Cambridge Assessment International Education
Cambridge International General Certificate of Secondary Education

CHEMISTRY **0620/61**

Paper 6 Alternative to Practical **May/June 2018**

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.

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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)	burette	**1**
1(b)	methyl orange / thymolphthalein / litmus	**1**
1(c)(i)	number 2 / 18.9 cm^3	**1**
1(c)(ii)	overshot end point / more than 25 cm^3 KOH in flask	**1**
1(c)(iii)	18.2	**1**
	cm^3	**1**
1(d)	(wrong conclusion) nitric acid more concentrated / stronger	**1**
	smaller volume of acid needed	**1**

Question	Answer	Marks
2(a)	volume boxes completed correctly in seconds 0, 10, 15, 20, 40	**1**
	time boxes completed correctly 27, 33, 45, 66, 201	**2**
2(b)	all points plotted correctly (± half a small square)	**2**
	smooth line graph	**1**
2(c)(i)	value from graph	**1**
	with clear indication	**1**
2(c)(ii)	1 ÷ value from **(c)(i)**	**1**
2(d)(i)	experiment 1	**1**

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Question	Answer	Marks
2(d)(ii)	more particles of thiosulfate (in a given volume)	**1**
	more chance of collision	**1**
2(e)	use a pipette / burette	**1**
2(f)	times would be shorter	**1**
	idea of depth of solution is greater	**1**
2(g)	sketch curve roughly same shape and above original	**1**

Question	Answer	Marks
3(a)	hydrogen / H_2	**1**
3(b)	sulfuric	**1**
	acid	**1**
3(c)	limewater	**1**
	milky / cloudy / white ppt.	**1**
3(d)(i)	white	**1**
	precipitate	**1**
3(d)(ii)	dissolves / clears / goes colourless	**1**
3(e)(i)	white precipitate	**1**
3(e)(ii)	dissolves / clears / goes colourless	**1**

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Question	Answer	Marks
4	any **6** from one method: evaporation • measured volume of water • using measuring cylinder / pipette / burette • heat to 40 °C / heat to >40 °C • add KC*l* until no more dissolves / add excess KC*l* • stir • filter mixture (if heated to >40 °C then need to cool and filter) • evaporate filtrate to dryness • weigh solid mass not used • measured volume of water • using measuring cylinder / pipette / burette • heat to 40 °C • add KC*l* until no more dissolves • stir • weigh KC*l* not added • weigh KC*l* before adding any to water – only awarded if weighed mass not used after • difference in mass of KC*l* is mass dissolved mass undissolved • measured volume of water • using measuring cylinder / pipette / burette • heat to 40 °C • stir • filter • weigh residue (do not award if residue washed) • add weighed (excess) KC*l* to water – only awarded if mass of residue measured • mass KC*l* dissolved = initial mass – final mass	**max 6**

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