Cambridge Assessment International Education
Cambridge International General Certificate of Secondary Education

CHEMISTRY **0620/53**

Paper 3 Practical Test **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.

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.

Question	Answer	Marks
1(a)	**M1** all temperature boxes completed and **all** to 0 dp or **all** to 1 dp	**1**
	M2 temperatures start to increase after 60 seconds	**1**
1(b)	**M1** all temperature boxes completed and show an increase after 60 seconds	**1**
	M2 maximum temperature is greater than in **(a)**	**1**
1(c)	**M1** all temperature boxes completed and max. temperature is less than in **(a)**	**1**
1(d)	**M1** all points plotted correctly	**1**
	M2 3 best fit smooth line graphs	**1**
	M3 labels	**1**
1(e)	**M1** working shown clearly on graph for experiment 2 at 75 seconds	**1**
	M2 reading from graph	**1**
1(f)(i)	**M1** Experiment 2	**1**
	M2 temperature change is greatest	**1**
1(f)(ii)	**M1** Experiment 1 is faster (than Experiment 3)	**1**
	M2 because surface area greater / more (frequent) collisions	**1**
1(g)	**M1** initial temperature from table / room temperature	**1**
	M2 reaction finished	**1**
1(h)	**M1** more readings / points	**1**
	M2 better / smoother graph	**1**
1(i)	copper is a (good) conductor (of heat) / copper will lose heat (energy) (to the surroundings)	**1**

Question	Answer	Marks
	tests on solid M	
2(a)	white (solid)	**1**
2(b)	any four from: **M1** solid turns into liquid **M2** condensation / drops on side of tube **M3** steam **M4** cobalt(II) chloride initial colour given as blue **M5** cobalt(II) chloride paper turns pink	**4**
2(c)(i)	**M1** white	**1**
	M2 precipitate	**1**
2(c)(ii)	precipitate dissolves / clears / soluble	**1**
2(d)(i)	white precipitate	**1**
2(d)(ii)	insoluble / no change	**1**
2(e)	**M1** white	**1**
	M2 precipitate	**1**
2(f)	hydrated	**1**
2(g)	aluminium	**1**
	sulfate	**1**

Question	Answer	Marks
3	any six from: either: **M1** measured volume (dilute) hydrochloric acid **M2** add named indicator **M3** add measured mass / weight of calcium compound **M4** stir / mix (acid and calcium compound) **M5** continue additions until colour changes **M6** repeat with other calcium compounds **M7** conclusion e.g.: The calcium compound that needs the smallest mass / weight / amount to neutralise the acid is most effective **OR** **M1** measured mass / weight of calcium compound **M2** add named indicator **M3** add (dilute) hydrochloric acid (gradually) **M4** stir / mix (acid and calcium compound) **M5** continue additions until colour changes **M6** repeat with other calcium compounds **M7** conclusion e.g.: The calcium compound that neutralises the largest volume / amount of (dilute) hydrochloric acid is the most effective	**6**