2 These are the masses, in kilograms, of 16 newborn babies.

2.5 3.2 3.8 3.2 1.9 3.4 1.7 4.1
3.0 2.8 4.0 2.7 3.9 2.7 4.1 3.7

Complete the ordered stem-and-leaf diagram for the masses.

1	7 9
2	5 7 7 8
3	0 2 2 4 7 8 9
4	0 1 1

Key: 3 | 2 = 3.2

[2]

1 These are the test results for 14 students.

21 19 22 25 18 23 24
17 16 25 17 21 23 26

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

1	6 7 7 8 9
2	2 3 3 4 5 5 6 7 7

Key: 1 | 6 = 16 [3]

(b) Find the median.

$\frac{14+1}{2}$ = 7.5th piece of data (between 7th and 8th) : $\frac{23+23}{2}$ = 23 [1]

2 The number of people swimming in a pool is recorded each day for 12 days.

24 28 13 38 15 26

45 21 48 36 18 38

(a) Complete the stem-and-leaf diagram.

1	3 5 8
2	1 4 6 8
3	6 8 8
4	5 8

Key: 1|3 represents 13 swimmers

[2]

(b) Find the median number of swimmers.

$\frac{12+1}{2} = 6.5^{th}$ piece of data (between 6th and 7th)

$\frac{26+28}{2} = 27$ ..... [1]

(b) 21 33 20 25 21 34 22 21 20 30 18

The list shows Ed's scores in 11 tests.

(i) Complete the stem-and-leaf diagram to show this information.

1	8
2	0 0 1 1 1 2 5
3	0 3 4

Q_1 Q_2 Q_3

Key: 2|5 represents 25

[2]

(ii) Find the median.

$\frac{11+1}{2} = 6^{th}$ piece of data $= 21$ ..... 21 ..... [1]

(iii) Find the interquartile range.

$Q_1 = 20$

$Q_3 = 30$

$IQR = 30 - 20$

$= 10$ ..... 10 ..... [2]

2 (a) Anna records the number of text messages she receives for 14 days.

17 15 31 38 21 22 13
18 21 27 28 21 31 29

(i) Complete the stem-and-leaf diagram.

1	3 5 7 8
2	1 1 2 7 8 9
3	1 1 1 8

Key: 1|3 means 13 text messages

[3]

(ii) Find the median.

$\frac{14+1}{2} = 7.5^{th}$ (between 7th and 8th) $\frac{22+27}{2} = 24.5$

24.5 [1]

(iii) Find the mode.

31 [1]

(iv) Find the range.

38 − 13 = 25

25 [1]

3 Emma has 15 mathematics questions to complete.
The stem-and-leaf diagram shows the time, in minutes, it takes her to complete each question.

0	3	5	6	7	7	8	8
1	1	2	2	3	6	6	6
2	0						

Key: 2 | 0 = 20 minutes

Complete the table.

Mode	16 min
Median	11 min
Range	17 min

$\frac{15+1}{2} = 8^{th}$ →

20 − 3 = 17 →

[3]

3 The stem-and-leaf diagram shows the heights, in centimetres, of some plants.

10	4	8		
11	1	3	4	6
12	2	3	6	9
13	2	6	9	

Key: 10|4 represents 10.4 cm

(a) Find the median height.

$\frac{13+1}{2} = 7^{th} = 12.2\,cm$

12.2 cm [1]

(b) Work out the mean height.

$\text{Mean} = \frac{10.4 + 10.8 + 11.1 + 11+3+ \ldots}{13}$

$= \frac{157.3}{13}$

$= 12.1$

12.1 cm [2]

3 The stem-and-leaf diagram shows the number of hours that each of 16 students studied last week.

1	2	5	6	8	
2	0	1	1	7	9
3	2	3	4	5	
4	4	5	7		

Key: 1|2 represents 12 hours

Find

(a) the median, $\frac{16+1}{2} = 8.5^{th}$: $\frac{27+29}{2} = 28$

28 h [1]

(b) the mode,

21 h [1]

(c) the range. $47 - 12 = 35$

35 h [1]

2 The stem-and-leaf diagram shows the time, in minutes, it takes each of 15 people to complete a race.

1	6	6	7						
2	1	3	3	4	5	6	7	7	7
3	0	1	1						

Key: 1|6 represents 16 minutes

Find

(a) the mode

27 min [1]

(b) the range

$31 - 16 = 15$

15 min [1]

(c) the median.

$\frac{15+1}{2} = 8^{th}$

25 min [1]

2 The stem-and-leaf diagram shows the age, in years, of each of 15 women.

3	1	5	8	9			
4	1	1	2	3	5	6	9
5	0	2	3	8			

Key: 3 | 1 represents 31 years

Complete these statements.

The modal age is ..41..

The median age is ..43..

$\frac{15+1}{2} = 8^{th}$

$\frac{3}{15} = \frac{1}{5} = \frac{20}{100}$ (×20)

The percentage of women that are older than 51 years is ..20.. %. [3]

16 The stem-and-leaf diagram shows the mass of each of 13 packets.

3	1	2	8			
4	0	1	2	3	3	8
5	1	2	3	4		

Key: 3 | 1 represents 31 g

(a) Work out the interquartile range.

$Q_1 = \frac{38+40}{2} = 39$

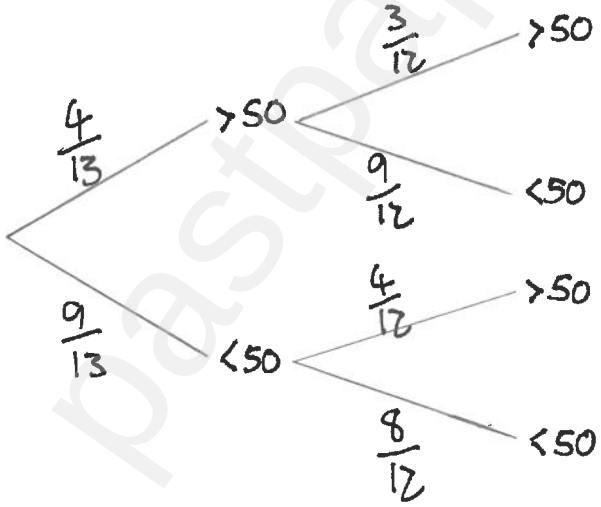
$Q_3 = \frac{51+52}{2} = 51.5$

$IQR = 51.5 - 39$

$= 12.5$ g [3]

(b) Two of these packets are chosen at random. (Requires Probability)

Find the probability that the one packet has a mass of more than 50 g and the other packet has a mass of less than 50 g.



$\frac{4}{13} \times \frac{9}{12} = \frac{3}{13}$ ✓

$\frac{9}{13} \times \frac{4}{12} = \frac{3}{13}$ ✓

$\frac{3}{13} + \frac{3}{13} = \frac{6}{13}$ [3]

6 There are 15 giraffes in a group.
The table gives information about the heights of the 15 giraffes.

One giraffe has a height of 2.6 m
No giraffe is shorter than 2.5 m
The range of heights for the 15 giraffes is 2.3 m
More than 3 giraffes have the same height
The modal height for the giraffes is 3.9 m

The stem-and-leaf diagram shows information about the height of 9 of these giraffes.

2	5 6
3	2 7 7 9 9 9 9
4	1 1 4 5 7 8

Key: 4|1 represents a giraffe height of 4.1 m

Use the information in the table to complete the stem-and-leaf diagram for the group of 15 giraffes. (6 missing) [3]

Range: largest − smallest = 2·3

largest − 2·5 = 2·3

+ 2·5 +2·5

largest = 4·8

Mode: Mode is 3·9, so need at least three 3·9s

More than 3 giraffes have the same height:

Must be at least four 3·9s

One giraffe is 2·6m

→ 2·6, 3·9, 3·9, 3·9, 3·9, 4·8