

**CAMBRIDGE INTERNATIONAL EXAMINATIONS**

Cambridge International General Certificate of Secondary Education

## **MARK SCHEME for the May/June 2015 series**

### **0620 CHEMISTRY**

**0620/63**

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.

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<b>Question</b>	<b>Answer</b>	<b>Marks</b>	<b>Guidance</b>
1(a)	(delivery) <u>tube</u> ;	<b>1</b>	
1(b)	arrow under wool; arrow under tile;	<b>2</b>	
1(c)(i)	to provide large surface area;	<b>1</b>	<b>A</b> catalyst/increase rates
1(c)(ii)	to absorb/contain/hold the paraffin;	<b>1</b>	
1(d)	cracking;	<b>1</b>	
1(e)	bromine water would turn colourless/react with alkenes;	<b>1</b>	

<b>Question</b>	<b>Answer</b>	<b>Marks</b>	<b>Guidance</b>
2(a)	0, 35, 50, 57, 61, 59, 65, 65 All 8 = 3 marks 7 = 2 marks 6 = 1 mark;	<b>3</b>	
2(b)	all 8 points plotted within half a small square = 3 marks 7 points plotted within half a small square = 2 marks 6 points plotted within half a small square = 1 mark; best fit smooth line;	<b>4</b>	
2(c)(i)	at 150 s/59 cm <sup>3</sup> of hydrogen;	<b>1</b>	
2(c)(ii)	63–65; cm <sup>3</sup> ;	<b>2</b>	
2(d)(i)	use a fridge/ice bath;	<b>1</b>	<b>A</b> freezer
2(d)(ii)	curve below original; towards same final level;	<b>2</b>	

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<b>Question</b>	<b>Answer</b>	<b>Marks</b>	<b>Guidance</b>
3(a)	brown / red-brown / orange;	<b>1</b>	<b>A</b> black
3(b)(i)	oxygen / air used up / reacted;	<b>1</b>	
3(b)(ii)	150 – 125 = 25; 25 / 150 × 100 = 16.7%;	<b>2</b>	
3(c)	same results;	<b>1</b>	

<b>Question</b>	<b>Answer</b>	<b>Marks</b>	<b>Guidance</b>
4(e)	24, 23, 22, 25 initial temperature boxes completed correctly;  28, 59, 19, 44 maximum temperature boxes completed correctly;  4, 36, –3, 19 temperature changes completed correctly;	<b>3</b>	
4(f)	appropriate scale for y axis; all temp differences correctly plotted = 2 marks three temp differences correctly plotted = 1 mark; clearly labelled;	<b>4</b>	highest temperature at least half-way
4(g)(i)	exothermic;	<b>1</b>	<b>A</b> neutralisation
4(g)(ii)	(D is a) carbonate / carbon dioxide formed;	<b>1</b>	
4(h)	experiment 2 / solid E;	<b>1</b>	
4(i)(i)	acid neutralised / pH increased; (so solid G is a) base / alkali;	<b>2</b>	
4(j)	room temperature / initial temperature from table; reaction over;	<b>2</b>	

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<b>Question</b>	<b>Answer</b>	<b>Marks</b>	<b>Guidance</b>
4(k)	temperature change lower / halved; volume of acid larger / doubled;	<b>2</b>	
4(l)	source: measuring cylinder / thermometer / heat losses; improvement: use burette / digital thermometer / insulate / lag;	<b>2</b>	

<b>Question</b>	<b>Answer</b>	<b>Marks</b>	<b>Guidance</b>
5(c)	red brown; precipitate; no change;	<b>3</b>	
5(d)	red brown precipitate;	<b>1</b>	
5(e)	no change / no precipitate / no reaction / nothing;	<b>1</b>	
5(f)	white; precipitate;	<b>2</b>	
5(g)	hydrated / water;	<b>1</b>	
5(h)	not a halide / not a named halide;	<b>1</b>	
5(i)(i)	ammonia / NH <sub>3</sub> ;	<b>1</b>	
5(i)(ii)	ammonium / NH <sub>4</sub> <sup>+</sup> ;	<b>1</b>	

<b>Question</b>	<b>Answer</b>	<b>Marks</b>	<b>Guidance</b>
6	weighed piece of ice; melting method e.g. put into hot water; collection and measurement of gas e.g. measuring cylinder; filled with water; e.g. gas syringe (2 marks); measure volume of gas; calculate volume in 1000g;	<b>6</b>	