



**Cambridge Assessment International Education**  
Cambridge International General Certificate of Secondary Education

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**CHEMISTRY**

**0620/53**

Paper 5 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)	temperature boxes completed correctly with decreasing trend shown	1
	results comparable to the supervisor's	1
1(b)	temperature boxes completed correctly with increasing trend shown	1
	results comparable to the supervisor's	1
1(c)	all points plotted	2
	two smooth line graphs	1
	both graphs appropriately labelled	1
1(d)(i)	value from graph	1
	shown clearly	1
1(d)(ii)	value from graph	1
	shown clearly	1
1(e)	exothermic	1
1(f)	room temperature / initial temperature from table <b>AND</b> reaction has finished / all the solid has dissolved	1

Question	Answer	Marks														
1(g)	<table border="1"> <thead> <tr> <th data-bbox="412 218 1057 268">source of error</th> <th data-bbox="1057 218 1861 268">improvement</th> </tr> </thead> <tbody> <tr> <td data-bbox="412 268 1057 317">heat losses</td> <td data-bbox="1057 268 1861 317">use a lid / lag the apparatus</td> </tr> <tr> <td data-bbox="412 317 1057 367">use of a measuring cylinder</td> <td data-bbox="1057 317 1861 367">use a pipette/burette</td> </tr> <tr> <td data-bbox="412 367 1057 416">wet cup in the second experiment</td> <td data-bbox="1057 367 1861 416">use new/another cup <b>OR</b> dry the cup</td> </tr> <tr> <td data-bbox="412 416 1057 466">the solid absorbs water from the air</td> <td data-bbox="1057 416 1861 466">store in a sealed container / airtight container / desiccator</td> </tr> <tr> <td data-bbox="412 466 1057 515">only done once</td> <td data-bbox="1057 466 1861 515">repeat <b>and</b> average</td> </tr> <tr> <td data-bbox="412 515 1057 608">different masses of solids used / masses of solids not measured</td> <td data-bbox="1057 515 1861 608">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	<b>4</b>
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1(h)	fewer data / less detail / fewer readings / graph not as good / not enough readings taken whilst the solid is reacting	<b>1</b>														

Question	Answer	Marks
2(a)	blue (liquid)	1
2(b)(i)	green	1
	precipitate	1
2(b)(ii)	green solution / precipitate dissolves	1
2(b)(iii)	(red) litmus paper / Universal Indicator paper	1
	(red litmus paper) turns blue / (Universal Indicator paper) turns purple	1
2(c)	pH 8–11	1
2(d)(i)	dark / deep blue (solution)	1
2(d)(ii)	blue	1
	precipitate	1
2(e)	grey-green	1
	precipitate	1
2(f)	chromium	1
	nitrate	1
2(g)	ammonia / NH <sub>3</sub>	1

Question	Answer	Marks
3	<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