Cambridge Assessment International Education
Cambridge International General Certificate of Secondary Education

CHEMISTRY **0620/63**

Paper 6 Alternative to Practical **October/November 2017**

MARK SCHEME

Maximum Mark: 40

Published

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Question	Answer	Marks
1(a)	pestle	**1**
	(teat) pipette	**1**
1(b)	to increase surface area / make it dissolve faster	**1**
1(c)	nitric (acid)	**1**
1(d)	residue	**1**
1(e)	**M1** add a more reactive metal (e.g. zinc / magnesium)	**1**
	M2 displaces lead / filter out lead	**1**

Question	Answer	Marks
2(a)	temperature boxes completed: 23, 16, 14, 13, 12, 11, 11, 11, 11, 11 all readings correct = [2] 8 or 9 readings correct = [1]	**2**
2(b)	temperature boxes completed correctly: 22, 26, 29, 31, 32, 33, 34, 35, 35, 35 all readings correct = [2] 8 or 9 readings correct = [1]	**2**
2(c)	all points plotted	**1**
	two smooth line graphs (one line graph correct = [1])	**2**
	both graphs appropriately labelled	**1**
2(d)(i)	value from graph	**1**
	shown clearly	**1**

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<table>
<tr><th>Question</th><th>Answer</th><th>Marks</th></tr>
<tr><td>2(d)(ii)</td><td>value from graph</td><td>1</td></tr>
<tr><td></td><td>shown clearly</td><td>1</td></tr>
<tr><td>2(e)</td><td>exothermic</td><td>1</td></tr>
<tr><td>2(f)</td><td>room temperature / 22 °C
AND
reaction has finished / all the solid has dissolved</td><td>1</td></tr>
<tr><td>2(g)</td><td>
<table>
<tr><th>source of error</th><th>improvement</th></tr>
<tr><td>heat losses</td><td>use a lid / lag the apparatus</td></tr>
<tr><td>use of a measuring cylinder</td><td>use a pipette/burette</td></tr>
<tr><td>wet cup in the second experiment</td><td>use new/another cup OR dry the cup</td></tr>
<tr><td>the solid absorbs water from the air</td><td>store in a sealed container / airtight container / desiccator</td></tr>
<tr><td>only done once</td><td>repeat and average</td></tr>
<tr><td>different masses of solids used / masses of solids not measured</td><td>use same mass of solid / weigh the solids</td></tr>
</table>
</td><td>4</td></tr>
<tr><td>2(h)</td><td>fewer data / less detail / fewer readings / graph not as good / not enough readings whilst the solid is reacting</td><td>1</td></tr>
</table>

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Question	Answer	Marks
3(a)(i)	green	**1**
	precipitate	**1**
3(a)(ii)	green solution / precipitate dissolves	**1**
3(a)(iii)	bubbles / fizzing / effervescence	**1**
	(red) litmus paper / Universal Indicator paper	**1**
	(red litmus paper) turns blue / (Universal Indicator paper) turns purple	**1**
3(b)	ammonia / NH_3	**1**
3(c)	(aqueous) ammonia / NH_3	**1**

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Question	Answer	Marks
4	*heating to dryness method* max [6]: **M1** weigh (any) sample of washing soda **M2** heat (to remove water of crystallisation) **M3** in named container **M4** cool **M5** reweigh **M6** repeat heating **M7** to constant mass **M8** appropriate calculation suggested for the percentage of water *mass of water method* max [6]: **M1** weigh (any) sample of washing soda **M2** heat to remove water of crystallisation **M3** in named container **M4** using apparatus capable of collecting water (vapour) **M5** cool / condense (water vapour) **M6** continue until no more collects **M7** weigh water **M8** appropriate calculation suggested for the percentage of water	**6**

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