



**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]

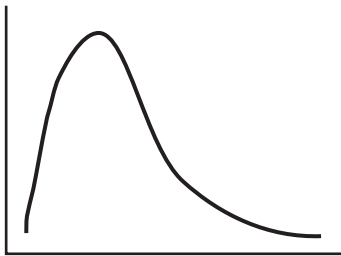
13 If the variance for a set of data is 16, what is the standard deviation?

- 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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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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## 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.

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

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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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**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).

A large area of lined paper for writing. It features a vertical solid line on the left side, creating a margin. The rest of the page is filled with horizontal dotted lines, providing space for writing answers.





A large rectangular area for writing, bounded by a solid vertical line on the left and horizontal dotted lines on the top, bottom, and right.



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