FOUNDATION & HIGHER

SAME AT BOTH TIERS

Name ..... **Class** .....

S5: Describing a population

Apply statistics to describe a population

20 marks · 25 minutes · Calculator allowed

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1) A random sample of 20 apples has a mean mass of 152 g. Estimate the mean mass of all the apples on the farm.

..... g

[Question 1: 1 marks]

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2) A survey of 50 households finds a mean of 2.8 people per household. Estimate the total number of people in 400 households.

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[Question 2: 2 marks]

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3) In a random sample of 60 people, 18 are left-handed.

(a) Estimate the percentage of people who are left-handed.

..... %

(1)

(b) Estimate how many of 2500 people are left-handed.

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(1)

[Question 3: 2 marks]

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4) Two samples of commuting times are taken. Sample A: mean 25 minutes, range 30 minutes. Sample B: mean 32 minutes, range 12 minutes. Compare the two samples.

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[Question 4: 2 marks]

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5) A town has 24 000 people. In a random sample of 300 people, 45 own an electric car. Estimate how many people in the town own an electric car.

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[Question 5: 2 marks]

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6) Here are the masses, in grams, of a random sample of 10 items from a batch: 12, 15, 9, 14, 10, 13, 11, 16, 12, 8

(a) Find the mean mass.

..... g

(2)

(b) The batch has 500 items. Estimate the total mass of the batch.

..... g

(1)

[Question 6: 3 marks]

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7) True or false: the mean of a sample is always exactly equal to the mean of the population.

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[Question 7: 1 marks]

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8) A shop's weekly sales over 8 weeks were: 34, 41, 38, 45, 29, 41, 36, 40

(a) Find the median.

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(1)

(b) Find the mode.

.....

(1)

(c) Find the range.

.....

(1)

[Question 8: 3 marks]

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9) Which average best describes house prices in an area with a few very expensive houses?

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[Question 9: 1 marks]

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10) 50 fish are tagged and released into a lake. Later, 60 fish are caught and 12 are tagged. Estimate the number of fish in the lake.

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[Question 10: 2 marks]

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11) What happens to the reliability of an estimate when the sample size is increased?

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[Question 11: 1 marks]

End of paper – 20 marks in total

Answers and brief mark scheme

Q	Answer	Method / notes
1	152	B1.
2	1120	2.8×400 (M1); A1.
3	(a) 30% (b) 750	B1 each.
4	e.g. A is quicker on average; A's times vary more	B1 average; B1 spread.
5	3600	$\frac{45}{300} \times 24000$ (M1); A1.
6	(a) 12 (b) 6000	(a) $120 \div 10$ (M1); A1. (b) B1.
7	False	B1.
8	(a) 39 (b) 41 (c) 16	B1 each.
9	Median	B1.
10	250	$\frac{12}{60} = \frac{50}{N}$ (M1); A1.
11	It becomes more reliable	B1.