FORM 3  MATHEMATICS SCHEME C  TIME: 30 minutes
Non Calculator Paper

Name: ______________________  Class: ________________

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INSTRUCTIONS TO CANDIDATES

- Answer all questions.
- This paper carries a total of 25 marks.
- Calculators and protractors are not allowed.
1. a) **Work out** the following sum, giving your answer to its **lowest terms**.

\[
\frac{1}{3} + \frac{5}{12} = \frac{5}{12} + \frac{5}{12} = \frac{10}{12} = \frac{5}{6}
\]

b) **Shade** \(\frac{7}{10}\) of this rectangle.

(4 marks)

2. Estimate \(59.34 \div 3\). Choose the correct answer.

a) 2  b) 19.78  c) 20  Ans: ________  (2 marks)

3. Put in order, **largest first**.

\[0.39, \ 0.139, \ \frac{1}{4}, \ 0.14\]

Ans: _____, _____, _____, _____  (3 marks)

4. **Fill in** the missing numbers in these sequences:

a) 1.3, 1.5, 1.7, 1.9, _____

b) 6, 8, 11, 15, _____, 26  (2 marks)
5. a) **Fill in:**

   i) \(3.45 \text{ km} = \underline{\text{______m}}\)

   ii) \(\underline{\text{______}} \text{ hours} = 210 \text{ minutes}\)

b) Tom is filling a tank with water. Which **unit** from \(\text{kg, } ^\circ\text{C, mm, l and km}\) should he use:

   i) to measure the **volume of water** in the tank? \(\underline{\text{______}}\)

   ii) to measure the **temperature** of the water? \(\underline{\text{______}}\)

   \(4 \text{ marks}\)

6. **Solve** the equation:

\[
7c + 1 = 29
\]

\[
c = \underline{\text{______}}
\]

\(2 \text{ marks}\)

7. **Work out** the following:

\[
3 \times (4 + 1)
\]

\[
\text{Ans: } \underline{\text{______}}
\]

\(2 \text{ marks}\)

8. This LOGO statement draws a **square** of side 100 turtle steps. Fill in the missing parts.

\[
\text{Repeat } \underline{\text{______}} \left[\text{FD } \underline{\text{______}} \text{ RT 90}\right]
\]

\(2 \text{ marks}\)
9. Sue throws a coin and an ordinary dice.

a) **Complete the possibility space** below to show all the possible outcomes.

<table>
<thead>
<tr>
<th>COIN</th>
<th>DICE</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1</td>
</tr>
<tr>
<td>H</td>
<td>(1, H)</td>
</tr>
<tr>
<td>T</td>
<td>(1, T)</td>
</tr>
</tbody>
</table>

b) What is the **probability** that Sue gets a number greater than 4 and a head?

Ans: _____

c) What is the **probability** that Sue gets a 7 and a tail?

Ans: _____

(4 marks)

END OF PAPER
DIRECTORATE FOR QUALITY AND STANDARDS IN EDUCATION
Department for Curriculum Management and eLearning
Educational Assessment Unit
Annual Examinations for Secondary Schools 2013

FORM 3 MATHEMATICS SCHEME C TIME: 1h 30min
Main Paper

<table>
<thead>
<tr>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
<th>8</th>
<th>9</th>
<th>10</th>
<th>11</th>
<th>12</th>
<th>13</th>
<th>14</th>
<th>NC</th>
<th>Main</th>
<th>Total</th>
</tr>
</thead>
</table>

Name: ______________________  Class: __________________

Calculators are allowed but the necessary working must be shown.
Answer all questions.

1. **Work out** using a calculator. Give your answer correct to 1 decimal place.

\[ \frac{6.973 \times 4.95}{0.127} = \text{___________________________} \]

(2 marks)

2. a) **Factorise:**

\[ 6t + 10p = \text{____ (____ t + ____p)} \]

b) **Multiply** out the brackets:

\[ 4(2p - 3q) = \text{___________________________} \]

(4 marks)
3. Emily goes to a fruit shop to buy some apples and bananas. The fruit shop sells apples at 25c each and bananas at 30c each. Emily uses the formula

\[ C = 25a + 30b \]

to find the cost of the fruit in cent, where \( a \) is the number of apples and \( b \) is the number of bananas. How much does Emily pay if she buys 7 apples and 6 bananas?

Ans: ________

(3 marks)

_____________________________________________________________________

4. The list below shows the ages in years of a group of students going for an outing:

16, 13, 12, 12, 14, 13, 11, 11, 15, 16

a) Work out the range.

Ans: ________

b) What is the mean age?

Ans: ________

(4 marks)

_____________________________________________________________________

5. Carl needs to paint the walls of his house light blue. He mixes white paint and blue paint in the ratio 5 : 1. Carl thinks that he will need 24 litres of paint in all. How much white paint and how much blue paint should he buy?

White paint: ________ litres  Blue paint: ________ litres

(3 marks)
6. a) Write down the name of these 2D/3D shapes – choose from the list below.

hexagon, pyramid, cylinder, cone, pentagon, triangular prism

Shape A __________ Shape B __________ Shape C __________

b) Shape A has _____ lines of symmetry.

(5 marks)

7. The diagram shows the **cross section of a prism** made up of a triangle **X** and a **square Y**. Work out:

a) the **area** of triangle **X**

_______ cm²

b) the **area** of square **Y**

_______ cm²

c) the **total area** of **X** and **Y**

_______ cm²
d) the **volume** of the **prism** if the length of the prism is **10 cm**.

_______ cm³ (8 marks)
8. Trisha works in a factory. She is paid €3.50 per hour. Overtime is paid at €4.70 per hour.

a) During the first week of June, Trisha works 40 hours plus 5 hours overtime. How much is her pay for this week?

€ __________

b) All workers in Trisha’s factory are to get a 10% increase added to their pay. What will Trisha’s pay be now?

€ __________

(5 marks)

9. a) Construct the isosceles triangle ABC where AB is 5 cm and both AC and BC are 7.5 cm.

b) Now, bisect side AC and let the bisector meet BC at X.

c) Measure CX.  CX = _________ cm

d) Measure angle A.  Angle A = _________ °

(8 marks)
10. a) Find the angles marked with letters.

\[ f^\circ = \quad \]

\[ g^\circ = \quad \]

b) This is a regular octagon. Work out the size of angle \( h \).

\[ h^\circ = \quad \]

c) i) Find angle \( k \) in the quadrilateral.

\[ k^\circ = \quad \]

ii) Two lines in the quadrilateral are parallel. Which are they?

_____ and _____

(9 marks)
11. Fabian asked his schoolmates about their favourite summer activity. The following are their preferences:

- swimming
- reading
- swimming
- hiking
- swimming
- swimming
- reading
- hiking
- hiking
- swimming
- gardening
- gardening
- swimming
- reading
- hiking
- swimming
- gardening
- swimming
- reading
- hiking

a) **Complete** the frequency table below by filling the **tally** and the **frequency** columns.

<table>
<thead>
<tr>
<th>Summer Activity</th>
<th>Tally</th>
<th>Frequency</th>
<th>Angle</th>
</tr>
</thead>
<tbody>
<tr>
<td>Swimming</td>
<td></td>
<td></td>
<td>160°</td>
</tr>
<tr>
<td>Reading</td>
<td>///</td>
<td>3</td>
<td>60°</td>
</tr>
<tr>
<td>Hiking</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Gardening</td>
<td>//</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>TOTAL</td>
<td></td>
<td>18</td>
<td>360°</td>
</tr>
</tbody>
</table>

b) Now Fabian wants to represent this information on a pie chart. **Complete** the table by finding the **angles**. Then **draw** and **label** the **pie chart**.

![Pie chart diagram]

C) What is the most **frequently chosen** activity (mode)? _______________________

(8 marks)
12. a) The equation of a straight line is \( y = 2x + 3 \). Complete the table below.

<table>
<thead>
<tr>
<th>( x )</th>
<th>-2</th>
<th>-1</th>
<th>0</th>
<th>1</th>
<th>2</th>
</tr>
</thead>
<tbody>
<tr>
<td>( 2x  )</td>
<td>-4</td>
<td>2</td>
<td>4</td>
<td></td>
<td></td>
</tr>
<tr>
<td>( +3  )</td>
<td>+3</td>
<td>+3</td>
<td>+3</td>
<td></td>
<td></td>
</tr>
<tr>
<td>( y   )</td>
<td>-1</td>
<td>1</td>
<td>5</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

b) Plot the points and join them to form a straight line.

c) Write down the coordinates of the \( y \) intercept (the point where the line cuts the \( y \)-axis).

Coordinates of \( y \) intercept = ( _____, _____ )

(7 marks)

13. Stephan uses this number machine to change the temperature from degrees Fahrenheit (\(^\circ F\)) to degrees Celsius (\(^\circ C\)).

\[
\text{Temp in } ^\circ F \rightarrow -32 \rightarrow \times 5 \rightarrow \div 9 \rightarrow \text{Temp in } ^\circ C
\]

In a cake recipe, the temperature needed to cook a cake is \( 350^\circ F \). What is the temperature in \( ^\circ C \), giving your answer to 2 d.p.?

\[
\ _{ \quad \quad \quad \quad \quad \quad \quad \quad \quad } ^\circ C
\]

(4 marks)
14. a) **Translate** triangle P, 5 to the **left** and 4 up. Name the triangle Q.

b) **Reflect** triangle P in the line \( y = 5 \) to obtain triangle S.

c) **Underline** the correct words:

Rotate triangle P by (90° clockwise, in the y-axis, 90° anticlockwise) about (0,0) to obtain triangle T.

(5 marks)

_______________________________
END OF PAPER