

# Mark Scheme (Results)

## November 2009

IGCSE

### IGCSE Chemistry (4335) Paper 1F

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## SECTION A

Question		Mark	Acceptable answers		Notes	Total
1	a	M1	S			1
	b	M1	O			1
	c	M1	1		Accept Alkali metals	1
	d	M1	2			1
	e	M1	Al / aluminium			1
					<b>TOTAL</b>	<b>5</b>

Question		Mark	Acceptable answers		Notes	Total
2	a	M1	hydrocarbons			1
		M2	heated			1
		M3	distillation			1
		M4	top			1
		M5	condenses			1
	b	M1	carbon dioxide		Accept answers in either order. Award 1 mark for two correct formulae.	1
		M2	water			1
					<b>TOTAL</b>	<b>7</b>

Question		Mark	Acceptable answers		Notes	Total
3	a	i	M1	copper		1
		ii	M1	sodium / copper		1
		iii	M1	iron		1
		iv	M1	copper		1
3	b		M1	cross in box 2		1
			M2	cross in box 3		1
					<b>TOTAL</b>	<b>6</b>

Question		Mark	Acceptable answers	Notes	Total
4	a	M1	white		1
		M2	colourless		1
		M3	decomposition		1
	b	M1	ammonium chloride		1
	c	i	white precipitate / solid / suspension	ignore powder / crystals	1
		ii	ammonia / NH <sub>3</sub>		1
<b>TOTAL</b>					<b>6</b>

Question		Mark	Acceptable answers	Notes	Total	
5	a	M1 M2	(dilute) sulphuric acid + carbon dioxide (gas) + (solid) zinc carbonate sulphate	water → + zinc	M1 zinc sulphate M2 complete equation	1
	b	M1	limewater		1	
		M2	turns milky		1	
	c	M1	heat / increase the temperature	Any two for 1 each	1	
		M2	use powdered/smaller pieces(of zinc carbonate)		1	
		M3	use more concentrated (sulphuric) acid		1	
	d	i	M1 carbonic (acid)		1	
		ii	M1 cross in box 2		1	
		iii	M1 orange / yellow		1	
<b>TOTAL</b>					<b>9</b>	

Question	Mark	Acceptable answers	Notes	Total		
6	a	M1	limestone / calcium carbonate	Either way round	1	
		M2	coke / carbon		1	
		M3	(hot) air		1	
		M4	slag / calcium silicate	Award 1 mark for D and E in reverse order	1	
		M5	iron		1	
	b	i	M1	$C + O_2 \rightarrow CO_2$	1	
		ii	M1	carbon + carbon dioxide $\rightarrow$ carbon monoxide	1	
		iii	M1	loss of oxygen	Accept gain of electrons	
	c	i	M1	$CaCO_3(s) \rightarrow CaO(s) + CO_2(g)$	all formulae and balancing correct	1
		M2			state symbols correct	1
		ii	M1	$CaSiO_3$		1
				<b>TOTAL</b>	11	

Question	Mark	Acceptable answers	Notes	Total	
7	a	M1	(hydrated) iron(III) oxide		1
	b	M1	air / oxygen	answers in either order	1
		M2	water / moisture		1
	c	M1	oil / grease		1
		M2	galvanising / zinc coating	Accept "enamel"	1
				<b>TOTAL</b>	5

Question	Mark	Acceptable answers	Notes	Total		
8	a	M1	black		1	
		M2	blue	Reject green	1	
	b	i	M1	to neutralise/use up/react with all the acid	1	
		ii	M1	to remove the solid / copper oxide	1	
		iii	M1	to remove/evaporate (some of) the water	Accept "so crystals form"	1
		iv	M1	to dry the crystals / absorb water		1
				<b>TOTAL</b>	6	

SECTION A TOTAL: 55 MARKS

## SECTION B

Question		Mark	Acceptable answers	Notes	Total
9	a	M1	(electron) 1/1836 / negligible	Accept value in range 1/2000 to 1/1800 and 0.0005 to 0.00056 Ignore zero	1
		M2	(neutron) 0		1
		M3	(proton) 1		1
		M4	(proton) +1		1
	b i	M1	(number of) protons and neutrons		1
		M2	35		1
	ii	M1	18		1
	c i	M1	5		1
	ii	M1	isotopes		1
				<b>TOTAL</b>	<b>9</b>

Question		Mark	Acceptable answers	Notes	Total
10	a	M1	white		1
		M2	blue		1
	b i	M1	fractional		1
		M2	distillation		1
	ii	M1	different boiling points / boiling point of propanone lower than that of water		1
	iii	M1	heat / boil		1
		M2	propanone boils/collects (first)		1
		M3	stop collecting liquid above 56 °C	Accept wording that indicates that water collected separately or not at all	1
	c	M1	cross in column 1 box 4		1
		M2	cross in column 2 box 2		1
				<b>TOTAL</b>	<b>10</b>

Question		Mark	Acceptable answers	Notes	Total
11	a	M1	loses an electron/electrons		1
		M2	Na <sup>+</sup>		1
	b	M1	gains <u>two</u> electrons		1
		M2	O <sup>2-</sup>		1
	c	M1	sodium oxide		1
		M2	Na <sub>2</sub> O		1
<b>TOTAL</b>					<b>6</b>

Question		Mark	Acceptable answers	Notes	Total	
12	a	M1	(bromine) liquid		1	
		M2	grey / black		1	
	b	i	M1	any indication of chlorine in left hand tube		1
		ii	M1	hydrogen / H <sub>2</sub>		1
		iii	M1	brine / sodium chloride solution / NaCl(aq)	Accept concentrated/saturated NaCl Ignore sea water	1
	c	i	M1 M2	chlorine + sodium bromide → bromine + sodium chloride	M1 reagents M2 products	2
		ii	M1	displacement / redox	Accept reduction / oxidation Ignore substitution	1
		iii	M1	(chlorine) more reactive (than bromine)		1
	<b>TOTAL</b>					<b>9</b>

Question	Mark	Acceptable answers	Notes	Total	
13	a	M1	double bond / C=C / not all bonds are single	1	
	b	M1	contains bromine / another element/atom does not contain only carbon and hydrogen	1	
	c	M1	B and E	1	
	d	M1	A and B / A and E / C and F	1	
	e	M1	alkane(s)	1	
		M2	$C_nH_{2n+2}$	Accept other symbols such as x	1
	f	M1	yellow / orange / brown	1	
		M2	colourless / decolorised	Ignore clear	1
				If only colourless stated, assume it is final colour	
	g i	M1	F	1	
	ii	M1	poly(ethene) / polyethene / polythene	1	
	iii	M1	addition	1	
				<b>TOTAL</b>	<b>11</b>

SECTION B TOTAL: 45 MARKS

PAPER TOTAL: 100 MARKS



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