

GCSE Statistics - Diagnostic test

Data Collection and Types of Data

NAME: _____

1

- (a) The time, in seconds, that each of 100 people wait to be connected to a telephone help-line is recorded.
 The shortest time was 34.6 seconds and the longest time was 86.3 seconds.
 Javed is tabulating the data.
 He is considering several possible frequency tables.

- (a) (i) Describe one problem with each of the frequency tables A and B.

	Time, x (seconds)	Frequency
Table A	$30 < x \leq 60$	
	$60 < x \leq 90$	

Problem

..... (1 mark)

	Time, x (seconds)	Frequency
Table B	$30 < x \leq 40$	
	$50 < x \leq 60$	
	$60 < x \leq 70$	
	$70 < x \leq 80$	
	$80 < x \leq 90$	

Problem

..... (1 mark)

- (a) (ii) Describe two problems with frequency table C.

	Time, x (seconds)	Frequency
Table C	$40 < x \leq 50$	
	$50 < x \leq 60$	
	$60 < x \leq 70$	
	$70 < x \leq 80$	
	$80 < x \leq 90$	
	$90 < x \leq 100$	

Problem 1

.....

Problem 2

..... (2 marks)

2 (a) Sammi collects some data that are discrete.
What is meant if data are described as 'discrete'?

.....

.....

(1 mark)

(b) Which of these types of measurements are continuous data?
Circle your answers.

frequencies lengths weights shoe sizes (1 mark)

3 Louise collects CDs.
She keeps records of her CDs.
The records she keeps are

the cost
the length of time each track lasts
the number of tracks on each CD.

Give an example of

(a) a discrete variable that Louise records

Answer (1 mark)

(b) a continuous variable that Louise records.

Answer (1 mark)

4 A hotel is interviewing for a new receptionist.
Two of the interview panel observe and record whether candidates make good eye-contact when speaking.

(a) The data collected showed that differences occurred due to inter-observer bias.
Explain what this means in this context.

.....

.....

(1 mark)

(b) Give one way of reducing or avoiding inter-observer bias in this situation.

.....

.....

(1 mark)

(c) Name a possible extraneous variable which may have affected these results.

Answer (1 mark)

5

Boris wants to find out about how far people have to travel to vote in his constituency.

a) Boris is undecided about whether to interview people or send a postal questionnaire.

Which method should Boris choose?

Give **two** reasons for your answer.

Method

Reason 1

.....

Reason 2

.....

(2 marks)

b) Boris decides to do a pilot survey first.

One question he uses is

Question: What is the distance from your house to the nearest polling station?
Response: miles

(c) (i) Give **one** criticism of the question.

.....

.....

(1 mark)

(c) (ii) Give **one** criticism of the response section.

.....

.....

(1 mark)

d) Boris now carries out his full survey to estimate the population mean distance to the nearest polling station.

Explain why this should provide a better estimate than his pilot survey did.

.....

.....

.....

(1 mark)



6

a) A travel agent decides to survey all existing customers using a postal questionnaire. One question is shown below.

'How much do you spend each year on holidays abroad?'

Please tick one box.

£1000 - £1500	<input type="checkbox"/>
£1500 - £2000	<input type="checkbox"/>
£2000 - £3500	<input type="checkbox"/>
£3500 - £6000	<input type="checkbox"/>
£6000 and over	<input type="checkbox"/>

Give **two** distinct criticisms of the response section of this question.

Criticism 1

Criticism 2

(2 marks)

b) Of 2000 questionnaires posted out, only 93 were returned.

Give **two** ways in which the response rate could be increased.

1

2

(2 marks)

Total _____ out of 20