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**CHEMISTRY**

**0620/63**

Paper 6 Alternative to Practical

**October/November 2017**

MARK SCHEME

Maximum Mark: 40

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**Published**

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This document consists of **5** printed pages.

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)	<b>M1</b> add a more reactive metal (e.g. zinc / magnesium)	1
	<b>M2</b> 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

Question	Answer	Marks														
2(d)(ii)	value from graph	1														
	shown clearly	1														
2(e)	exothermic	1														
2(f)	room temperature / 22 °C <b>AND</b> reaction has finished / all the solid has dissolved	1														
2(g)	<table border="1" style="width: 100%; text-align: center;"> <thead> <tr> <th data-bbox="407 545 1052 596">source of error</th> <th data-bbox="1052 545 1854 596">improvement</th> </tr> </thead> <tbody> <tr> <td data-bbox="407 596 1052 647">heat losses</td> <td data-bbox="1052 596 1854 647">use a lid / lag the apparatus</td> </tr> <tr> <td data-bbox="407 647 1052 699">use of a measuring cylinder</td> <td data-bbox="1052 647 1854 699">use a pipette/burette</td> </tr> <tr> <td data-bbox="407 699 1052 750">wet cup in the second experiment</td> <td data-bbox="1052 699 1854 750">use new/another cup <b>OR</b> dry the cup</td> </tr> <tr> <td data-bbox="407 750 1052 801">the solid absorbs water from the air</td> <td data-bbox="1052 750 1854 801">store in a sealed container / airtight container / desiccator</td> </tr> <tr> <td data-bbox="407 801 1052 852">only done once</td> <td data-bbox="1052 801 1854 852">repeat <b>and</b> average</td> </tr> <tr> <td data-bbox="407 852 1052 935">different masses of solids used / masses of solids not measured</td> <td data-bbox="1052 852 1854 935">use same mass of solid / weigh the solids</td> </tr> </tbody> </table>	source of error	improvement	heat losses	use a lid / lag the apparatus	use of a measuring cylinder	use a pipette/burette	wet cup in the second experiment	use new/another cup <b>OR</b> dry the cup	the solid absorbs water from the air	store in a sealed container / airtight container / desiccator	only done once	repeat <b>and</b> average	different masses of solids used / masses of solids not measured	use same mass of solid / weigh the solids	4
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different masses of solids used / masses of solids not measured	use same mass of solid / weigh the solids															
2(h)	fewer data / less detail / fewer readings / graph not as good / not enough readings whilst the solid is reacting	1														

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

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