

Unit 1 – Research methods

Section A

Multiple-choice

For each question write the letter in the box.

1. Which of the following sampling techniques ensures everyone in the target population has an equal chance of being in the sample?

- A. Opportunity
- B. Random
- C. Self-selected
- D. Snowball

Your answer

[1]

2. Which of the following is a strength of a laboratory experiment?

- A. High replicability
- B. High ecological validity
- C. No chance of demand characteristics
- D. No order effects

Your answer

[1]

3. A psychologist asks 25 participants to complete a memory test. Only one person scored full marks on the memory test. What is $1/25$ expressed as a decimal?

- A. 0.02
- B. 0.04
- C. 0.05
- D. 0.25

Your answer

[1]

4. Which of the following is a type of reliability?

- A. Ecological
- B. Face
- C. Predictive
- D. Test-retest

Your answer

[1]

5. Which of the following best describes what a 'Type 2' error refers to?

- A. Incorrectly accepting the null hypothesis
- B. Incorrectly rejecting the null hypothesis
- C. Use of the incorrect inferential statistical test
- D. Use of the incorrect table of critical values

Your answer

[1]

6. Which **one** of the following tasks was **not** used in Baron-Cohen et al.'s (1997) study of autism?

- A. Basic Emotion Recognition task
- B. Gender Recognition task
- C. Go/No-Go task
- D. Strange Stories task

Your answer

[1]

7. The table below displays the data from an experiment investigating the difference in memory ability between a group of young people and a group of old people:

Scores in a memory test where participants were asked to recall 30 words.			
Young people (age 16-25)		Old people (age 65-75)	
Participant	Score	Participant	Score
A	26	G	7
B	28	H	25
C	22	I	12
D	30	J	22
E	25	K	12
F	28	L	12

(a) What is the mode for the number of words recalled by the group of young people?

- A. 12
- B. 25
- C. 26
- D. 28

Your answer

[1]

- (b) What would be the value of 'n' in the formula below when calculating the standard deviation (SD) of the memory scores for the group of **old** people in this study?

$$SD = \sqrt{\frac{\sum(x - \bar{x})^2}{n}}$$

- A. 6
B. 8
C. 12
D. 15

Your answer

[1]

- (c) What is the mean for the number of words recalled by the group of old people?

- A. 12
B. 15
C. 18
D. 26.5

Your answer

[1]

- (d) Which of the following could be an extraneous variable in this experiment?

- A. Age
B. Eyesight
C. Height
D. Income

Your answer

[1]

- (e) What would be the appropriate inferential statistical test to use to analyse the data from this experiment?

- A. Binomial Sign test
B. Chi-square test
C. Mann-Whitney U test
D. Wilcoxon Signed Ranks test

Your answer

[1]

8. Which variable was negatively correlated with length of time as a taxi driver in Maguire et al.'s (2000) study of brain plasticity.

- A. Volume of grey matter in the anterior hippocampus
- B. Volume of grey matter in the central hippocampus
- C. Volume of grey matter in the hippocampus
- D. Volume of grey matter in the posterior hippocampus

Your answer

[1]

9. The mean score on an IQ test was 100. One participant scored 55, which was much less than the mean. How is 'much less than' expressed as a symbol?

- A. \geq
- B. \ll
- C. \leq
- D. \gg

Your answer

[1]

10. In which section of a practical report would you find details of standardised instructions given to participants?

- A. Abstract
- B. Appendices
- C. Discussion
- D. Introduction

Your answer

[1]

11. A researcher found a p value of 0.006089. What is 0.006089 written to two significant figures?

- A. 0.00
- B. 0.0060
- C. 0.0061
- D. 0.61

Your answer

[1]

Section B

Research design and response

A psychologist wants to investigate if there is a relationship between how artistic a person is and the tattoos they have on their body. They decided to use the correlation method to investigate this.

12. Write a null hypothesis for this correlational investigation. [3]
13. Explain how you would use the correlation method to investigate if there is a relationship between how artistic a person is and the tattoos they have on their body. Justify your decisions as part of your explanation. You must refer to:
- The sampling technique you would use to obtain participants for this investigation
 - How you would operationalise the variable 'how artistic a person is'
 - How you would attempt to reduce the influence of one extraneous variable. [12]

As a follow-up to their correlational investigation, the psychologist wanted to find out more about people's tattoo choices. They decided to use the self-report method to conduct this second part of their investigation.

14. State **two** questions the psychologist could ask about tattoo choices in this second part of the investigation. **One** must be a closed question, and **one** must be an open question. [4]
15. Identify **and** explain **two** actions the psychologist could take to ensure the reliability of this second part of the investigation. [6]
16. Another psychologist read the report of this second investigation. They were interested in finding out about the impact of culture on tattoos.

Explain **one** ethical consideration that could affect any research into this.

[4]

17. You have carried out your own practical investigation using the **observation method**:
- (a) Explain **one** strength of the sample of participants in your practical investigation. [3]
- (b) Explain **one** weakness of the sample of participants in your practical investigation. [3]

Section C

Data analysis and interpretation

A psychologist wanted to investigate the effects of expectations on people's perception. To investigate this, she needed an image that was ambiguous and could be perceived in more than one way. The psychologist created a black-and-white image which was purposefully drawn so that it could be seen as either a crocodile or a laptop computer. To check that the image could genuinely be perceived in these two ways, the psychologist showed it to participants for one second and instructed them to say what they saw. The participants were all students at the same university. The results are presented below:

Number of times the ambiguous image was perceived as a crocodile	Number of times the ambiguous image was perceived as a laptop computer	Number of times the ambiguous image was perceived as neither a crocodile nor a laptop computer
9	9	2

18. (a) Calculate the percentage number of times the ambiguous image was identified as neither a crocodile nor a laptop computer.

Show your workings. [2]

(b) Sketch a fully labelled bar chart showing the data collected in this investigation. [4]

(c) Outline **one** conclusion that can be drawn from the data collected in this investigation. [3]

For the second stage of this investigation, new participants were obtained from the same university as the participants in the first stage of the investigation. However, none of these participants had taken part in the first stage of the investigation.

The participants were split into two separate conditions. In one condition, participants were shown five images of animals, one after the other, and were then shown the ambiguous image. In the other condition, participants were shown five images of electronic devices, one after the other, and were then shown the ambiguous image. All images were in black-and-white. For each image they were shown, participants had to say what they saw. The results for what they said the ambiguous image represented are presented below:

	Number of times the ambiguous image was perceived as a crocodile	Number of times the ambiguous image was perceived as a laptop computer
The ambiguous image was presented after images of animals	15	10
The ambiguous image was presented after images of electronic devices	5	12

19. (a) Calculate the ratio of the number of participants who perceived a crocodile in the first condition and the number who perceived a crocodile in the second condition.

Express your answer in its simplest form. [2]

(b) The psychologist used the Chi-square test to analyse the findings from the second stage of her investigation.

Explain **two** reasons why this was the appropriate non-parametric inferential statistical test to use for this investigation. [4]

(c) Calculate the degrees of freedom for use with the Chi-square test in this investigation.

Show your workings. [2]

(d) The calculated Chi-square value is 3.80.

Below is the extract from the table of critical values.

Levels of significance for a one-tailed test

Significance Level	0.05	0.025	0.01
Critical Value	2.71	3.84	5.41

Explain whether the psychologist has found a significant

difference at the following levels: 0.05 and 0.01.

[4]

(e) Explain **one** way this investigation demonstrates scientific principles. [3]

(f) Evaluate **two** issues of validity in the second stage of this investigation. [6]

Customer Testing