



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.

Cambridge International will not enter into discussions about these mark schemes.

Cambridge International is publishing the mark schemes for the October/November 2017 series for most Cambridge IGCSE[®], Cambridge International A and AS Level components and some Cambridge O Level components.

© IGCSE is a registered trademark.

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

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)	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

Question	Answer		Marks														
2(d)(ii)	value from graph		1														
	shown clearly		1														
2(e)	exothermic		1														
2(f)	room temperature / 22 °C AND reaction has finished / all the solid has dissolved		1														
2(g)	<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>		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 OR dry the cup	the solid absorbs water from the air	store in a sealed container / airtight container / desiccator	only done once	repeat and average	different masses of solids used / masses of solids not measured	use same mass of solid / weigh the solids	4
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 OR dry the cup																
the solid absorbs water from the air	store in a sealed container / airtight container / desiccator																
only done once	repeat and average																
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														

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	<i>heating to dryness method</i> 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 <i>mass of water method</i> 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