Cambridge Assessment International Education
Cambridge International General Certificate of Secondary Education

CHEMISTRY **0620/62**

Paper 6 Alternative to Practical **May/June 2019**

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 May/June 2019 series for most Cambridge IGCSE™, Cambridge International A and AS Level and Cambridge Pre-U components, and some Cambridge O Level components.

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

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Generic Marking Principles

These general marking principles must be applied by all examiners when marking candidate answers. They should be applied alongside the specific content of the mark scheme or generic level descriptors for a question. Each question paper and mark scheme will also comply with these marking principles.

GENERIC MARKING PRINCIPLE 1:

Marks must be awarded in line with:

- the specific content of the mark scheme or the generic level descriptors for the question
- the specific skills defined in the mark scheme or in the generic level descriptors for the question
- the standard of response required by a candidate as exemplified by the standardisation scripts.

GENERIC MARKING PRINCIPLE 2:

Marks awarded are always **whole marks** (not half marks, or other fractions).

GENERIC MARKING PRINCIPLE 3:

Marks must be awarded **positively**:

- marks are awarded for correct/valid answers, as defined in the mark scheme. However, credit is given for valid answers which go beyond the scope of the syllabus and mark scheme, referring to your Team Leader as appropriate
- marks are awarded when candidates clearly demonstrate what they know and can do
- marks are not deducted for errors
- marks are not deducted for omissions
- answers should only be judged on the quality of spelling, punctuation and grammar when these features are specifically assessed by the question as indicated by the mark scheme. The meaning, however, should be unambiguous.

GENERIC MARKING PRINCIPLE 4:

Rules must be applied consistently e.g. in situations where candidates have not followed instructions or in the application of generic level descriptors.

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GENERIC MARKING PRINCIPLE 5: Marks should be awarded using the full range of marks defined in the mark scheme for the question (however; the use of the full mark range may be limited according to the quality of the candidate responses seen).
GENERIC MARKING PRINCIPLE 6: Marks awarded are based solely on the requirements as defined in the mark scheme. Marks should not be awarded with grade thresholds or grade descriptors in mind.

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Question	Answer	Marks
1(a)(i)	spatula	**1**
1(a)(ii)	Bunsen (burner)	**1**
1(b)	solid remains / ZnO stops dissolving / reacting	**1**
1(c)(i)	more than enough to react	**1**
1(c)(ii)	filtration / filter	**1**
1(d)	heat / evaporate solution	**1**
	to crystallising point / until saturated	**1**
	leave to cool	**1**
1(e)	heating / warming not necessary (in step 1)	**1**

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Question	Answer	Marks
2(a)	table of results	**2**
	time boxes completed 20, 34, 68, 98 in seconds	**1**
2(b)	appropriate scale for *y*-axis	**1**
	all points plotted correctly	**1**
	best fit smooth line graph between plotted points	**1**
2(c)	extrapolation shown clearly	**1**
	value from graph	**1**
	unit … s	**1**
2(d)(i)	(length) is a control variable	**1**
2(d)(ii)	times / results would be lower / smaller / less (because less magnesium is used)	**1**
2(e)	apparatus: **M1** gas syringe / measuring cylinder over water	**1**
	measurement 1: **M2** volume of gas	**1**
	measurement 2: **M3** time	**1**

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Question	Answer	Marks
2(f)(i)	exothermic / redox / displacement	**1**
2(f)(ii)	hydrogen / H_2	**1**

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Question	Answer	Marks
	Tests on solid L	
3(a)	white (solid / crystals)	**1**
3(b)	condensation / drops on side of tube	**1**
	cobalt(II) chloride paper turns from blue	**1**
	to pink	**1**
3(c)	any **two** from: (red) litmus paper turns blue pungent smell	**2**
3(d)	white precipitate	**1**
3(e)	iron(III) / Fe^{3+}	**1**
	chloride / Cl^-	**1**

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<table>
<tr><th>Question</th><th>Answer</th><th>Marks</th></tr>
<tr><td>4</td><td>any six from:
<table>
<tr><td>M1</td><td colspan="3">crush/powder azurite/ore/lumps</td></tr>
<tr><td>M2</td><td colspan="3">using a suitable method e.g. mortar and/or pestle, hammer</td></tr>
<tr><td>M3</td><td>heat</td><td colspan="2">add (dilute) acid</td></tr>
<tr><td>M4</td><td>in crucible / test-tube / boiling tube / etc</td><td colspan="2">suitable strong acid named</td></tr>
<tr><td>M5</td><td>with carbon/coke /iron/zinc/ aluminium/magnesium/CO/ hydrogen</td><td>electrolysis (of solution)</td><td>add iron / zinc / magnesium / aluminium</td></tr>
<tr><td>M6</td><td>reduction / redox / displacement</td><td>pink / brown solid</td><td>displacement / redox</td></tr>
<tr><td>M7</td><td>brown / pink (solid forms)</td><td>at negative electrode/cathode</td><td>brown / pink (solid forms)</td></tr>
</table></td><td>max 6</td></tr>
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