



Cambridge International Examinations
Cambridge International General Certificate of Secondary Education

CHEMISTRY

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Paper 5 Practical Test

May/June 2017

MARK SCHEME

Maximum Mark: 40

Published

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This document consists of **5** printed pages.

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: <ul style="list-style-type: none"> • (pale) yellow • precipitate • potassium manganate(VII) turns colourless 	3
2(d)	no reaction / no change	1
2(e)(i)	any 2 from: <ul style="list-style-type: none"> • 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	<p>the filtration method any 6 from:</p> <ul style="list-style-type: none"> • 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 • $(\text{change in mass} / \text{initial mass}) \times 100 (\%)$ 	6
	<p>the gas collection / loss of mass method any 6 from:</p> <ul style="list-style-type: none"> • 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 $\text{CaCO}_3 / \text{CO}_2$ • calculate mass of CaCO_3 • $(\text{mass of CaCO}_3 / \text{initial mass}) \times 100 (\%)$ 	
	<p>the calcium chloride method any 4 from:</p> <ul style="list-style-type: none"> • 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 	