Cambridge International Examinations
Cambridge International General Certificate of Secondary Education

CHEMISTRY **0620/52**

Paper 5 Practical Test **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.

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Question	Answer	Marks
1(a)	initial volume, final volume and difference completed correctly	**1**
	difference comparable to the Supervisor's result	**1**
1(b)	initial volume, final volume and difference completed correctly	**1**
	all readings in both tables in **(a)** and **(b)** to 1 d.p.	**1**
1(c)(i)	pink / purple / violet to colourless / pale green	**1**
1(c)(ii)	there is a colour change at the end-point already	**1**
1(d)(i)	solution **C**	**1**
	a greater volume of potassium manganate(VII) / solution **A** was needed	**1**
1(d)(ii)	ratio of the candidate's differences from the tables in **(a)** and **(b)**	**1**
1(e)(i)	2 × value from the table in **(b)**	**1**
	double the volume of solution **C** was used / double the volume of solution **A** was needed	**1**
1(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**
1(f)	advantage: easy (to use) / quick	**1**
	disadvantage: not accurate	**1**

Question	Answer	Marks
2(a)	yellow	**1**
2(b)	initial and final temperatures recorded	**1**
	temperature difference correctly calculated	**1**
2(c)	any 3 from: • (pale) yellow • precipitate • potassium manganate(VII) turns colourless	**3**
2(d)	no reaction / no change	**1**
2(e)(i)	any 2 from: • brown • turns blue-black • white precipitate	**2**
2(e)(ii)	blue-black colour disappears / turns colourless	**1**
	white	**1**
2(f)	sodium / Na^+	**1**
	sulfite / SO_3^{2-}	**1**
2(g)	red	**1**
2(h)	white	**1**
	precipitate	**1**
2(i)	no reaction / no change	**1**

Question	Answer	Marks
2(j)	lithium / Li^+	**1**
	chloride / Cl^-	**1**

Question	Answer	Marks
3		**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	