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

This mark scheme is published as an aid to teachers and candidates, to indicate the requirements of the examination. It shows the basis on which Examiners were instructed to award marks. It does not indicate the details of the discussions that took place at an Examiners' meeting before marking began, which would have considered the acceptability of alternative answers.

Mark schemes should be read in conjunction with the question paper and the Principal Examiner Report for Teachers.

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This syllabus is approved for use in England, Wales and Northern Ireland as a Cambridge International Level 1/Level 2 Certificate.

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**

<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>

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**

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**