Cambridge International Examinations
Cambridge International General Certificate of Secondary Education

CHEMISTRY **0620/62**

Paper 6 Alternative to Practical **May/June 2017**

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.

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This syllabus is approved for use in England, Wales and Northern Ireland as a Cambridge International Level 1/Level 2 Certificate.

Question	Answer	Marks
1(a)	measuring cylinder	1
	conical flask	1
1(b)	bubbles / fizz / effervescence	1
1(c)	time (taken)	1
	s / seconds / secs	1
1(d)(i)	80 and 40 (cm^3)	1
	Experiment 1 at twice / double the volume of Experiment 2	1
1(d)(ii)	two times as much / mass / amount / length magnesium used (in Experiment 1)	1
1(d)(iii)	curve drawn is steeper than Experiment1	1
	curve drawn finishes at the same level as Experiment 1	1

Question	Answer	Marks
2(a)	initial volume completed correctly: 0.0 final volume completed correctly: 13.0	1
	difference: 13.0	1
2(b)	final volume, initial volume and difference completed correctly: 41.1, 2.1 and 39.0	1
	all readings in **(a)** and **(b)** to 1 d.p.	1
2(c)	there is a colour change at the end-point already	1
2(d)(i)	solution **C**	1
	a greater volume of potassium manganate(VII) / solution **A** was needed	1

Question	Answer	Marks
2(d)(ii)	3 × as concentrated	1
2(e)(i)	double the volume of solution **C** was used / double the volume of solution **A** was needed	1
	78 cm^3	1
2(e)(ii)	problem: volume of potassium manganate(VII) solution added would be greater than 50 cm^3	1
	solution: use more than one burette / refill burette	1
2(f)	advantage: easy (to use) / quick	1
	disadvantage: not accurate	1
2(g)	can take average or mean / can spot anomalies / more reliable	1

Question	Answer	Marks
3(a)	initial temperature and final temperature recorded correctly: 19, 23	1
	temperature difference correctly calculated: 4	1
3(b)	endothermic	1
3(c)	sulfur dioxide	1
3(d)	sodium / Na^+	1
	sulfite / SO_3^{2-}	1
3(e)	red	1
3(f)	white	1
	precipitate	1

Question	Answer	Marks
4		**6**
	the filtration method any 6 from: • weigh mixture (of calcium carbonate and kaolinite) • add (dilute) hydrochloric acid • in excess / continue adding until there is no more fizzing / add until no more gas is evolved • filter • wash residue / kaolinite • dry • weigh residue / kaolinite • (change in mass / initial mass) × 100 (%)	
	the gas collection / loss of mass method any 6 from: • weigh mixture (of calcium carbonate and kaolinite) • add (dilute) hydrochloric acid • in excess / continue adding until there is no more fizzing / add until no more gas is evolved • collect gas in a syringe / measure final total mass • measure volume of gas / mass loss • calculate moles of $CaCO_3$ / CO_2 • calculate mass of $CaCO_3$ • (mass of $CaCO_3$ / initial mass) × 100 (%)	
	the calcium chloride method any 4 from: • weigh mixture (of calcium carbonate and kaolinite) • add (dilute) hydrochloric acid • in excess / continue adding until there is no more fizzing / add until no more gas is evolved • filter	**1**