Please write clearly in block capitals.

Centre number   Candidate number
Surname
Forename(s)
Candidate signature

GCSE MATHEMATICS
Foundation Tier     Unit 1   Statistics and Number

Wednesday 4 November 2015 Morning Time allowed: 1 hour

Materials
For this paper you must have:
• a calculator
• mathematical instruments.

Instructions
• Use black ink or black ball-point pen. Draw diagrams in pencil.
• Answer all questions.
• You must answer the questions in the spaces provided. Do not write outside the box around each page or on blank pages.
• Do all rough work in this book.

Information
• The marks for questions are shown in brackets.
• The maximum mark for this paper is 54.
• The quality of your written communication is specifically assessed in Questions 2, 3 and 14. These questions are indicated with an asterisk (*).
• You may ask for more answer paper and graph paper. These must be tagged securely to this answer book.

Advice
• In all calculations, show clearly how you work out your answer.
1 (a) Write down the **lowest** average daytime temperature shown in the bar chart.  

Answer .................................................. °C  

1 (b) The average daytime temperature in Morocco in October is 25°C  

Complete the bar chart.  

1 (c) Which **two** months have an average daytime temperature between 26°C and 30°C?  

Answer .................................................. and ..................................................
1 (d) In July, the average temperature at night in Morocco is 19°C. How much lower is this than the average daytime temperature in Morocco in July? [2 marks]

Answer ................................................................. ºC

2 50 raffle tickets are sold for 25p each. The winning ticket is picked at random. Linda buys 14 tickets.

*2 (a) She pays with a £10 note. How much change should she get? [3 marks]

Answer £ .................................................................

2 (b) Write down the probability that Linda buys the winning ticket. [1 mark]

Answer .................................................................

2 (c) Work out the probability that Linda does not buy the winning ticket. [1 mark]

Answer .................................................................
The table shows the number of people going into a gym on one day.

<table>
<thead>
<tr>
<th>Time</th>
<th>Number of people</th>
</tr>
</thead>
<tbody>
<tr>
<td>07:00 – 09:59</td>
<td>11</td>
</tr>
<tr>
<td>10:00 – 12:59</td>
<td>1</td>
</tr>
<tr>
<td>13:00 – 15:59</td>
<td>4</td>
</tr>
<tr>
<td>16:00 – 18:59</td>
<td>6</td>
</tr>
<tr>
<td>19:00 – 21:59</td>
<td>9</td>
</tr>
</tbody>
</table>

Complete the pictogram.

Key: □ represents 2 people

<table>
<thead>
<tr>
<th>Time</th>
<th>Number of people</th>
</tr>
</thead>
<tbody>
<tr>
<td>07:00 – 09:59</td>
<td>□□□□□</td>
</tr>
<tr>
<td>10:00 – 12:59</td>
<td></td>
</tr>
<tr>
<td>13:00 – 15:59</td>
<td></td>
</tr>
<tr>
<td>16:00 – 18:59</td>
<td></td>
</tr>
<tr>
<td>19:00 – 21:59</td>
<td></td>
</tr>
</tbody>
</table>
The table shows some information about car hire.

<table>
<thead>
<tr>
<th>Car</th>
<th>Maximum number of people</th>
<th>Cost per day (£)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Small</td>
<td>4</td>
<td>16.71</td>
</tr>
<tr>
<td>Medium</td>
<td>5</td>
<td>17.31</td>
</tr>
<tr>
<td>Large</td>
<td>5</td>
<td>28.35</td>
</tr>
</tbody>
</table>

**Extras**

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Insurance</td>
<td>£7.50 per day</td>
</tr>
<tr>
<td>Baby seat</td>
<td>£39.60 per week</td>
</tr>
</tbody>
</table>

Tracey wants to hire a car

- for 5 people
- for 7 days
- with insurance
- and a baby seat.

Work out the cheapest total cost.

Answer £ ..........................................................
5 (a) What percentage of spending was on Pensions?
Circle your answer.  

[1 mark]

14% 25% 50% 90%

5 (b) Calculate the angle of the sector for Schools.  

[2 marks]

............................................................................................................................................
Answer ........................................................ degrees

5 (c) Work out the ratio of spending Health : Police
Give your answer in its simplest form.  

[2 marks]

............................................................................................................................................
Answer .....................  : .....................
The heights of 20 men and 20 women were measured. The ordered stem-and-leaf diagrams show the results.

Key: 17 | 2 represents 172 cm

<table>
<thead>
<tr>
<th>Men</th>
<th>Women</th>
</tr>
</thead>
<tbody>
<tr>
<td>15</td>
<td>15</td>
</tr>
<tr>
<td>7</td>
<td>3</td>
</tr>
<tr>
<td>17</td>
<td>4</td>
</tr>
<tr>
<td></td>
<td>6</td>
</tr>
<tr>
<td>16</td>
<td>7</td>
</tr>
<tr>
<td>1</td>
<td>7</td>
</tr>
<tr>
<td>1</td>
<td>7</td>
</tr>
<tr>
<td>1</td>
<td>6</td>
</tr>
<tr>
<td></td>
<td>0</td>
</tr>
<tr>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>2</td>
<td>4</td>
</tr>
<tr>
<td>2</td>
<td>5</td>
</tr>
<tr>
<td>6</td>
<td>5</td>
</tr>
<tr>
<td>6</td>
<td>6</td>
</tr>
<tr>
<td>2</td>
<td>5</td>
</tr>
<tr>
<td>4</td>
<td>3</td>
</tr>
<tr>
<td>4</td>
<td>4</td>
</tr>
<tr>
<td>4</td>
<td>3</td>
</tr>
<tr>
<td>8</td>
<td>7</td>
</tr>
<tr>
<td>8</td>
<td>5</td>
</tr>
<tr>
<td>8</td>
<td>3</td>
</tr>
<tr>
<td>5</td>
<td>5</td>
</tr>
<tr>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>3</td>
<td>7</td>
</tr>
<tr>
<td>5</td>
<td>5</td>
</tr>
<tr>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>3</td>
<td>7</td>
</tr>
<tr>
<td>5</td>
<td>2</td>
</tr>
<tr>
<td>5</td>
<td>3</td>
</tr>
<tr>
<td>5</td>
<td>4</td>
</tr>
<tr>
<td>5</td>
<td>4</td>
</tr>
</tbody>
</table>

6 (a) For the men, which average is 161 cm? Circle your answer.  
- median  
- mode  
- mean  

6 (b) Work out the median height of the women.  

Answer ................................................................. cm  

6 (c) Calculate the range of all 40 heights.  

Answer ................................................................. cm
7. 40 students have brown, blue or green eyes.

   Half of the students with brown eyes are boys.
   There are 6 more girls than boys altogether.

7 (a) Complete the table

<table>
<thead>
<tr>
<th></th>
<th>Boys</th>
<th>Girls</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Brown</td>
<td></td>
<td></td>
<td>18</td>
</tr>
<tr>
<td>Blue</td>
<td></td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>Green</td>
<td></td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td></td>
<td>40</td>
</tr>
</tbody>
</table>

7 (b) What percentage of the students have brown eyes?

Answer: \[\text{\%}\]
8 (a) An ordinary, fair dice is rolled 420 times.
How many times is the number 3 expected? [2 marks]

Answer ...........................................................................

8 (b) A biased dice is rolled 50 times.
The number 5 appears 23 times.

Which of the following give the relative frequency of the number 5?
Circle all the correct answers. [2 marks]

23%  \( \frac{23}{50} \)  0.23  0.46  \( \frac{5}{23} \)  46%

Turn over for the next question
9 Each question in a test has 1, 2, 3 or 4 marks as shown.

<table>
<thead>
<tr>
<th>Number of marks</th>
<th>Number of questions</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>7</td>
</tr>
<tr>
<td>2</td>
<td>10</td>
</tr>
<tr>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>4</td>
<td>3</td>
</tr>
</tbody>
</table>

9 (a) Show that there are 24 questions.
[1 mark]
..........................................................
..........................................................

9 (b) Work out the mean number of marks per question.
[3 marks]
..........................................................
..........................................................
..........................................................
..........................................................
..........................................................

Answer ..........................................................
9 (c) An extra question is added to the test. The mean number of marks per question is now 2.2

How many marks does the extra question have? [2 marks]

............................................................................................................................................
............................................................................................................................................
............................................................................................................................................

Answer ................................................................................................................

10 Ben wants to find out which type of music people prefer. He surveys 10 boys in his class.

Write down one way that Ben can improve his survey. [1 mark]

............................................................................................................................................
............................................................................................................................................

Turn over for the next question
A teacher recorded the number of lessons missed by 30 students. She compared the number of lessons they missed with their results in a test.

11 (a) What type of correlation is shown?

Answer ........................................................................................................
11 (b) Draw a line of best fit on the graph.  

[1 mark]

11 (c) Another student missed 40 lessons.  

Use your line of best fit to estimate her test result.  

[1 mark]

............................................................................................................................................

Answer ........................................................................... %

12 There are 20 coloured balls in a bag.  

The probability of choosing a red ball at random is \( \frac{1}{4} \)  

One more red ball is added.  

Work out the new probability of choosing a red ball.  

[2 marks]

............................................................................................................................................

............................................................................................................................................

............................................................................................................................................

............................................................................................................................................

............................................................................................................................................

Answer .........................................................................................

Turn over for the next question
Three positive whole numbers have a mean of 6

What is the greatest possible range of the three numbers?  

Answer...........................................................................
Two boxes contain a mix of apples and oranges.

In box A, the ratio of apples to oranges is \(5 : 7\)

In box B, \(\frac{2}{5}\) of the fruit are apples.

A piece of fruit is chosen at random from each box.

Is there a greater probability of choosing an apple from box A or box B?

You must show your working.

[2 marks]

............................................................................................................................................
............................................................................................................................................
............................................................................................................................................
............................................................................................................................................
............................................................................................................................................
............................................................................................................................................
............................................................................................................................................
............................................................................................................................................
............................................................................................................................................
............................................................................................................................................
............................................................................................................................................
............................................................................................................................................
............................................................................................................................................
............................................................................................................................................
............................................................................................................................................
............................................................................................................................................
............................................................................................................................................
............................................................................................................................................
............................................................................................................................................
............................................................................................................................................
............................................................................................................................................
............................................................................................................................................
............................................................................................................................................