



Joseph Banks Secondary College

Research Methods
Worth 4% of the School Mark
Question/Answer Booklet

PSYCHOLOGY

Units 3 and 4

Student name : _____

Time allowed for this paper

Reading time before commencing work:

three minutes

Working time for the paper:

sixty minutes

Materials required/recommended for this paper

To be provided by the supervisor:

This Question/Answer Booklet

Formulae and Data Booklet

To be provided by the candidate:

Standard items: pens (blue/black preferred), pencils (including coloured), sharpener, correction tape/fluid, eraser, ruler, highlighters.

Special items: non-programmable calculators approved for use in the WACE examinations

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	Suggested working time (minutes)	Your Mark	Marks available
Section One: Research Methods	2	60		57
Total				

Instructions to candidates

1. The rules for the conduct of Western Australian external examinations are detailed in the *Year 12 Information Handbook 2016*. Sitting this examination implies that you agree to abide by these rules.
2. Write your answers in this Question/Answer Booklet.
3. When calculating numerical answers, show your working or reasoning clearly. Your working should be in sufficient detail to allow your answers to be checked readily and for marks to be awarded for reasoning.

In calculations, give final answers to one significant figures and include appropriate units where applicable.

4. 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.
5. Supplementary pages for the use of planning/continuing your answer to a question may have been 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.

Question 1

(13 marks)

Professor Thunberg wanted to test her theory that vegetarians are more intelligent than people who eat meat. She posted a link on twitter to a survey asking questions about eating habits followed by an online intelligence test. She hoped that by conducting her research in this way she could recruit a large and diverse sample from around the world.

After one month she stopped the research when she had collected data from 100,000 people globally. However, her sample was highly skewed towards people who are vegetarians. Her results were as follows:

Table 1: Results of experiment comparing IQ and meat consumption

	Average IQ as measured by online intelligence test
Vegetarians (80,679)	126
Meat eaters (19,321)	105

a) Identify what type of research Professor Thunberg is conducting. Explain your answer. (2 marks)

b) Explain the difference between sample and population data. (2 marks)

c) With reference to the data, identify what conclusion can drawn. (2 marks)

d) Complete the table to identify **two** sources of error in Professor Thunberg’s research design and state **one** way of reducing each. (4 marks)

Source of Error	Way of Reducing Error

e) Identify and describe the research design that Professor Thunburg used. (2 marks)

f) Describe one disadvantage to the research design that Professor Thunburg used. (1 mark)

Question 2

(9 marks)

Since 2003, a group of researchers have been studying the development of two groups of Australian children. At the beginning of the study, one group was aged 0-1 years and the other group was aged 4-5 years.

Researchers will continue to study these 10 000 children and their families until 2018, to collect data on child development and family wellbeing.

a)

State the major advantage of this kind of study.

(1 mark)

a)

Identify **one** ethical issue that is associated with this kind of study and state how psychologists deal with them in their research.

(2 marks)

b)

Complete the table below to help classify the three different data collection methods.

(6 marks)

	Interview	Likert Scale	Heart Rate
Describe one strength			
Describe one limitation			

Question 3

(12 marks)

During late adulthood, cognitive processes begin to deteriorate, particularly working memory. Dr Tucker wants to test the effectiveness of the new miracle drug that improves the working memory of the elderly.

a) Identify the type of research design Dr Tucker should use.

(1 mark)

b) Outline aspects of the method that Dr Tucker should use to ensure the study will produce reliable and valid results that can be generalised.

(5 marks)

Dr Tucker tested two different populations, one population from Japan and one from America. He found that the Japanese population had a standard deviation of 2.5 whereas the American population has a standard deviation of 9.5.

- c) Explain what this difference in standard deviations means. (3 marks)

- d) Dr Tucker wanted to visually display the data so that he could see the distribution, including the mean and standard deviation. Name the graph that would be used to show this. (1 mark)

- e) The distribution for both populations showed a normal curve. State two features of a normal curve. (2 marks)

Question 4

(13 marks)

A psychologist wanted to test whether or not information could be consolidated while an individual was sleeping. She advertised in a local newspaper for participants aged between 18 and 20 years of age and sampled 100 applications by drawing their names out of a hat. The participants were exposed to two conditions.

The control condition involved participants reading a list of 50 countries when they woke up after a night’s sleep. Before going to bed the following evening, they were asked to write down as many countries as they could remember. The same participants were then used in the experimental condition, which involved participants reading a list of 50 cities from around the world before going to bed and then writing down as many cities as they could recall upon waking from sleep.

Statistical tests on the difference between the mean scores for the two groups found $p > 0.05$.

- a) State the conclusions that the researchers could draw from the results.

(3 marks)

- b) Could the findings of this experiment be generalised to the population? Explain why or why not.

(4 marks)

- c) Explain what the difference between inferential statistic and a descriptive statistic is. (2 marks)

- d) Identify one inferential statistic and one descriptive. (2 marks)

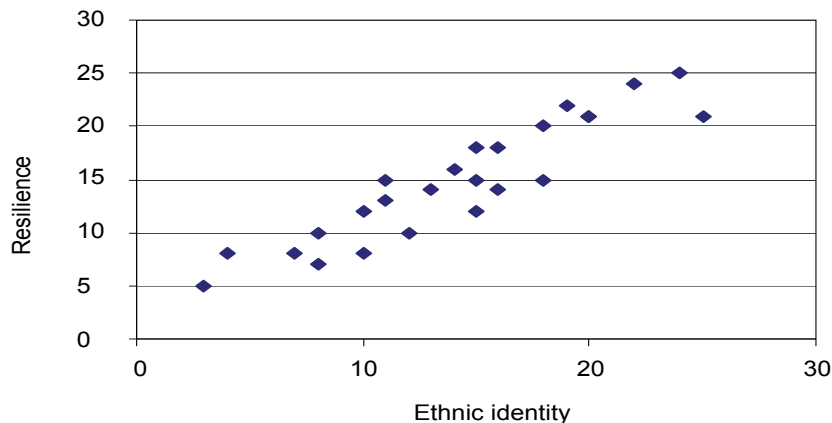
Descriptive: _____

Inferential: _____

- e) State one source of error in this study and suggest one **(1)** way that researchers could improve the research design to deal with this error (2 marks)

Question 5**(10 marks)**

A psychologist was interested in the relationship between how strongly a person identifies with a particular ethnic group (ethnic identity) and their resilience to stress. The psychologist collected questionnaire measures of ethnic identity and resilience from 300 volunteer adults. The results of the study are shown in the scattergram below.



a) Explain why a researcher may initially conduct non-experimental research before conducting experimental research on a certain topic. (1 mark)

b) State a research hypothesis that the psychologist could develop for this study. (1 mark)

c) Outline the difference between a research hypothesis and an operationalised hypothesis. (1 mark)

d) Identify the strength and nature of the relationship between the two variables shown in the scatterplot. (1 mark)

The researchers wanted to design a quasi-experiment on this topic. The researchers used volunteer sampling to gather 46 participants with either a strong sense of ethnic identity or a weak sense of ethnic identity.

e) Operationalise resilience: (1 mark)

f) Outline the method of an experiment that could be used to for this research. (5 marks)
