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**Question 1**

- (a) July, August
- (b) April
- (c)  $14^{\circ}\text{C}$
- (d)  $27 + 30 + 30 = 87$   
 $87 \div 3 = 29^{\circ}\text{C}$
- (e)  $1375 \div 189 = 7.275$   
 $= \text{£}7.28$

Notes:

- (a) B1 cao
- (b) B1 cao
- (c) B1 cao
- (d) M1 add and divide by 3  
A1 cao
- (e) M1 for division by 189  
A2 for 7.28 or  
A1 for 7.275..., 7.20, 7.30, 7.27, 7.2 or 7.3

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**Question 2**

- (a)  $(7 \times 250) + (20 \times 750) + (11 \times 1250) + (9 \times 1750) + (3 \times 2250)$   
 $\pounds 53\,000 \div 50$   
 $= \pounds 1060$
- (b)  $\pounds 1200 \times 0.85 = \pounds 1020$   
 $\pounds 1020 \times 0.85 = \pounds 867$   
 $\pounds 867 \times 0.85$   
 $= \pounds 736.95$

Notes:

- (a) M1  $\times$  f (including end points consistently)  
M1 (dep) consistent midpoints used  
M1  $\div$  50 (dep on first M1)  
A1 cao
- (b) M1 for  $\times 0.85$  (oe)  
A1 cao for  $\pounds 1020$ : 1<sup>st</sup> year  
A1 cao for  $\pounds 867$ : 2<sup>nd</sup> year  
A1 cao for  $\pounds 736.95$ : 3<sup>rd</sup> year  
SC: for  $\pounds 1825.05$  give B2

OR

M1 for  $1200 \times 0.85^n$   
A1 for  $n = 3$   
A1 0.614125 (implied)  
A1 cao  
NB: isw ignore workings / answer for further years

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**Question 3**

- (a) 5 (G)  
(b)  $14 + 19 + 6 = 39$  (G)  
(c) 1 (F)  
(d) year 11. The total no of pets is the smallest. (F)

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**Question 4**

- (a) 29  
(b) Gr A  $\rightarrow$  12  
Gr B  $\rightarrow$  20  
Gr C  $\rightarrow$  18

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**Question 5**

- (a) (a fraction less than 1, with denominator 100);  $16/100$  (oe)  
(b) " $16/100$ "  $\times 25\ 000$ ;  $= 4000$   
(c)  $75 \times 192$  {= 14 400}  
 $[25\ 000 - 75 \times 192] \div 50$ ;  $= 212$

Notes:

- (a) M1 (for a fraction less than 1, with denominator 100);  
A1 cao  
(b) M1 (provided that their (a) is  $< 1$ )  
A1 ft  
(If no working, give B2 ft for (a)  $\times 25\ 000$ , provided (a)  $< 1$ )  
(c) M1  
M1  
A1 cao

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**Question 6**

- (a)  $41 \times 2.5 + 26 \times 7.5 + \dots$   
 $102.5 + 195 + 250 + 175 + 67.5$   
"790"  $\div 100 = 7.9$  years
- (b) 41, 67, 87, 97, 100
- (c) Points correct. Curve or straight line segments
- (d) 75 or 75 indicated  $\approx 11.5$  years (curve)  $\approx 12$  years (lines)

Notes:

- (a) M1 for  $\sum fx$  using at least 3 consistent values in the intervals including both ends  
M1 (dep) for use of correct mid-interval values  
M1 for  $\sum fx$  and division by 100 (dep on first M1)  
A1 cao
- (b) B1
- (c) B1 for 4 or 5 points correctly plotted at ends of intervals (within square),  
ft from sensible table in (b)  
B1 ft from their points if previous B1 scored,  
Or if B1 scored in (b) and points plotted consistently
- (d) M1  
A1 ft from graph (sq) if B2 or B1 in (c)

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**Question 7**

(a)  $20 \times 17.4 + 10 \times 13.8$

$$\frac{\text{Total}}{30}$$

$$= 16.2$$

(b)  $\frac{1 + 2 + 3 + 4 + x}{5} = 6$

$$10 - x = 30$$

$$x = 20$$

Notes:

(a) M1 for  $20 \times 17.4 + 10 \times 13.8$

A1 cao

NB: 15.6 gets M0

(b) M1 for  $(1 + 2 + 3 + 4 + x) \div 5$

M1 for sight of 6 (not as ans)

A1 cao

Alternative

M1 for 30 seen

M1 (indep) for use of 10

A1 cao for 20

Alternative (trial and improve)

M1 for adding up numbers and dividing by 5

M1 for at least 3 attempts

A1 cao for 20

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**Question 8**

$$\frac{140}{10} = 14$$

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**Question 9**

$$\begin{aligned} \text{(a)} \quad & 2 \times 10 + 22 \times 30 + 13 \times 50 + 10 \times 70 + 5 \times 90 + 2 \times 110 + 1 \times 130 = 20 \\ & + 660 + 650 + 700 + 450 + 220 + 130 = 2830 (= 51.4545\dots) = 51.5 \end{aligned}$$

$$\text{(b)} \quad 40 < L \leq 60$$

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**Question 10**

$$\begin{aligned} (3 \times 0) + (14 \times 0.5) + (17 \times 1.5) + (5 \times 2.5) + (1 \times 3.5) &= 48.5 \\ 48.5 \div 40 &= 1.21 \end{aligned}$$

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**Question 11**

$$29 \times 9 = 261$$

$$31 \times 5 = 155$$

$$33 \times 4 = 132$$

$$\underline{35 \times 2 = 70}$$

$$618$$

$$618 \div 20 = 30.9$$

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**Question 12**

- (a) 6, 23, 45, 90, 116, 135, 144, 150  
(b) cum freq diag drawn: ignore line between first point and the origin  
(c) 60% of 150 = 90  
150 - 90 = 60  
pass mark about 42 - 45 marks

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**Question 13**

(a)  $3 \times 1, 8 \times 2, 13 \times 5, 18 \times 7, 23 \times 8, 28 \times 2 = 3, 16, 65, 126, 184, 56$   
 $450 \div 25$

= 18 points

(b) 1, 3, 8, 15, 23, 25

(c) graph drawn

(d) 18.5 points

Notes:

(a) M1 for using values in the intervals (including both ends) consistently (at least 4 correct) x frequencies

M1 (dep) for adding fx values and  $\div 25$

A1 cao for 18

(b) B2 all correct (B1 if 5 or 4 correct or no more than one independent numerical error)

(c) B1 for axes drawn and labelled with words

B1 for points plotted with correctly fit cf at ends of intervals with a continuous scale (condone one plotting error) B1 fit their points for smooth curve or line segments (last two B marks dependent on at least B1 in part (b))

(c) B1 for using 13 or 12.5 and fit for an answer from graph  $\pm 0.5$  (dep on at least B1 in (b))

SC: If use fx values instead of f for cf table give 0 for (b), but in (c) and (c) ignore the deps, and in (c) allow use of half the candidate's largest cf

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**Question 14**

- (a) 71  
(b) Attempt to draw a horiz. line from cf of 35 to 36 incl. (possibly implied) = 18  
(c)  $70 - 56$  or  $70 - 55$   
 $(70 - 56) \div 70 (= 0.2)$  or  
 $(70 - 55) \div 70 (= 0.214\dots)$   
= 20% or 21% or better

Notes:

- (a) B1 (accept 70)  
(b) M1  
A1 cao (accept answer 17.7 to 18.3)  
(c) M1 (appreciation that upper part of cf graph required)  
M1 (accept 55 in place of 56)  
A1 cao

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**Question 15**

98.8

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**Question 16**

£380

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**Question 17**

- (a) 60.75
- (b) 4, 22, 90, 169, 200
- (c) Points correct  
curve or line segments
- (d) Approx 13

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**Question 18**

- (a) (i) 152  
(ii) 177
- (b) Correct plot    median at 167  
                          max     at 182  
                          min     at 132

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**Question 19**

79.3

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**Question 20**

(a) 16 - 20

(b) Points at (3, 1) (8, 3) (13, 9) (18, 8) (23, 11)