Test - Sampling and scatter graphs

Year: Year 11 · Duration: 45 minutes · /20

Name:	Date:	**Mark: /20**

Question	1	2	3	4	5	Total
marks	4	4	4	4	4	**20**
Mark						

Show your working.

Question 1 (4 marks)

Question 1 – Stratified sampling

A town has 300 men, 500 women and 200 children. A stratified sample of 50 people is chosen.

a. How many of each group are in the sample? (3 marks)
b. Why is the sample stratified? (1 mark)

Question 2 (4 marks)

Question 2 – Estimating a population (Higher)

30 fish are tagged. A second sample of 35 has 7 tagged.

a. Estimate the number of fish. (3 marks)
b. Give one assumption. (1 mark)

Question 3 (4 marks)

Question 3 – Line of best fit

A line of best fit passes through $(1, 12)$ and $(7, 40)$.

a. Find its equation, giving the gradient to 1 decimal place. (3 marks)
b. Use it to estimate y when $x = 4$. (1 mark)

Question 4 (4 marks)

Question 4 – Correlation

A scatter graph shows the age of a car and its value.

a. Describe the correlation and what it shows. (2 marks)
b. A student says "older cars are worth less because they are older". Comment on

cause and correlation. (2 marks)

Question 5 (4 marks)

Question 5 – Bias

A survey about a new park asks only people who are walking in the town centre on Saturday morning.

a. Give two reasons why the sample may be biased. (2 marks)
b. Suggest how to improve it. (2 marks)