

1. Which measure of dispersion only uses the lowest and highest values in a data set?

- A range
- B standard deviation
- C variance
- D none of the above

Your answer

[1]

2(a). A psychologist wanted to see how age might affect memory. Group A were aged 20-30 years and Group B were aged 60-70 years. All participants were shown the same 20 objects on a screen for 10 seconds and then asked to immediately recall as many of the objects as they could.?

Group A 20-30 years	Number of items recalled	Group B 60-70 years	Number of items recalled
1	17	1	14
2	13	2	12
3	17	3	5
4	11	4	13
5	16	5	14
6	12	6	13
7	19	7	13

Which of these is the mean score of the 20-30 year old participants?

- A 12
- B 15
- C 16
- D 17

Your answer

[1]

(b). Which of these results from the table above would be classed as anomalous data?

- A 5
- B 13
- C 17
- D 19

Your answer

[1]

3.

Slipping up can be good

Psychologists have investigated many ways that could improve how children learn. However, most of these have concentrated on studying the effect of different teaching styles, rather than focusing on the child themselves. A psychologist taking a more child-focused approach wants to study if being more relaxed affects concentration levels. They want to investigate if young children can concentrate better when wearing comfortable slippers on their feet compared to wearing shoes. The study is to be conducted in one large primary school with 240 children on the register.

Outline **one** way you could uphold the ethical consideration of respect in this study.

[2]

4.

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Explain **two** factors that could affect the external validity of this study.

1

2

[6]

5.

Sounds familiar

Memory can be influenced by many different things. However, there are techniques which we can use to improve our memory. One such technique involves reading aloud the information we want to remember. A psychologist investigated this by giving participants a set of 30 words to try and remember. Six participants studied the words in silence. A different group of six participants were instructed to read the words aloud when trying to learn them. The data collected is presented in the table below.

Number of words correctly recalled (max. 30)					
Reading aloud group			Silent study group		
Participant	Score	Rank	Participant	Score	Rank
a	24	9.5	a	14	2
b	27	11	b	16	3
c	21	6	c	12	1
d	20	5	d	29	12
e	23	8	e	17	4
f	22	7	f	24	9.5
$n_1 = 6$			$n_2 = 6$		

Outline **one** conclusion that can be made from the raw data presented in this table.

[3]

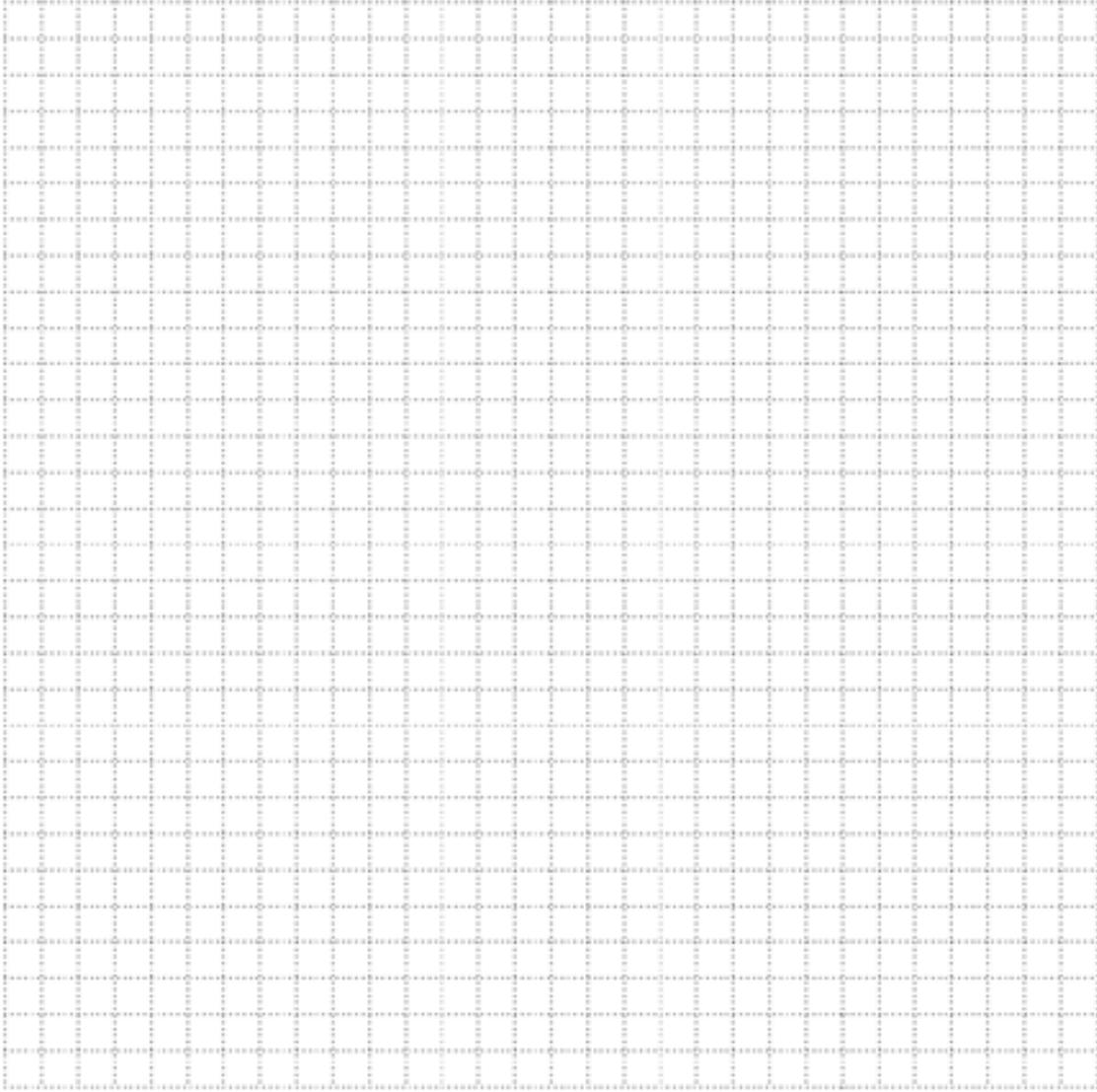
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e	23	8	e	17	4
f	22	7	f	24	9.5
$n_1 = 6$			$n_2 = 6$		

Draw a fully labelled bar chart showing the mean number of words recalled in each condition. Plot the means to two significant figures.



7.

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e	23	8	e	17	4
f	22	7	f	24	9.5
$n_1 = 6$			$n_2 = 6$		

Give **one** reason why the Mann-Whitney U test is the appropriate inferential test to use to analyse the data from this study.

[2]

8.

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f	22	7	f	24	9.5
$n_1 = 6$			$n_2 = 6$		

Before using the formula for the Mann-Whitney U test, the data obtained must be ranked. In the results, two participants have the same score of 24. Explain how this is dealt with when ranking the data.

[3]

9(a).

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e	23	8	e	17	4
f	22	7	f	24	9.5
$n_1 = 6$			$n_2 = 6$		

Calculate the U value for the Mann-Whitney U test for the data collected in this study. Show your workings. You may use the formula presented below.

U = the smaller of U_1 and U_2

Where U_1 is ...

$$U_1 = R_1 - \frac{n_1(n_1 + 1)}{2}$$

and U_2 is ...

$$U_2 = R_2 - \frac{n_2(n_2 + 1)}{2}$$

(b). How is the critical value used to determine if the findings are statistically significant?

[1]

10.

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e	23	8	e	17	4
f	22	7	f	24	9.5
$n_1 = 6$			$n_2 = 6$		

Explain what $p > 0.05$ would mean if it appeared as part of the significance statement when reporting the findings from this study.

[3]

11(a).

Sounds familiar

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e	23	8	e	17	4
f	22	7	f	24	9.5
$n_1 = 6$			$n_2 = 6$		

Explain **one** strength of using quantitative data in this study.

[3]

(b). Explain **one** weakness of using quantitative data in this study.

[3]

12.

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Memory can be influenced by many different things. However, there are techniques which we can use to improve our memory. One such technique involves reading aloud the information we want to remember. A psychologist investigated this by giving participants a set of 30 words to try and remember. Six participants studied the words in silence. A different group of six participants were instructed to read the words aloud when trying to learn them. The data collected is presented in the table below.

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e	23	8	e	17	4
f	22	7	f	24	9.5
$n_1 = 6$			$n_2 = 6$		

This study used an independent measures design.

Outline **two** ways that an independent measures design could affect the validity of this study.

1

2

[4]

13. Which type of reliability is checked by a correlation between the data of two researchers?

- A inter-rater
- B replicability
- C split-half
- D test-retest

Your answer

[1]

14. Which of these indicates there is less than a 2.5% chance of the null hypothesis being true?

- A $p < 2.50$
- B $p < 0.25$
- C $p < 0.025$
- D $p > 0.0025$

Your answer

[1]

15. Which of the following is the best measure of central tendency to use if there is an extreme value in the data set?

- A both the mean and the mode
- B mean
- C median
- D mode

Your answer

[1]

16. If the standard deviation of a data set is 9, what is the variance?

- A 3
- B 4.5
- C 9
- D 81

Your answer

[1]

17. Which of these is true of the calculated value (observed value) in a statistical test of significance??

- A it is always a whole number
- B it is based on the data collected
- C it is in a table of values
- D it will always be a number between 1 and -1

Your answer

[1]

18. What is 57.638 written to two significant figures?

- A 57
- B 57.63
- C 57.64
- D 58

Your answer

[1]

19. Which of these examples of research would collect nominal data?

- A a correlation study investigating the relationship between a person's height (in centimetres) and their level of confidence (on a scale of 0-to-20)
- B a self-report study that asks people to rate how happy they are on a scale of 0-to-100
- C an experiment that records blood pressure as a measure of anxiety to two different stressors
- D an observation study which records whether customers say 'thank you' or not to the checkout assistant in a shop

Your answer

[1]

20. Which of these is **not** a type of reliability?

- A inter-rater
- B peer-review
- C split-half
- D test-retest

Your answer

[1]

21. Which term refers to when participants change their behaviour to present themselves in a more favourable way?

- A social acceptance
- B social desirability
- C social inclusion
- D social referencing

Your answer

[1]

22. In Freud's (1909) study of Little Hans the data was obtained through information contained in letters written by Hans' father. Which type of data is this?

- A binary
- B nominal
- C primary
- D secondary

Your answer

[1]

23. What is 28.6359 written to two significant figures?

- A 28
- B 28.64
- A 28.7
- D 29

Your answer

[1]

24. If a psychologist plans to conduct a study which makes it easy for participants to stop taking part at any stage if they want to, which ethical consideration is being addressed?

- A consent
- B debrief
- C deception
- D right to withdraw

Your answer

[1]

25.

Count your blessings

As many as 1 in 4 people experience mental health issues at some time in their life and psychologists are always looking for new ways to help people cope with such matters. One interesting idea is that by writing down things that we should be grateful for (such as having good friends, a nice sunny day and our physical well-being) we can help improve our mental health.

Psychologists want to investigate this further by using the self-report method, asking people about what kind of things they feel grateful for and how this makes them feel.

Identify **one** reason why the study might have low population validity.

[1]

26.

Count your blessings

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Psychologists want to investigate this further by using the self-report method, asking people about what kind of things they feel grateful for and how this makes them feel.

Outline how you would address **two** ethical considerations in the design of this study.

1

2

[6]

27.

The eyes have it

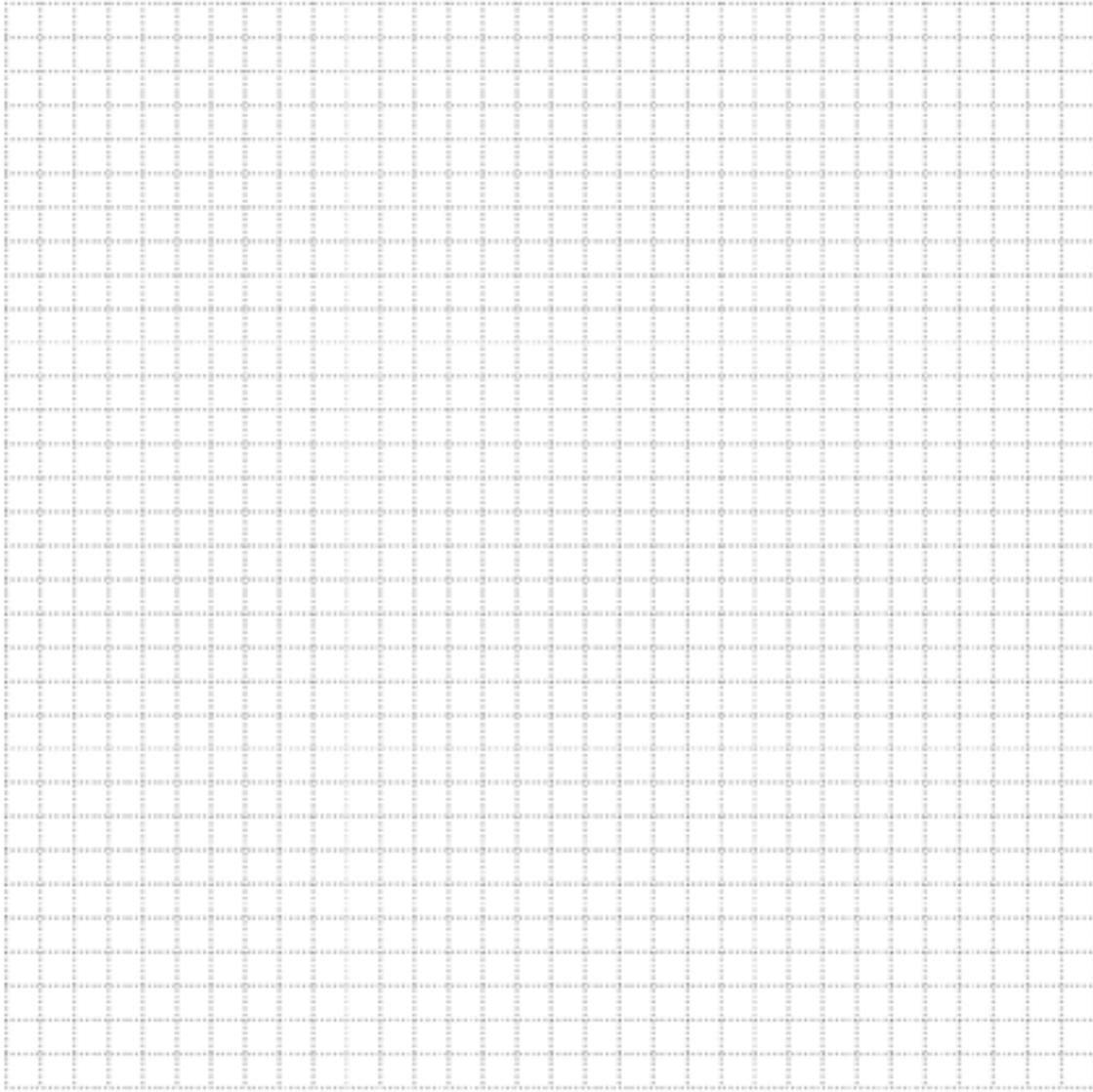
Most people agree that puppy dogs are cute, but why is this?

A psychologist investigated the possibility that the eyes play a big part. They conducted a repeated measures design experiment using a photo of the same puppy but with the eyes made to look different sizes (big or small). First participants were shown the photo with the big eyes, then a week later the same participants were shown the photo with the small eyes. On each occasion participants were asked to rate how cute the puppy was on a scale of 1 ('not very cute') to 20 ('extremely cute').

The data collected is shown in the table below.

Ratings of how cute a puppy is (1 = 'not very cute', 20 = 'extremely cute')		
Participant	Condition (a) with big eyes	Condition (b) with small eyes
a	18	7
b	14	3
c	12	14
d	17	20
e	19	9
f	16	10

Draw a fully labelled bar chart displaying the mean rating for how cute the puppy was perceived to be in each condition of this study.



[4]

28.

The eyes have it

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Participant	Condition (a) with big eyes	Condition (b) with small eyes
a	18	7
b	14	3
c	12	14
d	17	20
e	19	9
f	16	10

Outline **two** conclusions that can be made from the data collected in this study.

1

2

[6]

29.

The eyes have it

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f	16	10

Outline **one** strength and **one** weakness of the use of quantitative data in this study.

Strength

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Weakness

.....

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.....

[6]

30(a).

The eyes have it

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b	14	3
c	12	14
d	17	20
e	19	9
f	16	10

The inferential statistical test used to analyse the data collected in this study is the Wilcoxon Signed Ranks test. Explain how data is ranked for this test in this study.

[3]

(b). Using the Wilcoxon Signed Ranks test, calculate the value of T for the data collected in this study by completing the table below.

Formula / process:

T = the sum of the ranks of the differences with the least frequent sign

Ratings of how cute a puppy is (1 = 'not very cute', 20 = 'extremely cute')					
Participant	Condition (a) with big eyes	Condition (b) with small eyes	Difference (a) - (b)	Ranks of differences	T value (sum of the ranks of the differences with the least frequent sign)
a	18	7			
b	14	3			
c	12	14			
d	17	20			
e	19	9			
f	16	10			

[3]

31.

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b	14	3
c	12	14
d	17	20
e	19	9
f	16	10

34. Which type of statistical analysis requires data to come from conditions with similar variances?

- A descriptive statistical tests
- B measures of dispersion statistical tests
- C non-parametric statistical tests
- D parametric statistical tests

Your answer

[1]

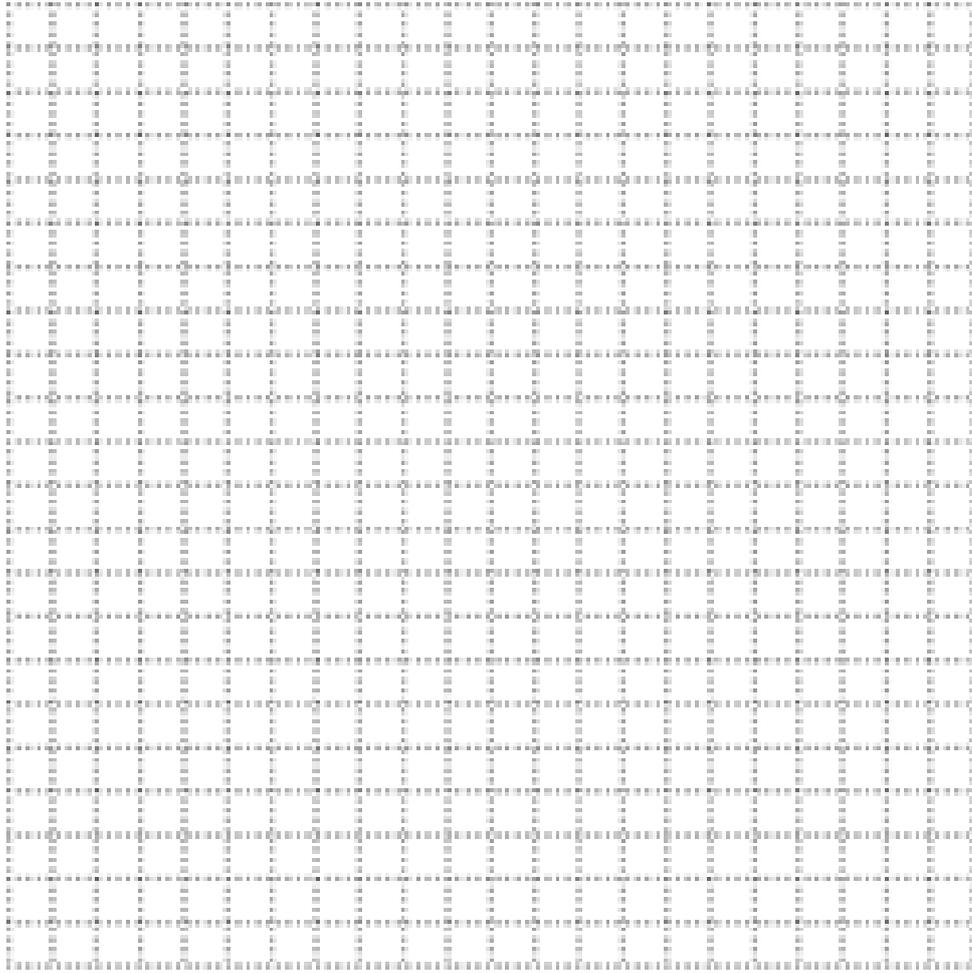
35(a).

A friendly name?

Research suggests many things can influence how friendly a person is thought to be. Personality is an obvious one and sense of humour is another. However, there are also less obvious things, such as just knowing a person's name. A psychologist investigated this using an independent measures design experiment. They compared the ratings of friendliness given to shop assistants who wore a name badge to those who did not. Some of the data collected is presented in the table below.

Ratings of friendliness (0 to 20) given to shop assistants who were wearing a name badge compared to shop assistants who were not (0 = 'not friendly at all' to 20 = 'extremely friendly')			
Wearing name badge		Not wearing name badge	
Rating	Rank	Rating	Rank
18	17	13	11
14	12	2	1
10	8	6	5
17	15	4	3
16	14	8	7
18	17	18	17
5	4	7	6
11	9	15	13
20	20	12	10
19	19	3	2

Draw a fully labelled bar chart showing the mean rating of friendliness in each condition in this study.



[4]

(b). Outline **one** conclusion that can be reached from the information in this bar chart.

[4]

36.

A friendly name?

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18	17	18	17
5	4	7	6
11	9	15	13
20	20	12	10
19	19	3	2

Explain why it may have been better to use the median to calculate the measure of central tendency in this study rather than the mean.

[2]

[5]

(b). The table below shows critical values at the 5% level of probability for the Mann-Whitney U test. Using the table, state the critical value **and** explain how you found this.

N_a	N_b															
	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
5	2	3	5	6	7	8	9	11	12	13	14	15	17	18	19	20
6		5	6	8	10	11	13	14	16	17	19	21	22	24	25	27
7			8	10	12	14	16	18	20	22	24	26	28	30	32	34
8				13	15	17	19	22	24	26	29	31	34	36	38	41
9					17	20	23	26	28	31	34	37	39	42	45	48
10						23	26	29	33	36	39	42	45	48	52	55
11							30	33	37	40	44	47	51	55	58	62
12								37	41	45	49	53	57	61	65	69
13									45	50	54	59	63	67	72	76
14										55	59	64	67	74	78	83
15											64	70	75	80	85	90
16												75	81	86	92	98
17													87	93	99	105
18														99	106	112
19															113	119
20																127

[2]

(c). Write the significance statement for the analysis performed on this data.

[2]

38.

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18	17	18	17
5	4	7	6
11	9	15	13
20	20	12	10
19	19	3	2

No qualitative data was collected in this study. Explain why this is a weakness of this study.

[3]

39.

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5	4	7	6
11	9	15	13
20	20	12	10
19	19	3	2

Identify **and** explain **two** factors that could have affected the reliability of the data collected in this study.

1

2

[6]

40. Put the letter of the correct answer in the box provided.

If the null hypothesis is incorrectly rejected, what type of error is said to have been made?

- A** a type 1 error
- B** a type 2 error
- C** both a type 1 and a type 2 error
- D** neither a type 1 nor a type 2 error

Your answer

[1]

41. Put the letter of the correct answer in the box provided.

Which of these best describes what the variance informs us of?

- A** dispersion around the mean
- B** dispersion around the median
- C** dispersion around the mode
- D** dispersion around the range

Your answer

[1]

42. Put the letter of the correct answer in the box provided.

In Milgram's (1963) study of obedience, 14 of the 40 participants were disobedient. What is this expressed as a percentage?

- A 5.6%
- B 14%
- C 35%
- D 65%

Your answer

[1]

43. Put the letter of the correct answer in the box provided.

What is 5% expressed as a fraction?

- A $\frac{1}{5}$
- B $\frac{1}{20}$
- C $\frac{1}{5}$
- D $\frac{1}{50}$

Your answer

[1]

44. Put the letter of the correct answer in the box provided.

If this data (48, 24, 39, 50, 32, 39) was ranked, what rank would be assigned to 39?

- A 2.5
- B 3.5
- C 4
- D 4.5

Your answer

[1]

45. Put the letter of the correct answer in the box provided.

In which of these distribution curves is the mean, median and mode all the same value?

- A bimodal
- B negatively skewed
- C normal
- D positively skewed

Your answer

[1]

46. Put the letter of the correct answer in the box provided.

For which of these inferential statistical tests can the sample size in each condition be different?

- A Binomial Sign test
- B Mann-Whitney U test
- C Wilcoxon Signed Ranks test
- D none of them (sample sizes always have to be equal in each condition)

Your answer

[1]

47. Put the letter of the correct answer in the box provided.

What is 25.8961 written to **two** decimal places?

- A 25
- B 25.88
- C 25.89
- D 25.90

Your answer

[1]

48. Put the letter of the correct answer in the box provided.

Which type of validity refers to the agreement between two measures or assessments taken at the same time?

- A concurrent
- B construct
- C criterion
- D face

Your answer

[1]

49. Put the letter of the correct answer in the box provided.

Which measure of central tendency looks for the most frequently occurring response in the data?

- A mean
- B median
- C mode
- D none of them

Your answer

[1]

50.

A clean smell?

The aroma of freshly baked bread, the smell of newly ground coffee and the scent of a nice fragrance. We associate different smells with different people and situations, and our sense of smell can even influence how we behave. Sometimes this can be immediate and direct, such as making us feel hungry, but it can also be more indirect. For example, the smell of lemons is often associated with cleanliness. To study this further, psychologists want to use the experimental method to investigate if people leave less litter in a room filled with the smell of lemons compared to one that smells of nothing.

Explain how you would conduct a study using the laboratory experimental method to investigate if there is a difference in the amount of litter left in a room filled with the smell of lemons compared to a room that has no smell. Justify your decisions as part of your explanation. You must refer to:

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

You should use your own experience of practical activities to inform your response.

51(a).

A friendly name?

Research suggests many things can influence how friendly a person is thought to be. Personality is an obvious one and sense of humour is another. However, there are also less obvious things, such as just knowing a person's name. A psychologist investigated this using an independent measures design experiment. They compared the ratings of friendliness given to shop assistants who wore a name badge to those who did not. Some of the data collected is presented in the table below.

Ratings of friendliness (0 to 20) given to shop assistants who were wearing a name badge compared to shop assistants who were not (0 = 'not friendly at all' to 20 = 'extremely friendly')			
Wearing name badge		Not wearing name badge	
Rating	Rank	Rating	Rank
18	17	13	11
14	12	2	1
10	8	6	5
17	15	4	3
16	14	8	7
18	17	18	17
5	4	7	6
11	9	15	13
20	20	12	10
19	19	3	2

Explain what ranking the data means.

[2]

(b). Explain why there are three ranks of 17.

[2]

52.

A friendly name?

Research suggests many things can influence how friendly a person is thought to be. Personality is an obvious one and sense of humour is another. However, there are also less obvious things, such as just knowing a person's name. A psychologist investigated this using an independent measures design experiment. They compared the ratings of friendliness given to shop assistants who wore a name badge to those who did not. Some of the data collected is presented in the table below.

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Rating	Rank	Rating	Rank
18	17	13	11
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17	15	4	3
16	14	8	7
18	17	18	17
5	4	7	6
11	9	15	13
20	20	12	10
19	19	3	2

Calculate the mean rating of friendliness in each condition. Show your workings.

53. Put the letter of the correct answer in the box provided.

Which of these is an ethical consideration acknowledged by the BPS (British Psychological Society)?

- A** compassion
- B** competence
- C** complacency
- D** compliance

Your answer

[1]

54. Put the letter of the correct answer in the box provided.

A group of 220 people answer a question about whether they prefer the colour blue or the colour red. 160 people state that they prefer the colour blue and 60 people state that they prefer the colour red. Which of the following shows these findings expressed as a ratio in its simplest form?

- A** 8 : 3
- B** 9 : 5
- C** 16 : 5
- D** 40 : 15

Your answer

[1]

55. Put the letter of the correct answer in the box provided.

Which of these descriptive statistics involves a comparison to 100 as a reference?

- A** mean
- B** median
- C** mode
- D** percentage

Your answer

[1]

56. Put the letter of the correct answer in the box provided.

Which inferential statistical test at some stage involves a calculation based on the number of rows of data and the number of columns of data?

- A Chi-square
- B Mann-Whitney U test
- C Spearman's Rho
- D Wilcoxon Signed Ranks test

Your answer

[1]

57. Put the letter of the correct answer in the box provided.

Which of these would be the appropriate inferential test to use to analyse the data in a study investigating the difference in reaction times to two types of stimuli (a light versus a bell) that obtains data from the same people in each condition?

- A Chi Square
- B Mann-Whitney U test
- C Spearman's Rho
- D Wilcoxon Signed Ranks test

Your answer

[1]

58. Put the letter of the correct answer in the box provided.

In research, which of the following best describes what 'primary data' is?

- A data that has **not** been collected by the researcher(s)
- B data that is obtained directly from the sample by the researcher(s)
- C data that is obtained first in the research
- D data that is the most important to use

Your answer

[1]

59.

Driving me crazy!

Driving is something that many people do on a regular basis, and there are many things that motorists do that cause others to become frustrated and even angry. To investigate this, a psychologist used the self-report method to find out more about what one thing people find most annoying about the behaviour of other motorists. Below is a table displaying the data collected from the 300 people who took part in the study.

Table displaying the number of responses in each category when participants were asked to identify which one of the following behaviours they find most annoying in other motorists

	Driving too close to another car	Driving too fast	Driving too slow	Overtaking	Inappropriate use of horn	Parking incorrectly
Male participants' responses	23	20	47	18	19	23
Female participants' responses	33	51	12	24	18	12

Outline the meaning of $p < 0.05$ if it appeared as part of the significance statement when presenting the findings from an inferential statistical test for this study.

[2]

60. Put the letter of the correct answer in the box provided.

Which of the following means that 'a is proportional to b'?

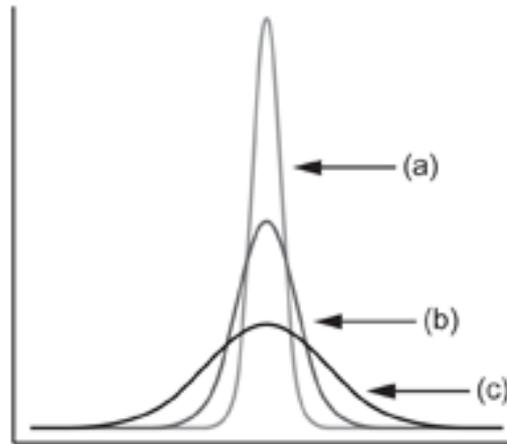
- A $a < b$
- B $a > b$
- C $a \sim b$
- D $a \propto b$

Your answer

[1]

61. Put the letter of the correct answer in the box provided.

Which of these distributions shows the largest variance?



- A distribution (a)
- B distribution (b)
- C distribution (c)
- D they are all the same

Your answer

[1]

62. Put the letter of the correct answer in the box provided.

In a study about phobias, which of the following would produce interval level data?

- A asking people to put in order, from 'least frightening' to 'most frightening', pictures of five different spiders
- B classifying people as 'not frightened', 'frightened' or 'very frightened'
- C recording heart rate whilst being shown pictures of spiders
- D responses to the open question asking 'What makes you feel frightened?'

Your answer

[1]

63. Put the letter of the correct answer in the box provided.

In Milgram's study of obedience, what kind of data were the descriptions of the signs of anxiety shown by the participants?

- A interval
- B qualitative
- C quantitative
- D secondary

Your answer

[1]

64. Put the letter of the correct answer in the box provided.

Which of these measures of dispersion only uses the highest and lowest values in a data set for its calculation?

- A range
- B standard deviation
- C variance
- D standard deviation and variance

Your answer

[1]

65. Put the letter of the correct answer in the box provided.

Which measure of central tendency involves ranking the data first?

- A mean
- B median
- C mode
- D none of them

Your answer

[1]

66.

Sounds friendly?

There are many different styles of music and some can be very emotional and even influence how we behave. A psychologist wants to use the laboratory experimental method to investigate if listening to music with prosocial lyrics (words related to love and kindness) makes people more helpful afterwards.

Outline **two** weaknesses of having quantitative data when trying to investigate whether prosocial lyrics influence how helpful people are.

1

2

[6]

67.

Driving me crazy!

Driving is something that many people do on a regular basis, and there are many things that motorists do that cause others to become frustrated and even angry. To investigate this, a psychologist used the self-report method to find out more about what one thing people find most annoying about the behaviour of other motorists. Below is a table displaying the data collected from the 300 people who took part in the study.

Table displaying the number of responses in each category when participants were asked to identify which one of the following behaviours they find most annoying in other motorists

	Driving too close to another car	Driving too fast	Driving too slow	Overtaking	Inappropriate use of horn	Parking incorrectly
Male participants' responses	23	20	47	18	19	23
Female participants' responses	33	51	12	24	18	12

What type of question has been used to produce the data displayed in the table above?
Give reasons for your answer.

[2]

68.

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Driving is something that many people do on a regular basis, and there are many things that motorists do that cause others to become frustrated and even angry. To investigate this, a psychologist used the self-report method to find out more about what one thing people find most annoying about the behaviour of other motorists. Below is a table displaying the data collected from the 300 people who took part in the study.

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Male participants' responses	23	20	47	18	19	23
Female participants' responses	33	51	12	24	18	12

Outline **two** conclusions that can be made from the data collected in this study.

1

2

[4]

69.

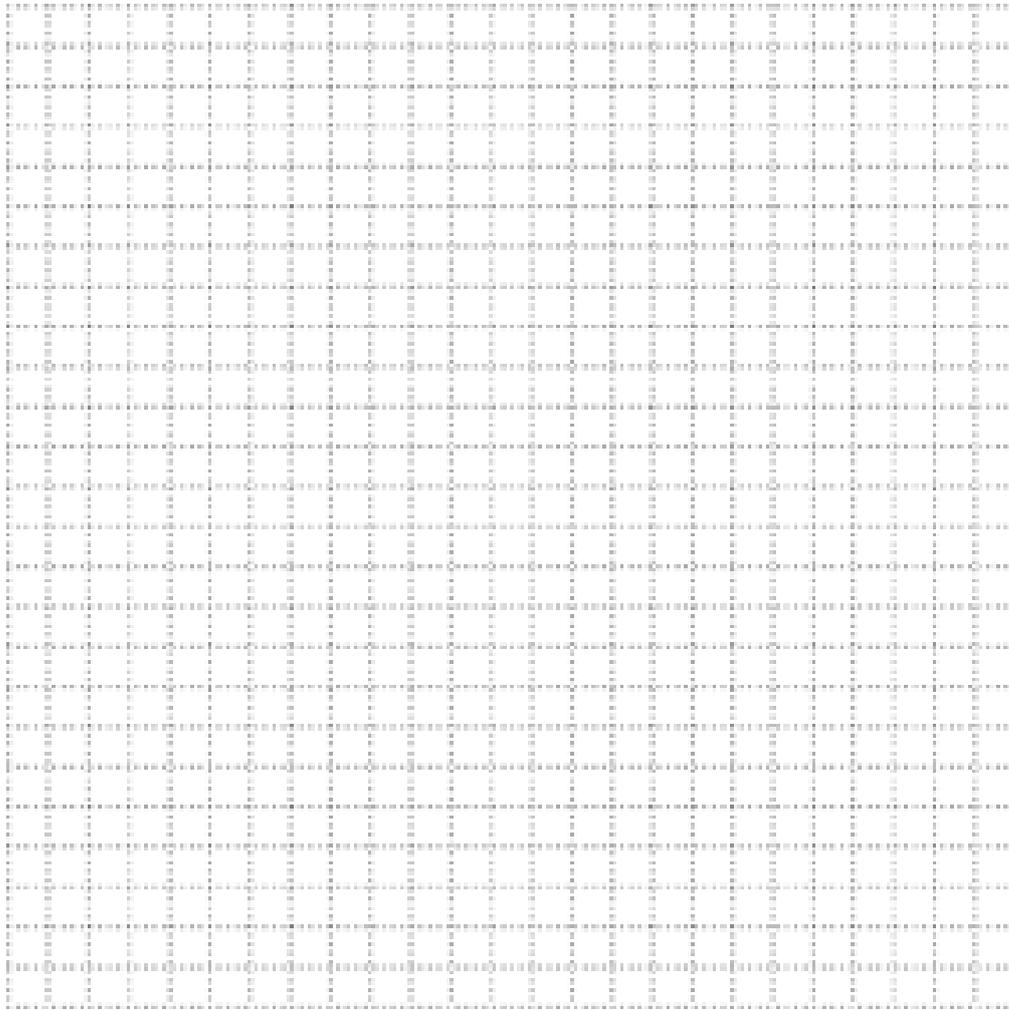
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Male participants' responses	23	20	47	18	19	23
Female participants' responses	33	51	12	24	18	12

Draw a fully labelled bar chart displaying the data from the **male participants** who took part in this study.



[4]

70.

Driving me crazy!

Driving is something that many people do on a regular basis, and there are many things that motorists do that cause others to become frustrated and even angry. To investigate this, a psychologist used the self-report method to find out more about what one thing people find most annoying about the behaviour of other motorists. Below is a table displaying the data collected from the 300 people who took part in the study.

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Male participants' responses	23	20	47	18	19	23
Female participants' responses	33	51	12	24	18	12

(b). Calculate the 'degrees of freedom' required to check for significance when using the Chi square test to analyse the data collected in this study.

[1]

(c). After it is calculated, how is the 'degrees of freedom' used when checking for significance?

[2]

72. Put the letter of the correct answer in the box provided.

Which of these shows the ratio 42 : 6 in its simplest form?

- A 5 : 1
- B 6 : 1
- C 7 : 1
- D 21 : 3

Your answer

[1]

73. Put the letter of the correct answer in the box provided.

What is the range for this set of scores? 52, 63, 48, 37, 24

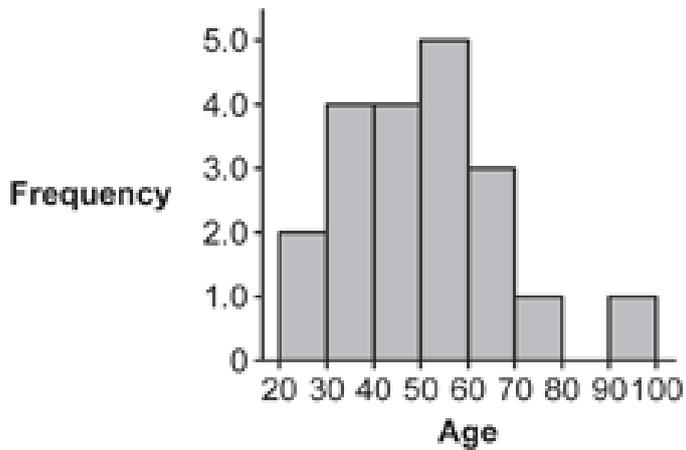
- A 24
- B 28
- C 39
- D 52

Your answer

[1]

74. Put the letter of the correct answer in the box provided.

What type of graph is this?



- A bar chart
- B histogram
- C line graph
- D pie chart

Your answer

[1]

75.

Knowing me, knowing you

How well do we know each other and how much does this reflect what we think of our self? To investigate this a psychologist asked ten people to rate their own level of extroversion on a scale of 0 ('not very extrovert at all') to 100 ('extremely extrovert') and then asked a close friend of each person to rate them using the same scale. The results are presented in the table below.

Participant	Self-rating of extroversion (0 to 100)	Friend's rating (0 to 100)
a	100	90
b	80	25
c	90	10
d	40	70
e	15	95
f	70	45
g	35	85
h	50	60
i	60	45
j	25	100

[3]

77. Put the letter of the correct answer in the box provided.

Which of these indicates the research is significant at the 3% level of probability?

- A $p < 3.0$
- B $p < 0.3$
- C $p < 0.03$
- D $p < 0.003$

Your answer

[1]

78. Put the letter of the correct answer in the box provided.

Which of these is not a type of validity?

- A construct
- B criterion
- C face
- D visual

Your answer

[1]

79. Put the letter of the correct answer in the box provided.

Which of these best describes the kind of data collected in Milgram's (1963) study of obedience?

- A both quantitative and qualitative
- B neither quantitative or qualitative
- C quantitative
- D qualitative

Your answer

[1]

84.

Knowing me, knowing you

How well do we know each other and how much does this reflect what we think of our self? To investigate this a psychologist asked ten people to rate their own level of extroversion on a scale of 0 ('not very extrovert at all') to 100 ('extremely extrovert') and then asked a close friend of each person to rate them using the same scale. The results are presented in the table below.

Participant	Self-rating of extroversion (0 to 100)	Friend's rating (0 to 100)
a	100	90
b	80	25
c	90	10
d	40	70
e	15	95
f	70	45
g	35	85
h	50	60
i	60	45
j	25	100

Explain why the Spearman's rho would be the appropriate non-parametric inferential statistical test to use to analyse the data from this study.

[3]

85. Put the letter of the correct answer in the box provided.

Which of these is not covered by the ethical issue of 'respect'?

- A** confidentiality
- B** consent
- C** payment
- D** withdrawal

Your answer

[1]

86. Put the letter of the correct answer in the box provided.

Which of these is a type of reliability?

- A** criterion
- B** ecological
- C** face
- D** test-retest

Your answer

[1]

87. Put the letter of the correct answer in the box provided.

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]

88. Put the letter of the correct answer in the box provided.

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]

89. Put the letter of the correct answer in the box provided.

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

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

Your answer

[1]

90. Put the letter of the correct answer in the box provided.

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]

91. Put the letter of the correct answer in the box provided.

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]

92. Put the letter of the correct answer in the box provided.

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]

93.

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.

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

[2]

94.

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

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

[3]

95.

Mobile mobile

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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

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

[4]

96.

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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

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.

[2]

97(a).

Mobile mobile

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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

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				

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

Formula for χ^2

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

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

..... [3]

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

..... [2]

(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?

..... [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	9.834	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?

[3]

98(a).

Mobile mobile

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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

Outline **one** strength of the use of the quantitative data collected in this study.

[3]

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

[3]

99.

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

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

1

[6]

100. Put the letter of the correct answer in the box provided.

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]

101. Put the letter of the correct answer in the box provided.

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

- A** 3
- B** 6
- C** 18
- D** 1296

Your answer

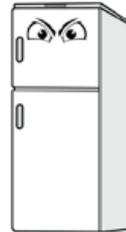
[1]

102(a).

Cold stare, you dare!

Controlling what we eat can be a challenge and any new idea may help. One psychologist has been investigating the effect of putting a picture of a pair of eyes on a fridge door to see if this can help reduce going to the fridge for snacks. She conducted an experiment using a small sample of 12 participants obtained using snowball sampling. For one week participants kept a record of the number of times they went into the fridge in-between meals for a snack (cheese, chocolate, fruit etc). The following week a pair of eyes was placed on the fridge door and the same participants were again asked to keep a record of the number of times they got a snack from the fridge. The data is presented below.

Participant	Number of times snacks taken from fridge during one week	
	Without eyes on fridge door	With eyes on fridge door
a	14	10
b	21	18
c	32	24
d	28	24
e	20	16
f	8	10
g	26	24
h	12	12
i	22	23
j	18	12
k	20	19
l	21	21



Using the Wilcoxon T Signed Ranks test, calculate the value of T.

Formula / process for calculating T: T = the sum of differences of the ranks with the least frequent sign

(b). Write the significance statement for the analysis carried out in above part with a probability of 5%, assuming a non-directional hypothesis.

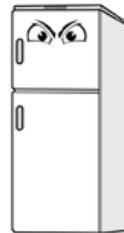
[2]

103(a).

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d	28	24
e	20	16
f	8	10
g	26	24
h	12	12
i	22	23
j	18	12
k	20	19
l	21	21



Using the extract of the table of critical values for the Wilcoxon T Signed Ranks test presented below, what is the critical value for a two-tailed test at the 5% probability level for data collected in this study?

Extract of table of critical values for Wilcoxon T Signed Ranks test
 (T is significant if it is **less than or equal** to the table value)

N	level of significance for a one-tailed test					
	.10	.05	.025	.01	.005	.001
	level of significance for a two-tailed test					
	.20	.10	.05	.02	.01	.002
4	0					
5	2	0				
6	4	2	0			
7	6	3	2	0		
8	8	5	3	1	0	
9	11	8	5	3	1	
10	14	10	8	5	3	0
11	17	13	10	8	5	3
12	21	17	13	10	7	5

[2]

(b). The Wilcoxon T Signed Ranks test was used as the data was considered **not** to be parametric. Identify **two** of the criteria for using a parametric test to analyse data.

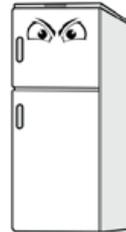
[2]

104(a).

Cold stare, you dare!

Controlling what we eat can be a challenge and any new idea may help. One psychologist has been investigating the effect of putting a picture of a pair of eyes on a fridge door to see if this can help reduce going to the fridge for snacks. She conducted an experiment using a small sample of 12 participants obtained using snowball sampling. For one week participants kept a record of the number of times they went into the fridge in-between meals for a snack (cheese, chocolate, fruit etc). The following week a pair of eyes was placed on the fridge door and the same participants were again asked to keep a record of the number of times they got a snack from the fridge. The data is presented below.

Participant	Number of times snacks taken from fridge during one week	
	Without eyes on fridge door	With eyes on fridge door
a	14	10
b	21	18
c	32	24
d	28	24
e	20	16
f	8	10
g	26	24
h	12	12
i	22	23
j	18	12
k	20	19
l	21	21



Outline **one** advantage of having quantitative data in this study.

[3]

(b). Outline **one** disadvantage of not having qualitative data in this study.

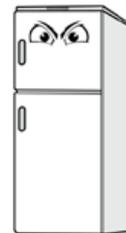
[3]

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i	22	23
j	18	12
k	20	19
l	21	21



Calculate the mean for the number of snacks taken from the fridge in the week **without** eyes on the door. Show your workings and write your answer to three significant figures.

[3]

(b). Calculate the median and range for the number of snacks taken from the fridge in the week **with** eyes on the door. Show your workings.

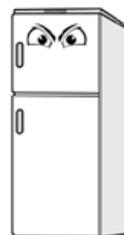
[3]

106.

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h	12	12
i	22	23
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k	20	19
l	21	21



The snacking of participant (c) was less during the week with eyes on the fridge than in the week without eyes on the fridge. Calculate this reduction as a percentage. Show your workings.

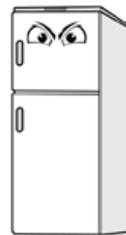
[3]

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g	26	24
h	12	12
i	22	23
j	18	12
k	20	19
l	21	21



What does the information from the standard deviation for each condition from this study presented below inform us?

Standard deviation for each condition	
Without eyes on fridge door	With eyes on fridge door
6.726	5.613

..... [3]

(b). Outline **one** strength of using the standard deviation rather than the variance as the measure of dispersion for the data collected in this study.

..... [3]

108. Which of the following could help reduce demand characteristics?

- A debriefing the participants
- B deceiving the participants
- C harming the participants
- D paying the participants

Your answer

[1]

109. Which of these is a type of inferential statistical test?

- A parabolic
- B paradoxical
- C parametric
- D parasympathetic

Your answer

[1]

110. Which of these statements is true?

- A interval data can be treated as ordinal data for analysis
- B nominal data can be ranked for analysis
- C nominal data cannot be statistically analysed
- D ordinal data can be treated as interval data for analysis

Your answer

[1]

111. Which of these is a British Psychological Society ethical consideration when conducting psychological research?

- A compassion
- B competence
- C compliance
- D compromise

Your answer

[1]

112. In order to use the chi-square test, the expected values (E) of each category of data collected must be worked out first. What is the E value of the data in category cell (a) in the following table?

(a) 12	(b) 8
(c) 16	(d) 4

$$\text{Expected value} = \frac{\text{Row total} \times \text{Column total}}{N}$$

- A 14
- B 20
- C 28
- D 40

Your answer

[1]

113. In a study investigating use of mobile phones, the following behavioural categories are used: texting; phoning; browsing; gaming and listening to music. What kind of data will be collected?

- A interval
- B nominal
- C ordinal
- D secondary

Your answer

[1]

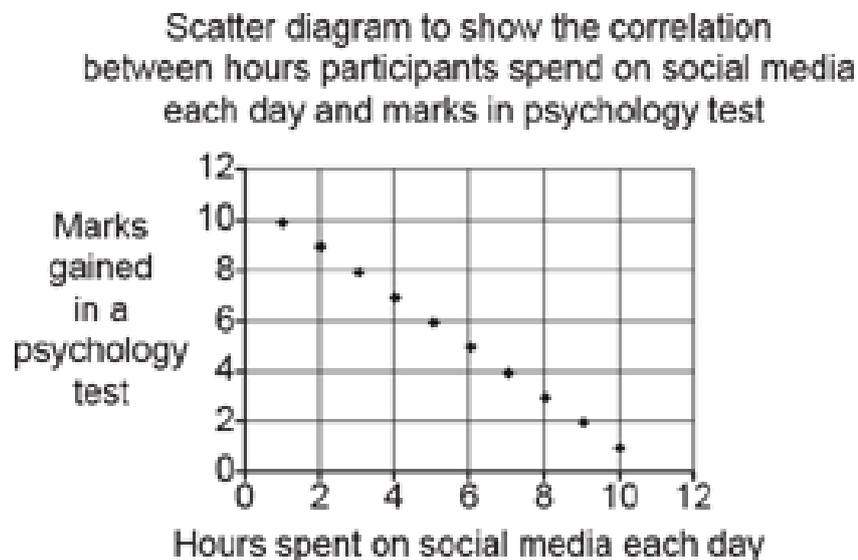
114. If the standard deviation for a set of scores is 6.3, what is the variance?

- A 2.51
- B 6.3
- C 12.6
- D 39.69

Your answer

[1]

115(a). Which correlation coefficient is represented in the data displayed in this scatter diagram?

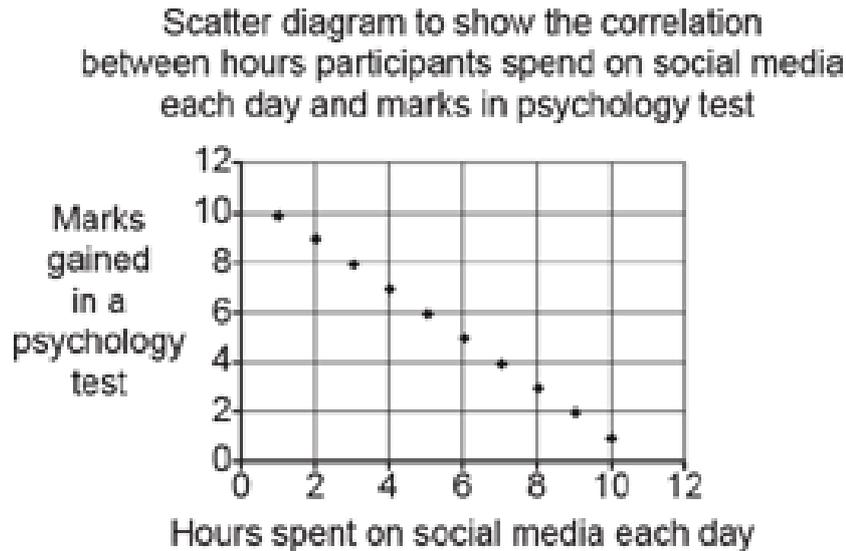


- A -1.0
- B -10.0
- C +1.0
- D +10.0

Your answer

[1]

(b). How many participants' data are displayed in this scatter diagram?



- A 5
- B 10
- C 12
- D 20

Your answer

[1]

116. What level of data and type of design are required to use the Mann-Whitney U test?

- A nominal data with independent measures design
- B nominal data with repeated measures design
- C ordinal data with independent measures design
- D ordinal data with repeated measures design

Your answer

[1]

117.

Outline **one** strength of the type of data collected in Maguire et al.'s (2000) study into the brains of taxi drivers.

[2]

120.

- i. Explain **one** weakness of the type of data collected in Loftus & Palmer's (1974) study into eyewitness testimony.

[3]

- ii. Outline **one** conclusion that was drawn from this study.

[2]**121(a).**

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

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.

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

[5]

(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.

[2]

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

[2]

122.

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h	60 000	90	11	10
i	35 000	70	6	8
j	20 000	35	3	2
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l	45 000	65	8	6.5

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

[3]

123.

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

126(a).

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j	20 000	35	3	2
k	70 000	95	12	11.5
l	45 000	65	8	6.5

Explain how the data has been ranked in this study.

[4]

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

[2]

127(a).

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i	35 000	70	6	8
j	20 000	35	3	2
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Draw a fully labelled scatter diagram showing the data collected in this study.

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

[4]

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j	20 000	35	3	2
k	70 000	95	12	11.5
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Calculate the mean rating of extroversion. Show your workings and present your finding to 2 significant figures.

[3]

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

[2]

130. 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]

131. 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]

132. 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]

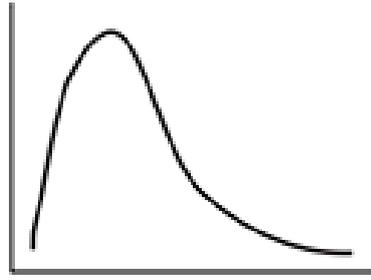
133. If the variance for a set of data is 16, what is the standard deviation?

- A 3
- B 4
- C 8
- D 256

Your answer

[1]

134. What type of distribution curve is this?



- A negatively skewed
- B non-skewed
- C normal
- D positively skewed

Your answer

[1]

135. 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]

136. What is 0.006089 written to two significant figures?

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

Your answer

[1]

137. What name refers to data before any analysis is done?

- A nominal
- B parametric
- C primary
- D raw

Your answer

[1]

138. Which of these is not a measure of dispersion?

- A variance
- B median
- C range
- D standard deviation

Your answer

[1]

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

- A mean
- B median
- C mode
- D percentage

Your answer

[1]

140. 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]

141. 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]

142. 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]

143. 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]

144. Explain **one** way in which Freud's study of Little Hans could be criticised for its lack of reliability.

[3]

END OF QUESTION PAPER