Chemistry 1 - Foundation Tier only questions

Question Number									
FT	HT	Sub-section			Mark	Answer	Accept	Neutral answer	Do not accept
1		(a)	(i)		1	 *atoms must be touching*			
			(ii)		1	NH_3	H_3N		
		(b)	(i)		1	O_2 / He / Ne *any **two***	oxygen / helium / neon		O
			(ii)		1	CO_2 / CH_4 / SO_2 *any **two***	carbon dioxide / methane / sulfur dioxide		
		(c)	(i)		1	1			
			(ii)		1	5			
		(d)	(i)		1	Mg^{2+} Cl^- ***both** ions needed (including charges)*	$2Cl^-$		Cl^-_2
			(ii)		1	NaOH	Na^+OH^-		

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Question Number									
FT	HT	Sub-section			Mark	Answer	Accept	Neutral answer	Do not accept
2		(a)			2	iron ore ——— source of iron limestone ✕ acts as a fuel coke ✕ removes impurities All **three** correct (2) Any **one** correct (1)			
		(b)			1	carbon + oxygen → carbon dioxide			air coke
		(c)			2	**A** (1) oxygen removed / oxygen loss (1)	iron oxide is reduced oxygen lost by iron oxide gains **both** marks	reference to 'oxide'	oxygen lost by **iron**
		(d)			1	mixture			

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Question Number		Sub-section			Mark	Answer	Accept	Neutral answer	Do not accept
FT	HT								
3		(a)			3	all points plotted correctly (2) any 8 points plotted correctly (1) curve of best fit ....judgement by eye *i.e. smooth continuous single line* (1)	±½ square		 ruler used in drawing 'curve'
		(b)	(i)		1	5.5 follow through error from graph (ft)			
			(ii)		1	50 ±1 ft			
		(c)			2	using a polystyrene cup (1) use a lid / closed top use two polystyrene cups / use thicker polystyrene cup add the acid quickly (1)	beaker **traps air** form of further insulation around beaker	beaker	
		(d)			1	exothermic			

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Question Number		Sub-section			Mark	Answer	Accept	Neutral answer	Do not accept
FT	HT								
4		(a)			1	magnesium sulfate + copper	magnesium sulfate *solution* / copper *solid* / copper *metal*		
		(b)			1	displacement			
		(c)			2	equal to 80.6 (1) (in a chemical reaction) atoms are not created or destroyed / (in a chemical reaction) atoms are re-arranged / nothing has entered / left the beaker (1) [Marks linked (unless **no** box ticked) i.e. second mark cannot be awarded if first is not]		'it is a sealed container'	
		(d)			1	sodium magnesium copper	Na Mg Cu		

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Question Number		Sub-section			Mark	Answer	Accept	Neutral answer	Do not accept
FT	HT								
5		(a)			1	91	±½ square		
		(b)	(i)		2	(SO_2 emissions) decreasing / go from 1.3 → 0.4 (1) (SO_2 emissions) below international targets (1)	 idea of 'levelling out'		
			(ii)		2	Any **two** from: • more electricity generated / used • increased fuel consumption / more coal burned / more oil burned / more gas burned • harsh winter / colder weather *Any **two** for (1) each*			
		(c)	(i)		2	pH: increases (1) acidity: decreases (1)	 gets weaker		stronger
			(ii)		2	**B** (1) (pH readings recorded) **continuously** / **remotely** / without someone being there / (pH) readings can be **stored** (1)	 over a long period of time	 'graph plotted automatically'	

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Chemistry 1 - Common questions

Question Number									
FT	HT	Sub-section			Mark	Answer	Accept	Neutral answer	Do not accept
6	**1**	(a)			1	**B**	Ne / neon		
		(b)			2	**D** and **F** (1) **both** needed *either order* (**D** and **F**) are in the same group / (**D** and **F**) are both in Group 6 (**D** and **F**) both have 6 electrons in their outer shell (1) [Marks linked (unless **no** letters given)]			
		(c)			2	Set of properties: **2** (1) **both** metallic **and** non-metallic properties / metalloid / semi-metal [If referring to specific properties from table it must clearly convey the idea that one (or more) is a metallic property and another is a non-metallic property, e.g. high m.p. and b.p. (like a metal) and brittle (like a non-metal); no credit for a simple list of all properties] (1) [Marks linked (unless **no** number is given) i.e. second mark cannot be awarded if first is not]	'high m.p., b.p. and shiny **BUT** brittle'	Reference to Group 4	

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Question Number		Sub-section			Mark	Answer	Accept	Neutral answer	Do not accept
FT	HT								
7	**2**	(a)	(i)		1	1			
			(ii)		1	increases			
			(iii)		1	8	C_8		
		(b)			1	lighter / lower density doesn't break (as easily) / not brittle / flexible	not dangerous when broken	can be recycled strong / durable can be coloured	
		(c)			2	12/60 (1) 12/60 × 100 = 20 % (1) 2 marks for correct answer only (cao)			
		(d)			3	Advantages reducing amount of plastic for disposal (1) conservation of raw materials/crude oil (1) Further (1) mark for development of any link to either advantage, e.g. less plastic going to landfill so fewer sites needed; less plastic litter which is unsightly / harms wildlife; burning plastics produces toxic gases; crude oil is a finite resource; crude oil can be used for other things.			

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Question Number		Sub-section			Mark	Answer	Accept	Neutral answer	Do not accept
FT	HT								
8	**3**	(a)			3	copper chloride (1) carbon dioxide (1) sodium hydroxide (1)	$CuCl_2$ CO_2 NaOH		
		(b)			1	2			

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Question Number			
FT	HT	Mark	Answer
9	**4**	6 QWC	**Indicative content:** **Fluoridation** **Chlorination** **Reasons why:-** **Reasons why:-** reduce tooth decay / kill bacteria/ sterilisation reduce teeth extractions / reduce number of general anaesthetics **Reasons for opposition** **Reasons for no opposition** mass medication / freedom of choice makes water safe to drink / excess fluoride discolours teeth / causes fluorosis / poisonous couldn't drink the water otherwise not added for medical reasons may also cause brittle bones / IBS / thyroid problems / cancer / bone cancer **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.

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