range of mental illnesses. His work was highly controversial due to a many ethical breaches and lack of scientific rigour.

Another example of historical research into brain structure and function was Sperry's (1959-1968) split-brain experiments, conducted in association with Gazzaniga. Their experiments involved both human and animal subjects.

Write an extended response that demonstrates your knowledge of Science inquiry and Psychological knowledge and understanding.

In your answer you must:

- Describe the location and function of the localised region that was the focus of Freeman's research. (6 marks)
- State **four** reasons why Freeman's findings were controversial in psychology (4 marks)
- Describe the structure and function of the corpus callosum. (3 marks)
- Outline the key finding from Sperry's split-brain experiments about the function of the brain. (3 marks)
- Name and outline **two** ethical guidelines for the use of animals in research. (4 marks)

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[illegible]

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Part B: Answer **one** question from a choice of two. Write your answer on the pages provided following Question 8.

Clearly indicate the question number you selected at the start of your answer.

Question 7

(41 marks)

Ecru is an only child in a single-parent household. She struggled to form relationships with friends at school. Her attempts to form friendships were based on her reaching out to other children by hugging them. She was confused when her hugs were not returned by the other children, and she was unable to form relationships.

Ecru visited a counsellor who explained Bowlby's theory of attachment to her. She realised that her significant caregiver always hugged her when she was a baby. She remembered the hugs as being full of warmth that made her feel safe and happy. When she hugged her primary caregiver, she was always hugged back and this extended to her close family who always praised her affection and let her know that this was an effective way to demonstrate her care for others.

Later in life, Ecru worked with young adults who have difficulties with attachment. She re-visits Bowlby's theory and learns that his theory addresses some of the reasons for these difficulties. She decided to conduct an observational study using three different families to improve her understanding of attachment.

Write an extended response that demonstrates your knowledge of Science inquiry and Psychological knowledge and understanding.

In your answer you must:

- Define the term 'attachment' according to Bowlby. (1 mark)
- Explain Bowlby's internal working model. (6 marks)
- Apply the internal working model to Ecru's hugging behaviour. (4 marks)
- Outline the evolutionary perspective applied by Bowlby to attachment. (6 marks)
- Describe critical and sensitive periods in the context of Bowlby's theory. (3 marks)
- Explain the concept of maternal deprivation and its impact on attachment later in life. (4 marks)
- Explain how Ecru could apply an observational study to understanding attachment different family groups. (3 marks)
- Outline how Ecru could gather quantitative data during an observational study. (3 marks)
- Explain how extraneous researcher variables can be controlled in an observational study. (7 marks)
- Use appropriate psychological terminology in a clear and logical way. (4 marks)

OR

Question 8**(41 marks)**

Enid is 16 years old and is causing concern for her family as she is engaging more often in risk-taking behaviours. Her family are aware that this can be a feature of adolescent development and hope that her studies in Year 11 ATAR Psychology will help her to understand and modify her behaviour.

Her teacher suggests she participate in a mental health program based on findings from a Swedish study. In that study, Gaumy, Berg and Clausson (2015) investigated the school-based mental health program by collecting data related to the use of interpersonal skills (skills used in social interactions).

They divided 89 adolescents aged 13-15 years into 12 focus groups. The participants were gathered from a range of schools in rural and urban areas of southern Sweden. The findings were that the program was beneficial to the participants. When evaluating the research, the validity of the results was questioned due to the likelihood of influence by demand characteristics.

Write an extended response that demonstrates your knowledge of Science inquiry and Psychological knowledge and understanding.

In your answer you must:

- Define the developmental stage: 'adolescence'. (1 mark)
- Explain the social and emotional changes that occur during this stage. (6 marks)
- Explain the effect of changes in the amygdala on behaviour and emotions during adolescence. (6 marks)
- Outline the domain of physical development. (3 marks)
- Describe the effect of the cerebellum on physical development during adolescence. (3 marks)
- Explain how changes in frontal lobe development affect behaviour during the stage of adolescence. (4 marks)
- Describe the application of a focus group to collect qualitative data. (3 marks)
- Outline **two** strengths of using a focus group for the Swedish study. (4 marks)
- Define the concept 'demand characteristics' and discuss how they may have influenced the results in this study. (7 marks)
- Use appropriate psychological terminology in a clear and logical way. (4 marks)

End of exam

Question number: _____

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ACKNOWLEDGEMENTS

Question 1:

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<https://stock.adobe.com/au/images/stem-cell-diagram-on-white-background/114114656>

Question 2:

Serrien DJ, Sovijärvi-Spapé MM. Hemispheric asymmetries and the control of motor sequences.

Behav Brain Res (2015), <http://dx.doi.org/10.1016/j.bbr.2015.01.021>

Question 8:

American Psychological Association (n.d.) Dictionary. <https://dictionary.apa.org/adolescence>

Garmy, P., Berg, A. & Clausson, E.K. A qualitative study exploring adolescents' experiences with a school-based mental health program. *BMC Public Health* **15**, 1074 (2015).

<https://doi.org/10.1186/s12889-015-2368-z>

WATP acknowledges the permission of the School Curriculum and Assessment Authority in providing instructions to students.