Question 2

(a) 70, 58, 60, 44, 16

(b) $2x/5$

$y/2$

Notes:

(a) B4 for all correct
B3 for 4 correct
B2 for 3 correct
B1 cao for 2 correct

(b) M1 use of 20 min as std interval
A1 cao for $y/2$
A1 cao for $2x/5$

Question 3

(a) 3rd interval: 120 plants need 12 cm^2 so 10 plants per cm^2. 4th interval: Area 11.5cm^2 so 11.5 × 10 = 115 plants. 5th interval: Area 10.5 cm^2 so 105 plants. 2nd interval: 30 plants need 3 cm^2 so height = 3 ÷ 3 = 1 cm. 6th interval: 96 plants need 9.6 cm^2 so height = 9.6 ÷ 2 = 4.8 cm.

OR

f.d. for 3rd interval = 120 ÷ 10 = 12, so scale on f.d. axis is 1 cm = 12 ÷ 6 = 2. 4th interval: 2 × 11.5 × 5 = 115. 5th interval: 2 × 10.5 × 5 = 105. 2nd interval: f.d. = 30 ÷ 15 = 2 (2 ÷ 2 = 1 cm). 6th interval: f.d. = 96 ÷ 10 = 9.6 (9.6 ÷ 2 is 4.8 cm).

(b) 500 – (30 + 120 + 115 + 105 + 96) = 500 – 466 = 34

Question 4

(a) 2nd interval 28 ÷ 14 = 2 birds per cm^2 . 10 × 2 = 20, 15.5 × 2 = 31, 113 – (20 + 28 + 31 + 12) = 22

or

f.d. for 2nd interval = 28 ÷ 10 = 2.8, so scale on f.d. axis is 1 cm = 2.8 ÷ 7 = 0.4
0.4 × 5 × 10 = 20, 0.4 × 15.5 × 5 = 31 113 - (20 + 28 + 31 + 12) = 22

(b) 4th interval, 22 ÷ 2 = 11 cm^2. 5th interval, 12 ÷ 2 = 6 cm^2, 6 ÷ 4 = 1.5 cm

or

f.d. = 22 ÷ 5 = 4.4, (4.4 ÷ 0.4 = 11 cm) f.d. = 12 ÷ 20 = 0.6, (0.6 ÷ 0.4 = 1.5 cm)

Question 5

(a) e.g. 16 ÷ 5 = 3.2; 64 ÷ 3.2 = 20 so 76 ÷ 20 × 5 = 19 etc. Frequencies are: 7, 6, 9, 36

(b) 27 ÷ 15 × 20 = 36

Question 6

(a) 21 ÷ 3 × 4 = 28
51 ÷ 3 × 2 = 34
63 ÷ 3 × 2 = 42
57 ÷ 3 × 2 = 38
24 ÷ 3 × 4 = 32

(b) 10 × 3 ÷ 10 = 3

Notes:

(a) B4 all correct, B3 – 4 correct, B2 – 3 correct, B1 – 2 correct, If B0 then M1 if fd's have been attempted **(b)**B2 – correct If B0 then M1 if fd has been used

Question 7

(a) Missing values in order vertically down the table, ie 15; 8; 5

(b) $2000 < P \leq 3000$ bar has base 10 sqs and ht 12.5 sqs

$4000 < P \leq 6000$ bar has base 20 sqs and ht 5 sqs

Notes:

(a) B1; B1; B1 cao

(b) B3 if both bars correct (B1 if only one bar correct) ($12 < x < 13$)

Question 8

(a) 35, 18, 22, 12

(b) 40, 12

Question 9

(a) 36, 29, 30

(b) Correct histogram

(c) 6

Question 10

0, 16, 18, 15, 13, 5, 0