# 6.1 Statistics: 30-minute Pack

Calculator allowed · about 30 minutes

Name: _____ Date: ____ / ____ / _____

**Answer ALL questions. Show all your working.**

**1** Staff at Bridgtown Academy were asked whether they prefer tea, coffee or neither. Some results are shown in the two-way table below.
Boys: Tea 15, Coffee unknown, Neither 5, Total 32.
Girls: Tea unknown, Coffee 10, Neither 3, Total 28.

| | Tea | Coffee | Neither | Total |
|---|---|---|---|---|
| Boys | 15 | | 5 | 32 |
| Girls | | 10 | 3 | 28 |

**(a)** Work out the number of boys who prefer coffee. **(2)**

.....

**(b)** Work out the number of girls who prefer tea. **(2)**

.....

**(c)** Work out the total number of staff who prefer tea (boys and girls combined). **(1)**

.....


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**2** The grouped frequency table shows the time, t minutes, taken by 40 pupils to complete a puzzle.

$0 < t \leq 10$: frequency 6
$10 < t \leq 20$: frequency 10
$20 < t \leq 30$: frequency 14
$30 < t \leq 40$: frequency 8
$40 < t \leq 50$: frequency 2

**(a)** Write down the modal class. **(1)**

.....

**(b)** Find the class that contains the median. **(2)**

.....

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**3** The marks out of 50 for 10 students in a maths test are: 23, 31, 45, 22, 38, 41, 27, 33, 19, 44.

**(a)** Construct an ordered stem-and-leaf diagram to show this data, including a key. **(3)**

**(b)** Find the range of the marks. **(1)**

.....

**(c)** Find the median mark. **(2)**

.....


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**4** A bar chart shows the number of pupils in a class who own each type of pet: dogs 25, cats 7, fish 27, rabbits 18, hamsters 4.
Which type of pet is the mode, and what fraction of all the pets is it? Give the fraction in its simplest form.

**(3)**


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**5** For each set of data, say whether it is categorical, discrete or continuous.

(a) the months in which pupils were born

(b) the time taken to run 100 m

**(2)**

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**6** The grouped frequency table shows the distance, d km, travelled to school by 25 pupils.

$0 \leq d < 2$: frequency 5

$2 \leq d < 4$: frequency 9

$4 \leq d < 6$: frequency 7

$6 \leq d < 8$: frequency 3

$8 \leq d < 10$: frequency 1

A frequency polygon is drawn by plotting a point at the midpoint of each class, at the height of its frequency.

| Distance, d km | Frequency |
|---|---|
| 0 <= d < 2 | 5 |
| 2 <= d < 4 | 9 |
| 4 <= d < 6 | 7 |
| 6 <= d < 8 | 3 |
| 8 <= d < 10 | 1 |

**(a)** Write down the coordinates of the point plotted for the class $4 \leq d < 6$. **(1)**

.....

**(b)** How many pupils travel less than 4 km to school? **(2)**

.....

**(c)** Calculate an estimate for the mean distance travelled to school. **(3)**

.....


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# Mark scheme · 6.1 Statistics: 30-minute Pack

## Question 1

(a) 32 - 15 - 5 **M1**

(a) 12 cao **A1**

(a) Answer: **12**

(b) 28 - 10 - 3 **M1**

(b) 15 cao **A1**

(b) Answer: **15**

(c) 30 cao, ft from parts a and b **B1**

(c) Answer: **30**

## Question 2

(a) $20 < t \leq 30$ cao **B1**

(a) Answer: **$20 < t \leq 30$**

(b) Uses cumulative frequencies (6, 16, 30, 38, 40) to locate the 20th value **M1**

(b) $20 < t \leq 30$ cao **A1**

(b) Answer: **$20 < t \leq 30$**

## Question 3

(a) Leaves grouped correctly by stem (1, 2, 3, 4) **B1**

(a) Leaves ordered correctly within each stem **B1**

(a) Correct key given, e.g. 1 | 9 means 19 **B1**

(a) Answer:

| | |
|---|---|
| 1 | 9 |
| 2 | 2 3 7 |
| 3 | 1 3 8 |
| 4 | 1 4 5 |

Key: 1 | 9 means 19

(b) 26 cao, ft from part a **B1**

(b) Answer: **26**

(c) Identifies the 5th and 6th values (31 and 33), ft from part a **M1**

(c) 32 cao **A1**

(c) Answer: **32**

## Question 4

mode = fish **B1**

27/81 **M1**

1/3 **A1**

Answer: **fish, 1/3**

## Question 5

(a) categorical **B1**

(b) continuous **B1**

Answer: **(a) categorical, (b) continuous**

## Question 6

(a) (5, 7) cao **B1**

(a) Answer: **(5, 7)**

(b) 5 + 9 **M1**

(b) 14 cao **A1**

(b) Answer: **14**

(c) Uses midpoints 1, 3, 5, 7, 9 **M1**

(c) Sum of (frequency x midpoint) = 5+27+35+21+9 = 97 **M1**

(c) 3.88 km cao awrt 3.9 **A1**

(c) Answer: **3.88 km (awrt 3.9 km)**


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