C1

Question Number					Mark	Answer	Accept	Neutral answer	Do not accept
FT	HT	Sub-section							
1		(a)	(i)		2	high mp / high bp / high density any 2 for (1) each all properties must have **high** values (2)		reference to numerical values	
			(ii)		2	tin (1) low mp and high bp / low mp and high density (1)			
		(b)			2	diag 1 description 1 diag 2 description 2 diag 3 description 3 diag 4 description 4 all correct (2) any 1 correct (1)			

Question Number									
FT	HT	Sub-section			Mark	Answer	Accept	Neutral answer	Do not accept
2		(a)	(i)		1	breaking down/splitting a compound (into its elements) ..... using an electric current/electricity both statements needed			
			(ii)		1	water	H_2O		
			(iii)		2	it contains hydrogen and oxygen (1) the ratio of H:O is 2:1 (1)	it contains H and O there is twice as much hydrogen than oxygen - 2 marks	there is more hydrogen than oxygen	it contains H_2 and O_2
		(b)			2	water (1) contains two different atoms (joined together) / contains two elements (joined together) (1)	H_2O or diagram contains **both** elements		

Question Number									
FT	HT	Sub-section			Mark	Answer	Accept	Neutral answer	Do not accept
3		(a)	(i)		2	**both** Al^{3+} ions are shown going to the negative electrode (1) **all three** O^{2-} ions are shown going to the positive electrode (1)	one Al^{3+} **and** one O^{2-} for (1)		
			(ii)		1	2:4:3			
			(iii)		1	gains 3 electrons		gains electrons	
		(b)			2	aluminium (1) very good(electrical)conductor ***…..this answer required, plus either*** low density ***or*** (good) resistance to corrosion (1) **both needed** aluminium not identified but two correct properties given (1)	low density = light		

Question Number									
FT	HT	Sub-section			Mark	Answer	Accept	Neutral answer	Do not accept
4		(a)	(i)		2	filter (1) leave to ***evaporate*** (at room temperature) / leave in a basin on the side of the laboratory to ***evaporate*** / ***evaporate*** (some) water away and then leave to evaporate at room temperature / ***boil*** (some) water away and leave on the side of the laboratory any one for (1)	filtration ***heat*** water away and leave on the side of the laboratory		
			(ii)		1	limewater turns milky			
			(iii)		1	zinc oxide / zinc hydroxide	ZnO $Zn(OH)_2$		zinc
		(b)	(i)		1	1			
			(ii)		1	7			

Question Number									
FT	HT	Sub-section			Mark	Answer	Accept	Neutral answer	Do not accept
5		(a)	(i)	I	1	C_{13}-C_{16}			
				II	1	C_9-C_{12}		reference to diesel	
			(ii)		1	cracking			
		(b)			2	to reduce usage/make people use them again plastic (bags) are non-biodegradable / plastic (bags) take a long time to rot / plastic (bags) take a long time to decompose / plastic (bags) take a long time to break down reduce landfill conserves crude oil any two for (1) each		reference to recycling reference to raising money/ littering/pollution reduce waste conserves raw materials	

Question Number									
FT	HT	Sub-section			Mark	Answer	Accept	Neutral answer	Do not accept
6		(a)	(i)		2	aluminium / Al zinc / Zn iron / Fe copper / Cu (1) more bubbles = more reactive (1)	 converse		
			(ii)		1	iron sulfate + hydrogen **both** needed	$FeSO_4$ + H_2		H hydrogen ***gas*** iron sulphate ***solution***
			(iii)		1	(sulfuric acid) is the acid found in acid rain / (sulfuric acid) causes acid rain			
			(iv)		1	**1**. damages marble statues **2**. destroys forests **both** needed	correct statements identified in any way		
		(b)	(i)		1	decreases			'decreases ***then stays the same***'
			(ii)		1	**more** industry / factories **more** coal power stations *'source' needed not 'reason'*	**more** combustion of fossil fuels	more people / cars 'developing countries'	

Question Number									
FT	HT	Sub-section			Mark	Answer	Accept	Neutral answer	Do not accept
7	**1**	(a)			2	melting point decreases (1) density increases (1)			
		(b)			1	potassium	K		sodium
		(c)			2	values from 669–650°C (1) (francium boiling point) below that of caesium /boiling points decrease down the group below 670°C **and** above 650°C / no greater than 20°C below caesium's boiling point (1)			

Question Number		Sub-section			Mark	Answer	Accept	Neutral answer	Do not accept
FT	HT								
8	**2**	(a)			2	Iceland (1) positioned on the mid-Atlantic ridge / mid-Atlantic ride passes through Iceland / positioned at a boundary where plates are moving apart / on constructive plate boundary			
		(b)	(i)		1	rocks furthest away (from the plate boundary) are the oldest			
			(ii)		2	new (igneous) rock formed (1) ocean floor moving / ocean floor spreading / rocks moving away from boundary / plates moving apart (1) constructive plate boundary (1) any 2 for (1) each	ocean floor = sea floor floor = rocks	new 'land' formed	plates move towards/past each other

Question Number		Sub-section			Mark	Answer	Accept	Neutral answer	Do not accept
FT	HT								
9	**3**	(a)	(i)		1	circle around **3.0**			
			(ii)		1	incorrect ***mass of magnesium*** used / incorrect ***volume of copper(II) sulfate solution*** used / thermometer ***out of the reaction*** mixture when read any one		too much magnesium added	incorrect thermometer reading
		(b)			3	all points plotted correctly (2) one plotting error only (1) smooth curve of best fit (by eye) (1) *(line must be a single line and line must go to origin)*			points joined by straight lines
		(c)			1	no magnesium added = no temperature rise/ no magnesium added = no reaction			
		(d)			2	0.8(g) (1) consequential from graph temperature stops rising /graph stops rising (1)			

Question Number			
FT	HT	Mark	Answer
10	**4**	6	**Indicative content:** Reference to the ***causes***, ***consequences*** and ***solutions*** of global warming e.g.
		QWC	Causes: burning fossil fuels / named fuels deforestation CO_2 in atmosphere increases CO_2 prevents heat escaping from atmosphere/ CO_2 is a greenhouse gas increased greenhouse effect = global warming/increase in atmospheric temperature Consequences: sea level increasing/ climate change/ extreme weather event/ increase in melting glaciers, sea ice & permafrost Ways of reducing impact: burn less fossil fuel/ reduce deforestation / alternative energy / reduce use of electricity (personal level) carbon capture and storage **5-6 marks** The candidate constructs an articulate, integrated account correctly linking relevant points, such as those in the indicative content, which shows sequential reasoning. The answer fully addresses the question with no irrelevant inclusions or significant omissions. The candidate uses appropriate scientific terminology and accurate spelling, punctuation and grammar. **3-4 marks** The candidate constructs an account correctly linking some relevant points, such as those in the indicative content, showing some reasoning. The answer addresses the question with some omissions. The candidate uses mainly appropriate scientific terminology and some accurate spelling, punctuation and grammar. **1-2 marks** The candidate makes some relevant points, such as those in the indicative content, showing limited reasoning. The answer addresses the question with significant omissions. The candidate uses limited scientific terminology and inaccuracies in spelling, punctuation and grammar. **0 marks** The candidate does not make any attempt or give a relevant answer worthy of credit.