Mark schemes

Q1.

(a) 4

              B1

(b) 3 + 6 + 6 + 9 + 4 or 28

        at least four correct and intention to add

              M1

    their 28 ÷ 4

        oe

              M1dep

    7

              A1

Additional Guidance

Totals other than 28 must be evidenced for M1 or M2

3 + 6 + 6 + 9 + 4 = 29, 29 ÷ 4,   answer = 7

              M1M1A0

              [4]

Q2.

(Number of girls =) $\dfrac{360}{36}$ × 5 or 50

        oe

        Check diagram for working

              M1

Blue eyed girls = 3 × 5

or $\dfrac{108}{360}$ × their 50

or 15

              M1

(Number of boys =) 2 × 4^2 (× π) or 32

or $\left(\dfrac{4}{5}\right)^2 \times 50\,(\times\,\pi)$

        oe

              M1

Blue eyed boys = their 32 ÷ 4 or 8

        Dependent on 3ʳᵈ M

              M1dep

    23

A1

[5]

Q3.

(a) Histogram or frequency polygon with mid-points of bars and vertices of polygon at (5, 36), (15, 34), (25, 18) and (35, 12)

> *B1 one error*
>
> *Ignore lines before (5, 36) and after (35, 12) if polygon drawn*

B2

(b) 6 × (18 + 12)

NB table can be seen if necessary.

oe $\dfrac{30}{100}$ × 600

M1

180

> *SC1 30% stated as answer*
> *SC1 for 420 as answer*

A1

[4]

Q4.

(a) C&O frequency = 5

B1

Three tally marks in BBQ

B1

(b) Key 1 circle represents 2 people *oe*

> *Half circle represents 1 person*
> *One and a half circles represents 3 people*

B1

6 circles in Plain

and

2.5 circles in C&O

> *B1 6 circles in Plain **or** 2.5 circles in C&O*
> *ft their fully completed key*
> *Only award B2ft if BBQ row is also correct for their key*
> *B1ft one row matching their key*

B2ft

[5]

Q5.

$\dfrac{29+1}{2}$ or 15th value identified

M1

6

A1

[2]

Q6.

(a)   10 (ice creams) and 7 (lollies) chosen

B1

their 10 × 1.2(0) or 12(.00)

or their 10 × 120 or 1200

and

their 7 × 0.8(0) or 5.6(0)

or their 7 × 80 or 560

17.6 or 1760 or £17.60p implies B1 M1

M1

17.60

Strand (i)
ft correct answer with correct money notation for their 10 and their 7
SC2 16.40
SC1 16.4 or 12 or 5.60

Q1ft

(b)   10 + 7 + 15 + 18   or 50

Allow 1 error

M1

80 − their 50   or 30

Bars that total 30 or 80 − their 50

M1dep

Bars for 14 ice creams and 16 lollies

SC1 Bars with two more lollies than ice creams with no M marks awarded

A1

[6]

Q7.

(a)   One correct method eg   0.3 × 360 (= 108 degrees)

M1

All correct angles drawn ±2°

108, 72, 180
A1 one correct angle calculated or drawn

A2

Structure correct

Strand (iii)
3 sector pie chart with labels in correct order of size

(b)   5 + 3 + 2 (= 10 (cups))

           1 cup = 8

                                                                  M1

    $80 \div$ their 10×5

           oe   their 8×5

           Award M2 for $80 \div 2$

                                                                   M1

    40

           If 40 seen with cola, ignore further work

                                                                  A1

(c)   (i)   Any correct comment

           eg orange most in morning

           If quantified must be correct

                                                                        B1

       (ii)   Lemonade

                                                                        B1

                                                                                               [9]

Q8.

(a) $120 - 97$ or $89 - 70 + 31 - 27$

           oe   or 19 or 4 seen

                                                                     M1

    23

           SC1 answer 46

                                                                     A1

(b)   15

           for Wednesday

                                                                     B1

    24

           for Thursday

                                                                     B1

(c) $\dfrac{30}{120}$ seen

           oe   fraction, decimal, percentage

                                                                     M1

    $\dfrac{1}{4}$

                      SC1 $\dfrac{15}{43}$

           SC1 any seen fraction correctly cancelled to simplest form

                                                                         A1

(d) $\frac{50}{150}$ or attempts to make a comparison

Seen or implied

M1

$\frac{1}{3}$ or $\left(\frac{1}{4} = \right)\frac{50}{200}$ or both values correct in appropriate comparison

Fraction/decimal/percentage

A1

Their yes with fractions with either same numerator (oe)
or same denominator
or with both values as decimals or both values as percentages
or appropriate diagrams

Strand (iii)

Supporting answers with explanations and evidence

ft their $\frac{1}{4}$ from 3c and their $\frac{1}{3}$

Q1

Alternative method

$\frac{150}{4}$

May be implied by diagram

M1

37.5

A1

Yes (50 > 37.5)

Q1

[9]

Q9.

(a) 14

B1

(b) 3 (+) 1 (+) 5 (+) 2 (+) 8 (+) 1

Allow one error or omission
Accept clear indication on the diagram

M1

20

A1

[3]

Q10.

(a) qualitative and primary

B1

(b)   pie chart and bar chart

B1

[2]

Q11.

(a)   8

B1

(b)   6 (−) 4   or   4 ÷ 2

$1\frac{1}{2}$ – 1(symbols) or $\frac{1}{2}$ symbol chosen

M1

2

A1

(c)   Football

B1

[4]

Q12.

Fully correct bar chart with equal gaps

Bar drawn at height of 10 for bus

Bar drawn at height of 7 for car

Bars drawn at 2 for Train and 1 for Walk

(train = twice walk is the condition)

Total = 20

B3 for correct bar chart but no or unequal gaps

or for 3 conditions met

B2 for 2 conditions met

B1 for 1 condition met

B4

Additional Guidance

Fully correct bar chart has equal width bars, equal width gaps and four correct heights

Accept if students relabel their scale, otherwise follow the mark scheme

The four conditions are:
1. Height 10 for bus
2. Height 7 for car
3. Train height twice as high as walk height
4. Total 20

[4]

Q13.

(a)   34

B1

(b)   (5.10+) 2 hours 1 minute

Accept sight of 2 hours 1 minute or 2.01

M1

7.11

A1

(c)   4 correct plots

B1 ft 2 or 3 correct plots ft their part a

B2 ft

(d)   Draws a suitable line of best fit

M1

(5.10+) their read off value at 5.10

M1 dep

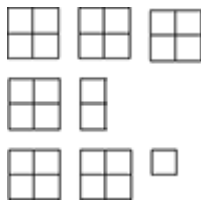Correct answer for their 5.10 + read off value

Must have M2

SC1 M0 but answer [5.40, 5.45]

A1 ft

[8]

Q14.

(a)

For each row allow the correct number of squares / rectangles

B1 one or two correct rows

SC1

B2

(b)   (comedy =) 10 or (romance =) 5

or (Tuesday total =) 17

M1

27 + 10 + 2 + 5

or

12 + 6 + 9 + 10 + 2 + 5 or 44

or

12 + 10 or 6 + 9 + 2 + 5 or 22

44 or 22 implies M2

M1

44 and 22 and Yes

or

22 and 22 and Yes

Strand (ii)
SC2 61 and 32 and No

Q1

[5]

Q15.

(a)   B = 4 **and** E = 10 **and** C = ‖‖‖ ‖‖‖ ‖‖
B1 for one or two correct

B2

(b)   60 ÷ 4 (= 15)
oe eg 15 × 4 (= 60) or $\frac{15}{60}$

M1

D

A1

[4]

Q16.

140 − 110

90 ÷ 3

or 30

or 1800 is 90°

or 1800 × 4

or 7200 seen

or 1800 ÷ 90

or 7200 ÷ 360

or 20

oe
90 ÷ 1800 or 0.05°
1800 may be in sector D but must see 90

M1

1800 ÷ 90 × 140 or 2800

or 1800 ÷ 90 × 110 or 2200

or 1800 ÷ 90 × 20 or 400

or 1800 ÷ 90 × 30

or 1800 ÷ 3

> *oe*
> *140 ÷ 0.05 or 2800*
> *or 110 ÷ 0.05 or 2200*
> *or 20 ÷ 0.05 or 400*
> *or 30 ÷ 0.05*

M1dep

600

> *SC1 for 150*

A1

Additional Guidance
1800 is ¼, 7200 is the whole circle

M1

1800 is ¼

M0

[3]

Q17.

(a)   (+) 30 − 6 (= 24)

or

24 + 6 = 30

or

30 − 24 = 6

> *Condone written explanation eg 30 entered and 6 left*

B1

(b)   21 − 25 or −4 or 20

or

75 − 70 or 5 or 25

or

40 − 38 or 2

M1

27

A1

Alternative method

30 + 21 + 75 + 40 or 166

or

6 + 25 + 70 + 38 or 139

M1

27

A1

[3]

Q18.

(a)   24 (million) − 15 (million)

Subtraction with one value correct

M1

9

Condone 9 000 000

A1

(b)   30

Condone 30 000 000

B1

(c)   28(%) **and** 20 (million) chosen

oe

Implied by correct answer

B1

0.28 × their 20 **or** 20 × $\dfrac{\text{their } 28}{100}$

oe

their 20 can only be 15, 20, 24 or 26

their 28 can only be 12, 15, 28 or 45

M1

5.6

Digits 56 on answer space implies B1M1

Accept rounding to 6 after a correct answer is seen.

Condone 5600000

SC2 4.2 or 6.72 or 7.28

A1

[6]

Q19.

Linear scale starting at 0 and increasing in 1s on vertical axis

Vertical axis labelled frequency or f or number

Title given or horizontal axis labelled (types of) bird(s)

Bars labelled with four bird names (allow R, S, W, L)

Four bars with equal widths

Equal gaps or no gaps between four bars

All heights correct

Bar chart could be horizontal

B3 for all criteria met

B2 for 5 or 6 criteria met
B1 for 3 or 4 criteria met
correct or ft their increasing scale

B3

Additional Guidance

Mark intention throughout

If grid is blank, allow axes to be transposed

If axes and labels do not match the orientation of the bar chart then only the marks for criteria 3 (must be a title), 5, 6 and 7 may be awarded

B1 max

All values not needed for axis scale e.g. 0 can be implied but spacing must be linear

Scale of 2 units per square does not meet the first criterion

Allow words after 'Number' on axis label e.g. 'Number seen', 'Number of birds'. Also allow e.g. Amount of birds

Title must include the word bird

Condone different gap between the vertical axis and the first bar with other gaps equal or no other gaps

If no axis scale, bars with heights 2, 5, 3, 1 meet heights criterion

Points only or vertical lines can score the marks for criteria 1, 2, 3, 4 and 7

B2 max

[3]

Q20.

(a) $\dfrac{15}{100}$ × 20 or 3

or $\dfrac{12}{100}$ × 10 or 1.2

or $\dfrac{10}{100}$ × 10 or 1
   oe
   20 × 15 + 10 × 12 or 420

M1

3 + 1.2 or 4.2

or 3 + 1
   oe
   their 420 ÷ 100

M1dep

4

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(b)   (85 + 88) ÷ 2 or 86.5

or (0.85 + 0.88) ÷ 2
    oe

M1

0.865 or $\frac{173}{200}$ or 86.5%
    oe

Allow 0.87 or $\frac{87}{100}$ or 87% if correct method shown

A1

Additional Guidance

Beware of $\frac{26}{30}$ leading to 86.6(...)%

M0A0

0.87 on its own

M0A0

[5]