OCR
Oxford Cambridge and RSA

Tuesday 24 May 2022 – Morning

A Level Psychology

H567/01 Research methods

Time allowed: 2 hours

You must have:
- a scientific or graphical calculator

Please write clearly in black ink. **Do not write in the barcodes.**

Centre number | | | | | | Candidate number | | | | |

First name(s) _____

Last name _____

INSTRUCTIONS
- Use black ink. You can use an HB pencil, but only for graphs and diagrams.
- Write your answer to each question in the space provided. If you need extra space use the lined pages at the end of this booklet. The question numbers must be clearly shown.
- Answer **all** the questions.

INFORMATION
- The total mark for this paper is **90**.
- The marks for each question are shown in brackets **[ ]**.
- Quality of extended response will be assessed in questions marked with an asterisk (*****).
- This document has **20** pages.

ADVICE
- Read each question carefully before you start your answer.

SECTION A: Multiple choice

Answer **all** the questions. You should put the letter of the correct answer in the box provided.

1 Which of these sections of the write-up of a practical report is the only one in which the significance statement for the research would not be stated?

A abstract

B discussion

C introduction

D results

Your answer ☐ **[1]**

2 Which of these indicates the least probability of the null hypothesis being true?

A $p<0.05$

B $p<0.01$

C $p<0.001$

D $p>0.01$

Your answer ☐ **[1]**

3 Which of these is an inferential rather than a descriptive statistical analysis?

A Mann-Whitney U

B mean

C standard deviation

D variance

Your answer ☐ **[1]**

4 Which of these terms refers to the process of checking research prior to publication?

A paired review

B peer review

C phased review

D priority review

Your answer ☐ **[1]**

5 If the variance is 36, what is the standard deviation?

A 3

B 6

C 18

D 1296

Your answer ☐ **[1]**

6 Which sampling technique 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]**

7 Which of these is a type of reliability?

A criterion

B ecological

C face

D test-retest

Your answer ☐ **[1]**

8 What type of data is used to calculate the Chi-square test?

A interval

B nominal

C ordinal

D ordinal and interval

Your answer ☐ **[1]**

9 Which is the simplest form of the ratio 12:8?

A 2:3

B 3:1

C 3:2

D 6:4

Your answer ☐ **[1]**

10 In the cross-cultural study of helping behaviour by Levine et al. (2001), which type of correlation was found between the variables 'purchasing power' and 'the overall level of help given'?

A non-significant negative correlation

B significant negative correlation

C significant positive correlation

D zero correlation

Your answer ☐ **[1]**

11 Which two variables were positively correlated in Maguire et al.'s (2000) study of taxi drivers' brains?

A volume of grey matter in posterior hippocampus and age

B volume of grey matter in posterior hippocampus and length of time as a taxi driver

C volume of grey matter in posterior hippocampus and length of time taken to pass 'The Knowledge' test

D volume of grey matter in posterior hippocampus and volume of grey matter in anterior hippocampus

Your answer ☐ **[1]**

12 What decimal is represented by the fraction 1/25?

A 0.25

B 0.04

C 0.02

D 0.05

Your answer ☐ **[1]**

13 What is the dependent variable in an experiment investigating the effect of noise on concentration?

A concentration

B IQ level

C noise

D time of day

Your answer ☐ **[1]**

14 Which inferential statistical test simply involves counting the number of times the values in one condition are higher or lower than those in the other?

A Chi-square

B Binomial Sign

C Spearman's Rho

D Wilcoxon Signed Ranks

Your answer ☐ **[1]**

15 Which of these is **not** a criterion for the use of parametric inferential statistical tests?

A data must be interval level

B data must be normally distributed in the population

C sample size

D variance between conditions should be similar

Your answer ☐ **[1]**

16 What type of question or scale allows respondents to express how much they agree or disagree with a statement?

A leading

B likert

C open

D semantic differential

Your answer ☐ **[1]**

17 Which of these is a type of logical reasoning used in science?

A abduction

B construction

C induction

D reduction

Your answer ☐ **[1]**

18 Which of these is a statistical term relating to whether the null hypothesis has been incorrectly accepted or rejected?

A critical value

B null

C one-tailed

D type 1 error

Your answer ☐ **[1]**

19 What is the name for the type of observation where people are aware their behaviour is being studied?

A closed

B covert

C overt

D quasi

Your answer ☐ **[1]**

20 In which type of distribution is the mean greater than both the median and the mode?

A bimodal

B negatively skewed

C normal

D positively skewed

Your answer ☐ **[1]**

Turn over for the next question

SECTION B: Research design and response

Answer **all** the questions.

Get a grip

Hand shaking is a fairly common greeting between people in some cultures, especially when meeting someone for the first time. However, the way that we shake hands with someone can vary quite a lot, and this might influence what we think of the person whose hand we are shaking. Some research suggests that simply the length of time that the hand is shaken can influence how friendly or not we perceive the person to be. Psychologists want to study this using the experimental method to investigate the effect of a 'short' compared to a 'long' handshake on how friendly a person is thought to be.

21 Write an alternative, two-tailed hypothesis for this study.

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..... **[3]**

22* Explain how you would conduct a study using the laboratory experimental method to investigate if the length of a handshake affects how friendly a person is thought to be. Justify your decisions as part of your explanation. You must refer to:

- the sampling technique to obtain participants for the study
- which experimental design you would use in this study
- how you would operationalise the dependent variable to obtain quantitative data
- the control of one extraneous variable

You should use your own experience of practical activities to inform your response. **[15]**

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23 **(a)** Suggest **one** closed question you could use to obtain some additional information for this study.

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(b) Outline **one** strength of the use of closed questions in this study.

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24 Outline **one** weakness of conducting this study as a laboratory experiment.

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..... **[3]**

25 Outline **one** way to help reduce demand characteristics in this study.

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26 Outline **two** ways that you have designed this study which support the view that psychology is a science.

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Turn over for the next question

SECTION C: Data analysis and interpretation

Answer **all** the questions.

Mobile mobile

Most people have a mobile phone so making or receiving a call while out and about is very easy. However, there may be differences in people's behaviour when talking on the phone. To study this a psychologist conducted an observation study to investigate if there are differences in how much men and women gesture (e.g. move hands or head) while talking on the phone. To do this they sat on a bench on a busy high street for two hours one Saturday afternoon and recorded the number of times people made gestures of any kind or not while talking on the phone. The data is presented in the table below.

Table showing the number of males and females who made gestures or not while making or receiving a mobile phone call

Use of gestures	Males	Females
Yes	(a) 11	(b) 5
No	(c) 3	(d) 14

27 Outline **one** conclusion that can be obtained from this study from the data presented in this table.

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..... **[3]**

28 Draw a fully labelled pie chart showing the percentage of males compared to females who made gestures whilst on the phone. **[4]**

29 The psychologist used the Chi-square test to analyse the data from this study. Give **one** reason why this would be the appropriate non-parametric inferential test to use in this study.

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30 The formula for the Chi-square test requires the use of expected frequencies (E). The expected frequencies for three of the cells are provided in the table below.

Cell	Observed frequency (O)	Expected frequency (E)	O – E	$(O-E)^2$	$(O-E)^2/E$
A	11	6.79	4.21	17.72	2.61
B	5	9.21	–4.21	17.72	1.92
C	3	7.21	–4.21	17.72	2.46
D	14				

(a) Calculate the expected frequency for cell D. Present your answer to two decimal places and show your workings.

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Formula for X^2

$$X^2 = \sum \frac{(O-E)^2}{E}$$

(b) Calculate the overall value of Chi-square. Show your workings.

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(c) Calculate the degrees of freedom for use with the Chi-square test in this study.
Show your workings.

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(d) Using the extract from the table of critical values presented below, what is the critical value for use with the Chi-square test in this study at the 1% level of probability?

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..... **[1]**

	Probability level					
df	**0.5**	**0.10**	**0.05**	**0.02**	**0.01**	**0.001**
1	0.455	2.706	3.841	5.412	6.635	10.827
2	1.386	4.605	5.991	7.824	9.210	13.815
3	2.366	6.251	7.815	9.837	11.345	16.268
4	3.357	7.779	9.488	11.668	13.277	18.465
5	4.351	9.236	11.070	13.388	15.086	20.517

(e) What conclusions can be reached from the calculation of Chi-square in this study?

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31 **(a)** Outline **one** strength of the use of the quantitative data collected in this study.

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(b) Outline **one** weakness of the use of the quantitative data collected in this study.

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32 Outline **two** ways in which the naturalistic observation method used in this study could affect the validity of the data collected.

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..... **[6]**

33 Which section of the write-up of a practical report for this research would each of the following appear in?

(a) raw data

..... **[1]**

(b) calculations for statistical analyses performed

..... **[1]**

END OF QUESTION PAPER

ADDITIONAL ANSWER SPACE

If additional space is required, you should use the following lined page(s). The question number(s) must be clearly shown in the margin(s).