FOUNDATION & HIGHER

SAME AT BOTH TIERS

Name ..... Class .....

S2: Charts and diagrams

Interpret and critically evaluate charts and diagrams

20 marks · 25 minutes · Non-calculator

1) A pie chart represents 60 people. Show that a 90° sector represents 15 people.

[Question 1: 1 marks]

2) Class A (30 students) has a 120° sector for cats. Class B (60 students) has a 90° sector for cats. Kim says more students in Class A chose cats. Explain her mistake.

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[Question 2: 3 marks]

3) Explain how a bar chart with a vertical axis starting at 50 can be misleading.

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[Question 3: 2 marks]

4) Explain why a pie chart is good for showing proportions but not for showing changes over time.

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[Question 4: 2 marks]

5) In a pictogram, one symbol represents 4 cars. Show that $2\frac{1}{2}$ symbols represent 10 cars.

[Question 5: 1 marks]

6) Explain why the lines joining points on a temperature graph may not show the actual temperatures between readings.

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[Question 6: 2 marks]

7) Show that pie chart angles for 18, 27 and 15 out of 60 are 108°, 162° and 90°, and that they add up to 360°.

[Question 7: 2 marks]

8) Explain why the bars on a bar chart should be the same width.

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[Question 8: 2 marks]

9) Explain why a vertical line chart is suitable for discrete data.

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[Question 9: 2 marks]

10) Which is better for comparing two groups: two separate bar charts or a dual bar chart? Explain.

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[Question 10: 1 marks]

11) Explain why a 72° sector represents $\frac{1}{5}$ of the data.

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[Question 11: 2 marks]

End of paper – 20 marks in total

Answers and brief mark scheme

Q	Answer	Method / notes
1	Shown	$\frac{90}{360} \times 60$ (C1).
2	Explanation	Angles show proportions, not numbers (C1); A: 10 students, B: 15 students (M1); more in B (C1).
3	Explanation	Differences look bigger than they are (C2).
4	Explanation	Pie: parts of a whole (C1); no time order (C1).
5	Shown	2.5×4 (C1).
6	Explanation	Values between readings were not measured (C2).
7	Shown	6° per person (M1); sum 360° (C1).
8	Explanation	Width could make some bars look bigger (C2).
9	Explanation	Data take separate values only (C2).
10	Dual bar chart	Side by side on the same scale (C1).
11	Explanation	$\frac{72}{360} = \frac{1}{5}$ (C2).