Cambridge International Examinations
Cambridge International General Certificate of Secondary Education

CHEMISTRY **0620/62**

Paper 6 Alternative to Practical **May/June 2016**

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 will not enter into discussions about these mark schemes.

Cambridge is publishing the mark schemes for the May/June 2016 series for most Cambridge IGCSE®, Cambridge International A and AS Level components and some Cambridge O Level components.

® IGCSE is the registered trademark of Cambridge International Examinations.

© UCLES 2016

Abbreviations used in the Mark Scheme

- ; separates marking points
- / separates alternatives within a marking point
- **OR** gives alternative marking point
- **R** reject
- **I** ignore mark as if this material was not present
- **A** accept (a less than ideal answer which should be marked correct)
- **COND** indicates mark is conditional on previous marking point
- owtte or words to that effect (accept other ways of expressing the same idea)
- max indicates the maximum number of marks that can be awarded
- ecf credit a correct statement that follows a previous wrong response
- ( ) the word / phrase in brackets is not required, but sets the context
- ora or reverse argument

© Cambridge International Examinations 2016

Question	Answer	Marks
1(a)	stand; beaker;	**2** 1 1
1(b)	arrow(s) underneath copper oxide;	**1**
1(c)	black; to orange / red / brown / pink;	**2** 1 1
1(d)	to condense (the water vapour);	**1**
1(e)(i)	water;	**1**

1(e)(ii)	test: anhydrous copper(II) sulfate;
	result: turns blue;
	OR
	test: cobalt(II) chloride (paper);
	result: turns pink;
		2
		1
		1
		
		1
		1

1(e)(iii)	boiling / melting point determination;	**1**

Question	Answer	Marks
2(a)	all 6 times completed correctly (2 marks) (22, 43, 64, 86, 105, 126) 5 times completed correctly (1 mark); in seconds;	**3** 2 1
2(b)	appropriate scale for *y*-axis / increasing at 20 s per large square; *y*-axis is a linear scale; all 6 points plotted correctly ± half a small square (2 marks); 5 points plotted correctly ± half a small square (1 marks); best-fit straight-line graph;	**5** 1 1 2 1
2(c)(i)	value from graph ± half a small square (typically 167–170); units / s; extrapolation;	**3** 1 1 1
2(c)(ii)	sketch line below original line and diverging;	**1**
2(d)	as an indicator;	**1**
2(e)(i)	(more) accurate;	**1**
2(e)(ii)	solution slow to run out of pipette; difficult to know when to start timer / reaction does not start at once / inaccurate time measurement owtte;	**2** 1 1
2(f)	difficulty in swirling / mixing / shaking;	**1**

Question	Answer	Marks
3(a)	white (solid / crystals / powder);	**1**
3(b)(i)	no change;	**1**
3(b)(ii)	turns from purple / pink; to colourless / white;	**2** 1 1
3(c)	yellow / orange (flame);	**1**
3(d)	ammonia / NH_3;	**1**
3(e)	ammonium / NH_4^+;	**1**

Question	Answer	Marks
4	**making the salt** any 4 from: • known volume sulfuric acid; • add named indicator; • add potassium hydroxide solution to the acid until the indicator changes colour / is neutralised; • note / measure the volume of potassium hydroxide solution added; • repeat without indicator **OR** add (decolourising) charcoal; **obtaining crystals** any 2 from: • heat / evaporate solution to crystallising point until half evaporated **OR** until crystals (start to) form **OR** until saturated; • leave to cool; • filter to get crystals; • dry crystals (on filter paper) / leave to dry;	**6**