## **CAMBRIDGE INTERNATIONAL EXAMINATIONS**

**Cambridge International General Certificate of Secondary Education** 

## MARK SCHEME for the October/November 2015 series

## 0620 CHEMISTRY

0620/62

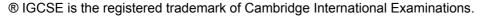
Paper 6 (Alternative to Practical), maximum raw mark 60

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 October/November 2015 series for most Cambridge IGCSE<sup>®</sup>, Cambridge International A and AS Level components and some Cambridge O Level components.





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## Abbreviations used in the Mark Scheme

- ; separates marking points
- / separates alternatives within a marking point
- () the word or phrase in brackets is not required but sets the context
- A accept (a less than ideal answer which should be marked correct)
- I ignore (mark as if this material were not present)
- R reject
- ecf credit a correct statement that follows a previous wrong response
- ora or reverse argument
- owtte or words to that effect (accept other ways of expressing the same idea)

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Question	Answer	Marks
1(a)	pipette; burette;	1
1(b)	named indicator;	1
1(c)	all volumes correct: 16.3, 16.9, 16.2, 16.1	2
	4 correct = 2 3 correct = 1 2 or fewer correct = 0	
1(d)(i)	neutralisation / acid-base reaction / exothermic;	1
1(d)(ii)	(indicator) changed colour;	1
1(e)(i)	Experiment 2/the second one/16.9;	1
1(e)(ii)	measuring or recording error/ overshot end-point/ manual error with burette;	1
1(e)(iii)	16.2; cm <sup>3</sup> ;	1
1(f)	hydrochloric acid; less volume used than sodium hydroxide;	1

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Question	Answer	Marks
2(a)	chromatography;	1
2(b)	(teat) pipette/capillary tube;	1
2(c)	water/organic solvent;	1
2(d)	compound Q is insoluble;	1
2(e)	between (4.7 and 5.1) divided by (6.2 or 6.3); answer: between 0.74 and 0.82;	1

Question	Answer	Marks
3(a)	all temperatures correctly recorded: 23, 36, 47, 58, 70, 79	3
	6 correct = 3 5 correct = 2 4 correct = 1 3 or fewer correct = 0	
3(b)	all points correctly plotted: 23, 36, 47, 58, 70, 79	2
	6 correct = 2 5 correct = 1 4 correct = 0	
	smooth curve;	1
3(c)	third point/at 47 °C or 99 s; not on smooth line/curve;	1 1
3(d)	118; seconds/sec/s; indication on the graph;	1 1 1
3(e)(i)	(it) increases/higher the temperature faster reaction;	1

Page 5	Mark Scheme	Syllabus	Paper
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Question	Answer	Marks
3(e)(ii)	particles have more energy/move faster; more (chance of/successful) collisions;	1 1
3(f)(i)	slower reaction / longer time; smaller surface area;	1 1
3(f)(ii)	sketch above the curve not touching the original at any point;	1
3(g)	to prevent escape of/splash of acid; to allow carbon dioxide/gas to escape;	1 1

Question	Answer	Marks
4		
	tests on ethene bromine (water); turns colourless;	1 1
	ammonia red litmus/pH paper; turns blue/pH > 7;	1
	oxygen glowing splint; relights;	1 1

Page 6	Mark Scheme	Syllabus	Paper
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Question	Answer	Marks
5(c)	copper; chloride;	1
5(d)	colourless;	1
5(e)(i)	white; precipitate; insoluble/no change/no reaction;	1 1 1
5(e)(ii)	no precipitate/slight white precipitate; no change/no reaction;	1 1
5(e)(iii)	yellow; precipitate;	1

Page 7	Mark Scheme	Syllabus	Paper
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Question	Answer	Marks
6	Method 1: Monitoring the reaction of the metal with acid 6 from:	6
	<ul> <li>named acid;</li> <li>same or stated volume of (same concentration of) acid;</li> <li>fair test idea, i.e. same surface area/size/mass/amount metal;</li> <li>measure volume of gas/count bubbles/temperature change/observe complete reaction;</li> <li>suitable reference to time;</li> <li>conclusion/comparison, e.g. most effervescence = most reactive;</li> </ul>	
	Method 2: Displacement reaction 6 from:      react each metal;     with named acid;     to prepare salt solution of each;     react each metal with each solution of salt;     observe if displacement occurs;     conclusion/comparison;	