

**CAMBRIDGE**  
INTERNATIONAL EXAMINATIONS

**NOVEMBER 2002**

**INTERNATIONAL GCSE**

**MARK SCHEME**

**MAXIMUM MARK : 60**

**SYLLABUS/COMPONENT : 0620/6**

**CHEMISTRY  
(ALTERNATIVE TO PRACTICAL)**



UNIVERSITY of CAMBRIDGE  
Local Examinations Syndicate

|        |                                    |          |       |
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| Question Number | Mark Scheme Details                                                                                                                                                                                                                                                                                                                            | Part Mark        |
|-----------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------|
| 1               | <p>(a) <u>A</u> - spatula only (1)</p> <p><u>B</u> - beaker only (1)</p> <p><u>C</u> - <u>funnel</u> (1) <u>not</u> filter</p> <p>(b) more than enough to react (1)<br/>/ residue</p> <p>(c) 6-7 (1)</p>                                                                                                                                       | 3<br>1<br>1      |
| 2               | <p>(a) top box - sulphuric acid (1)</p> <p>bottom box - sodium chloride (1)</p> <p>(b) gas passed through water (1)</p> <p>gas is soluble in water (1)</p> <p>gas collected by upward delivery (1)</p> <p>gas is denser than air (1)<br/>mark independently</p> <p>(c) fume cupboard / goggles (1)</p> <p>or well-ventilated room / gloves</p> | 2<br>2<br>2<br>1 |

|        |                                    |          |       |
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| Question Number | Mark Scheme Details                                                                                     | Part Mark |
|-----------------|---------------------------------------------------------------------------------------------------------|-----------|
| 3               |                                                                                                         |           |
| (a)             | Points correctly plotted (2), -1 for each incorrect.<br>Smooth line graph, ignoring 3 minutes point (1) | 3         |
| (b)             | Point at 3 minutes, 256.6g (1)<br>not on curve (1)                                                      | 2         |
| (c)             | gas given off (1)                                                                                       | 1         |
| (d)             | to prevent loss of acid (spray) (1)<br>/ only gas out                                                   | 1         |
| (e)             | <u>5 minutes</u> (1)                                                                                    | 1         |
| (f)             | Sketch graph below original graph (1)<br>levelling off at same mass (1)                                 | 2         |

|        |                                    |          |       |
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| Question Number | Mark Scheme Details                                                                                                                                                                                                                                                                                                   | Part Mark |
|-----------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------|
| 4<br>(a)        | <p>Table of results.</p> <p>Initial temperatures correct (2) – 1 for any incorrect</p> <p>18</p> <p>21</p> <p>19</p> <p>22</p> <p>Maximum temperatures correct (2)</p> <p>23</p> <p>24</p> <p>79</p> <p>22</p> <p>Differences correctly calculated (2) <math>\begin{matrix} 5 \\ 3 \\ 60 \\ 0 \end{matrix}</math></p> |           |
| (a) (i)         | magnesium (1)                                                                                                                                                                                                                                                                                                         | 1         |
| (ii)            | <p>Greatest temperature rise (1)</p> <p>Observation – gas given off rapidly (1)<br/>/ fastest</p>                                                                                                                                                                                                                     | 2         |
| (iii)           | Hydrogen (1)                                                                                                                                                                                                                                                                                                          | 1         |
|                 | <p>Experiment 2</p> <p>Initial temperature 21 (1)</p> <p>maximum temperature 39 (1)</p>                                                                                                                                                                                                                               | 2         |

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| Question Number | Mark Scheme Details                                                | Part Mark |
|-----------------|--------------------------------------------------------------------|-----------|
| 4(b)            | temperature rise (1)                                               | 1         |
| (c)             | redox / displacement (1)                                           | 1         |
| (d)             | least<br>copper<br>iron<br>zinc<br>most<br>magnesium (1)           | 1         |
| 5(c)            | catches fire / ignites (1)      yellow / blue flame (1)<br>/ smoky | 2         |
| (d)             | yellow (1) precipitate (1)                                         | 2         |
| (e)             | cream<br>/ white (1) precipitate (1)<br>/ yellow                   | 2         |
| (f)             | organic (1) hydrocarbon (1)<br>/ alkane / alkene (1)<br><br>2 max. | 2         |

| Question Number | Mark Scheme Details                                                                                                     | Part Mark |
|-----------------|-------------------------------------------------------------------------------------------------------------------------|-----------|
| 6               |                                                                                                                         |           |
| (a)             | pipette / burette (1)                                                                                                   | 1         |
| (b)             | name (1) <sup>not</sup> eg Universal Indicator, litmus<br>methyl orange<br>phenolphthalein.                             | 1         |
|                 | colour change (2) eg yellow to orange / pink<br>(1) (1)                                                                 | 2         |
| in litm         | blue (1) → purple (1)<br>red (1) to colourless (1)                                                                      |           |
| (c)             | The acid (1) less needed to neutralise<br>the KOH (1)                                                                   | 2         |
| (d)             | repeat experiment (1)<br>without indicator (1) / charcoal<br>evaporate solution (1)<br>to crystallising point (1) max 3 | 3         |
|                 | max indicator = max 2<br>Achieved                                                                                       |           |

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|-----------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------|
| 7               | <p>known mass of fertilizer (1)</p> <p>Add known volume of water (1)</p> <p>Warm to 30°C (1)</p> <p>Stir (1)</p> <p>Filter (1) / evaporate to dryness</p> <p>Dry and weigh residue (1)</p> <p>Work out solubility (1)</p> <p>/ conclusion</p> <p>max 6</p> <p>Total</p> | <p>6</p> <hr/> <p>60</p> |