

IGCSE Chemistry 4335/03 4437/08
Mark Scheme (Results)
November 2008

IGCSE

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The following acronyms are used

owtte or words to that effect

ecferror carried forward

dop dependent on previous

nwn no working necessary

Question	Mark	Acceptable answers	Notes	
1 a	M1	F		1
	M2	B		1
	M3	D		1
	M4	E		1
1 b i	M1	insulator / stops heat escaping		1
1 b ii	M1	place in beaker / clamp	Allow Stick it down with blu-tack	1
1 c	M1	18.7		1
	M2	25.3	Award 1 mark for both values correct but in wrong order	1
	M3	6.6	CQ on M1 and M2	1
1 d	M1	repeat		1
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Question	Mark	Acceptable answers	Notes	
2 a	M1	16		1
	M2	74	Award 1 mark for both values correct but in wrong order	1
	M3	58	CQ on M1 and M2	1
2 b i	M1	Did not use same volume of acid solution Did not use same total volume Did not add enough water	Any one	1
2 b ii	M1	Concentration greater than expected Rate greater than expected	Any one	1
2 b iii	M1	Volume of water in cm ³ / Volume of HCl in cm ³) / Concentration (%)		1
	M2	1 cm rep 5 cm ³ / 1 cm rep 10%	Marks needed at least every 2 cm Zero not needed	1
	M3-4	5 points correctly plotted	Penalise each error Points should be within ± ½ small square If 25 cm ³ / 14.5 s plotted then MAX 1	2
	M5	Smooth curve of best fit ignoring anomalous point		1
2 b iv	M1	Time reading CQ on where candidate's curve	Unit (s) not needed, but penalise incorrect unit Within ± ½ small square	1
	M2	Vertical line from 25 cm ³ or 50% to line of best fit	Accept mark on curve at 25 cm ³	1
2 b v	M1	Point as 13.5 s / 45 cm ³ circled or otherwise identified	If 25 cm ³ / 14.5 s plotted then allow this as alternative anomalous point	1
2 c	M1	Time decreases as volume/concentration of acid increases	Do not accept Time inversely proportional to concentration Do not accept Concentration of acid increases as time decreases	1

Question	Mark	Acceptable answers	Notes	
2 d	M1	To keep temperature constant / to minimise temperature change To absorb heat produced	Any one Do not accept To act as water bath	1
2 e i	M1	Use same mass / amount of magnesium / powder (each time)		1
2 e ii	M1	Greater surface area		1
	M2	More frequent collisions / correct reference to time	M2 can be awarded if no reference to particles or if wrong particles identified	1
	M3	Reference to (correct) particles	Accept atoms of magnesium or ions of acid but not molecules of either	1
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Question	Mark	Acceptable answers	Notes	
3 a	M1	Burette can be used for different volumes Pipette can only be used for one volume	Any one	1
3 b	M1	13.20	Do not accept 13.2	1
	M2	2.65	Award 1 mark for both values correct but in wrong order	1
	M3	10.55	CQ on M1 and M2	1
3 c	M1	Points for expts 1-4 correct		1
	M2	Points for expts 5-8 correct		1
	M3	Line of best fit for expts 1-4	Line does not have to continue beyond points but must if extrapolated go to zero	1
	M4	Line of best fit for expts 5-8	Line does not have to continue beyond points	1
3 d	M1	Height CQ on where candidate's lines cross	Do not award if lines do not cross Reading should be within $\pm \frac{1}{2}$ small square	1
	M2	Volume CQ on where candidate's lines cross	Do not award if lines do not cross Reading should be within $\pm \frac{1}{2}$ small square	1
	M3	Volume CQ on M2 (must equal $20 - M2$)		1
3 e	M1	Mix volumes in 3(d)		1
3 f i	M1	Height greater (than it should be)		1
3 f ii	M1	Filter (contents of tube)	If M1 missing, award 0/4	1
	M2	Wash (with water)	Do not accept other liquid	1
	M3	Warm gently/leave in warm place to dry/until water evaporated	Reject reference to filtrate	1
	M4	Remove (residue) from filter paper and weigh Weigh filter paper and contents and weigh empty filter paper	Any one If residue removed from filter paper before drying, M4 cannot be awarded	1
				17

Question	Mark	Acceptable answers	Notes	
4 a	M1-2	U / carbonate and nitrate V / chloride and sulphate	Either order	1 1
4 b	M3-4	X / carbonate and sulphate Z / nitrate and sulphate	Either order	1 1
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