

Mark Scheme (Results)

November 2009

IGCSE

IGCSE Chemistry (4335) Paper 03

IGCSE Science (Double Award) (4437) Paper 08

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Question		Mark	Acceptable answers	Notes	Total
1	a	M1	(A) mortar	Ignore pestle	1
		M2	(B) (glass) rod		1
		M3	(C) beaker		1
		M4	(D) funnel		1
		M5	(E) conical flask		1
		M6	(F) tripod		1
	b	M1	speed up dissolving of salt / make salt dissolve faster / make more salt dissolve	Accept make salt dissolve Reject "rock salt" and "mixture" and "it" Reject reference to reaction	1
	c	M1	filtration	Reject sieving	1
	d	M1	clay and sand	Both needed	1
	e	M1	sodium chloride	Ignore salt	1
				TOTAL	10

Question			Mark	Acceptable answers	Notes	Total
2	a	i	M1	155 (cm ³)		1
		ii	M1	71 (cm ³)		1
		iii	M1	oxygen used up / iron reacts with oxygen / no oxygen left	ignore water used up reject "gas" or "air" used up	1
		iv	M1 M2	19 / 18.7 {100-(ii) / (i)} x 100	A minimum 2 sig figs If answer incorrect, award 1 mark for either volume of oxygen used (29) or % of air left (81) Answer CQ on (i) and (ii)	2
	b	i	M1	temperature and °C AND end mass / mass after 3 weeks	°C can be in heading or after each value Units not needed	1
			M2	12 data values correctly entered		1
			M3	mass changes correct (0.08, 0.24 and 0.5(0))		1
		ii	M1	different masses of iron / different volumes of air in boxes / different size boxes / room temp varies / different times / not enough air (for reaction to complete)		1
	c	i	M1	no reaction / did not rust		1
		ii	M1	stayed the same		1
			M2	no water in the beaker / some water spilt / all reacted / reaction complete / reaction stopped / all oxygen used		1
		iii	M1	in the room		1
			M2	temperature might have changed / not constant	Accept biggest variation / uneven changes M2 dep on M1	1
		iv	M1	suitable vertical scale	At least half the height used	1
			M2	data at 4 weeks used		1
			M3	all bars correct heights	If plotted data for wrong week, award this mark if all bars fit data from same week. Reject if not bars	1
TOTAL						17

Question	Mark	Acceptable answers	Notes	Total		
3	a	M1	use pipette/burette (to measure acid volume) collect gas in syringe / burette /	Accept idea of sealed system e.g. partitioned flask or tube in flask	1	
	b	M1	37 (cm ³)		1	
	c	M1	insoluble in water / no reaction with water		1	
	d	i	M1	22.5	1	
		M2	38.5		1	
		ii	M1	16(.0)	CQ on (i)	1
		iii	M1	use water bath / use bigger volume of acid / more acid	Reject insulation / lagging	1
	e	M1	same mass/amount of magnesium	Any two for 1 each . Reject "amount of acid" Reject "concentration of acid"	1	
		M2	same form of magnesium (eg powder/ribbon) / surface area		1	
		M3	same volume of (diluted) acid		1	
	f	i	M1	15% / second one	1	
		ii	M1	33 circled	1	
		M2	gas leaked out/not collected / acid too concentrated / acid too dilute (must specify less than 10%) / acid was cooler / bigger pieces of metal / mass of metal too small / time less than 20 seconds		1	
		iii	M1	24 (cm ³)	1	
	g	i	M1	cross in second box	1	
		ii	M1	all points plotted correctly	Deduct 1 mark per error	1
		M2				
		M3	Curve through first 4 points		2	
		M4	Curve through last 4 points	continuation of line so they cross must follow curve of results	1	
	h	i	M1	correct reading of rate from graph	1	
		M2	correct reading of concentration from graph		1	

		ii	M1	correct calculation of volume from (i) {rate from(i) x 20}		1
		iii	M1	repeat experiment using concentration from (i) / same concentration	Not just "repeat experiment"	1
			M2	measure gas volume collected (in 20 seconds)	M2 dependant on M1	1
					TOTAL	23

PAPER TOTAL: 50 MARKS

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