OCR
Oxford Cambridge and RSA

Monday 05 October 2020 – Afternoon

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.

Turn over

SECTION A: Multiple choice

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

1 In which type of correlation do both variables increase at the same or similar rate?

A negative

B positive

C skewed

D zero

Your answer [ ]   **[1]**

2 Which of these best describes when the null hypothesis has been incorrectly rejected?

A critical error

B statistical error

C type 1 error

D type 2 error

Your answer [ ]   **[1]**

3 When data contains anomalies, which of these is it best to use?

A mean

B median

C mode

D percentage

Your answer [ ]   **[1]**

4 Which inferential statistical test uses degrees of freedom (df) to find the critical value?

A Chi-square

B Mann-Whitney U Test

C Spearman's Rho

D Wilcoxon Signed Ranks Test

Your answer [ ]   **[1]**

5 In a study investigating the difference in ratings (on a scale of 0 to 100) of self-esteem between males and females, which would be the appropriate inferential test to use to analyse the data?

A Binomial Sign Test

B Chi-square

C Mann-Whitney U Test

D Wilcoxon Signed Ranks Test

Your answer ☐ **[1]**

6 Which of these indicates the probability is less than 5%?

A p<0.5

B p>0.05

C p<0.05

D p>0.005

Your answer ☐ **[1]**

7 Which of these features is needed to choose a test of statistical significance?

A central tendency

B level of data

C sample size

D standard deviation

Your answer ☐ **[1]**

8 Which of these is the name of a technique for recording data when using the observation method?

A participant sampling

B random sampling

C time sampling

D quota sampling

Your answer ☐ **[1]**

9 Which of these best describes what the standard deviation informs us?

A dispersion around the mean

B dispersion around the median

C dispersion around the mode

D dispersion around the range

Your answer [   ] **[1]**

10 In the study by Moray (1959) investigating auditory attention, what best describes the research method used?

A field experiment

B laboratory experiment using a mixture of repeated measures and independent measures design

C laboratory experiment using independent measures design

D quasi experiment

Your answer [   ] **[1]**

11 In the study by Levine *et al.* (2001) investigating cross cultural differences in helping behaviour, what level of data was recorded for the helping measure that involved responses to a dropped pen?

A both ordinal and interval

B interval

C nominal

D ordinal

Your answer [   ] **[1]**

12 Which decimal is represented by the fraction $\frac{1}{20}$?

A 0.2

B 0.02

C 0.5

D 0.05

Your answer [   ] **[1]**

13 If the variance for a set of data is 16, what is the standard deviation?

  A   3

  B   4

  C   8

  D   256

  Your answer [   ] **[1]**

14 What type of distribution curve is this?
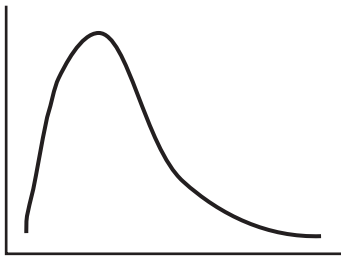
  A   negatively skewed

  B   non-skewed

  C   normal

  D   positively skewed

  Your answer [   ] **[1]**

15 Which of these is an assumption of parametric inferential statistical tests?

  A   data is asymmetrically distributed in the population

  B   data is negatively skewed in the population

  C   data is normally distributed in the population

  D   data is positively skewed in the population

  Your answer [   ] **[1]**

16 What is 0.006089 written to two significant figures?

A 0.00

B 0.0060

C 0.0061

D 0.61

Your answer [ ] **[1]**

17 Which of these comes first when citing an academic reference?

A date of publication

B first name initial

C place of publication

D surname

Your answer [ ] **[1]**

18 What name refers to data before any analysis is done?

A nominal

B parametric

C primary

D raw

Your answer [ ] **[1]**

19 Which of these is not the name of a type of experimental design?

A independent measures

B matched participants

C repeated measures

D structured pairs

Your answer [ ] **[1]**

20 Which of these is not a measure of dispersion?

A   variance

B   median

C   range

D   standard deviation

Your answer   **[1]**

Turn over for the next question.

SECTION B: Research design and response

Answer **all** the questions.

> **Ready meal**
>
> Many things can influence people's eating habits and how much food we consume, including the appearance of food and how it is served. For example, some research suggests that people put less food on a red plate, and eat less from it, than a white plate. To investigate this further, psychologists want to use the experimental method to study the effect of plate colour on food consumption.

21 Write a one-tailed alternative hypothesis for this study.

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22* Explain how you would conduct a study using the experimental method to investigate if there is a difference in how much food people eat off a red plate compared to a white plate. Justify your decisions as part of your explanation. You must refer to:

- the sampling technique to obtain participants for the study
- how you would operationalise your independent variable
- how you would operationalise the dependent variable to obtain quantitative data
- details of how one ethical consideration would be addressed.

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

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Turn over

23 (a) Outline **one** strength of using a repeated measures design in this study.

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(b) Outline **one** weakness of using a repeated measures design in this study.

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24 (a) Outline **one** way you could obtain qualitative data in this study.

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(b) Evaluate the use of qualitative data in this study.

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25 Evaluate the external validity of this study.

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Turn over

SECTION C: Data analysis and interpretation

Answer **all** the questions.

Extroversion = Extra money?

A psychologist investigated whether how much a person earns is related to the personality trait of extroversion. Participants were asked to provide details of their current annual salary. They then completed a general lifestyle questionnaire, which included a question asking them to rate how extrovert they were on a scale of 0 ('not at all extrovert') to 100 ('extremely extrovert'). The table below presents the data collected in the study.

Participant	Annual salary (£s)	Extroversion rating (0–100)	Ranks of the data collected	
			Annual salary (£s)	Extroversion rating (0–100)
a	50 000	85	9	9
b	55 000	65	10	6.5
c	10 000	95	1	11.5
d	40 000	60	7	5
e	30 000	45	5	4
f	15 000	30	2	1
g	25 000	40	4	3
h	60 000	90	11	10
i	35 000	70	6	8
j	20 000	35	3	2
k	70 000	95	12	11.5
l	45 000	65	8	6.5

26 (a) Explain how the data has been ranked in this study.

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(b) Explain why the data for the rating of extroversion for participants (b) and (l) have both been given rank 6.5.

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27 (a) Draw a fully labelled scatter diagram showing the data collected in this study.

[4]

(b) Outline **two** conclusions from this scatter diagram.

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Turn over

28 Calculate the mean rating of extroversion. Show your workings and present your finding to 2 significant figures.

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29 Explain why it is more appropriate to use the mean, rather than the median, to calculate central tendency in this study.

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30 **(a)** Calculate the correlation coefficient for the data collected in this study using the formula for Spearman's ranked correlation coefficient presented below. Show your workings.

$$r_s = 1 - \frac{6(\Sigma d^2)}{n(n^2-1)}$$

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(b) An extract from the table of critical values for Spearman's ranked correlation coefficient is shown below.

	Level of significance for a two-tailed test			
	0.10	0.05	0.02	0.01
$n = 4$	1.000			
5	0.900	1.000	1.000	
6	0.829	0.886	0.943	1.000
7	0.714	0.786	0.893	0.929
8	0.643	0.738	0.833	0.881
9	0.600	0.700	0.783	0.833
10	0.564	0.648	0.745	0.794
11	0.536	0.618	0.709	0.755
12	0.503	0.587	0.671	0.727
13	0.484	0.560	0.648	0.703
14	0.464	0.538	0.622	0.675
15	0.443	0.521	0.604	0.654
16	0.429	0.503	0.582	0.635
17	0.414	0.485	0.566	0.615
18	0.401	0.472	0.550	0.600
19	0.391	0.460	0.535	0.584
20	0.380	0.447	0.520	0.570

r_s must equal or exceed the table critical value to be significant at the stated level of probability.

Using this table, identify the critical value at the 5% probability level for data collected in this study.

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(c) Write the significance statement for the analysis performed on this data using Spearman's ranked correlation coefficient.

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31 Outline **one** weakness of not having qualitative data in this study.

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32 Outline **two** things that could have affected the validity of the data collected in this study.

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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).

18

19