

Chemistry 2 - Foundation Tier only questions

Question Number		Sub-section			Mark	Answer	Accept	Neutral answer	Do not accept
FT	HT	(a)	(i)						
1			(i)	1	proton		p		
			(ii)	1	lithium	Li			
		(b)		2	nitrogen and hydrogen – both needed (1)		N and H		
					covalent (1)		simple	giant	

Question Number		Sub-section			Mark	Answer	Accept	Neutral answer	Do not accept
FT	HT								
2		(a)			2	graphite ——— giant covalent potassium ——— metallic sodium chloride ——— giant ionic three correct answers (2) one correct answer (1)			
		(b)			1	graphite		giant covalent	
		(c)			1	carbon dioxide, water, etc	CO ₂ , H ₂ O, etc		

Question Number		Sub-section		Mark	Answer	Accept	Neutral answer	Do not accept
FT	HT							
3		(a)		2	negative / -1 (1) 1 (1)			
		(b)		1	19 9 – both needed			
		(c)		2	17 (1) 20 (1)			
		(d)		1	2,8,1			
		(e)		1	2,8,8,2			

Question Number		Sub-section		Mark	Answer	Accept	Neutral answer	Do not accept
4		(a)		1	thermochromic pigment			
		(b)		3	heat both / place in hot water (1)		change temperature	
					thermoplastic softens or melts (1)	stays the same		
					the shape memory polymer returns to its original shape / form (1)			

Question Number									
FT	HT	Sub-section			Mark	Answer	Accept	Neutral answer	Do not accept
5		(a)			1	C	98 and 890		
		(b)			1	to prevent sodium reacting with air/oxygen/water (vapour)	prevent from oxidising / corroding	because it reacts with air/oxygen/water (vapour)	
		(c)	(i)		1	yellow yellow/orange	orange		
			(ii)		2	sodium + oxygen (1) sodium oxide (1)	Na + O ₂ (1) Na ₂ O (1) – ignore balancing		
			(iii)		1	2Na + Cl ₂ → 2NaCl			

Question Number		Sub-section		Mark	Answer	Accept	Neutral answer	Do not accept
FT	HT							
6		(a)		1	C ₄ H ₁₀			
		(b)		2	propane (1) $ \begin{array}{ccccccc} & \text{H} & & \text{H} & & \text{H} & \\ & & & & & & \\ \text{H} & - \text{C} & - & \text{C} & - & \text{C} & - \text{H} \\ & & & & & & \\ & \text{H} & & \text{H} & & \text{H} & \end{array} $ (1)			
		(c)		1	C ₃ H ₆			

Question Number		Sub-section			Mark	Answer	Accept	Neutral answer	Do not accept
FT	HT	(a)	(i)						
7			(i)		2	collection of gas (e.g. in a gas syringe or gas jar) (1)	mass method disappearing zinc		
						experiment repeated with different particle size of zinc (1)			
			(ii)		2	same mass (or amount) of zinc / same volume (or amount) of acid / same concentration of acid / same temperature or room temperature – any two for (1) each		repeat readings same apparatus	
			(iii)		1	the fastest is the experiment that gives the volume of gas in the least time	fastest reaction is the one giving off most bubbles in a given time		
		(b)	(i)		1	less time / time decrease		faster reaction	
			(ii)		1	volume of gas remains the same			

Chemistry 2 - Common questions

Question Number		Sub-section		Mark	Answer	Accept	Neutral answer	Do not accept
8	1	(a)		1	solubility of sodium carbonate increases (until 40-43°C) and then decreases			
		(b)		3	plotting 7 correct points (2) plotting 6 correct points (1) suitable line – must be curve (1)			
		(c)		1	sodium carbonate sodium bromate sodium chloride – correct order			
		(d)		3	recognise that sodium chloride is soluble and silver chloride is not (1) add (enough/excess) water (to remove/dissolve all the sodium chloride) (1) filter (1)			

Question Number		Sub-section			Mark	Answer	Accept	Neutral answer	Do not accept
FT	HT	(a)	(i)						
9	2				2	$436 + 242$ (1) $= 678$ (1) – correct answer only (cao) (2)			
			(ii)		2	2×431 (1) $= 862$ (1) – cao (2)			
		(b)			1	exothermic since energy given out (as bonds made) > energy needed (to break the bonds) energy given by reaction is negative / -184 credit 'endothermic' with correct reason if calculation error followed through (ft)			

Question Number		Sub-section		Mark	Answer	Accept	Neutral answer	Do not accept
FT	HT							
10	3	(a)	(i)	1	A – requires the most soap – both needed			
			(ii)	2	<p>D (1)</p> <p>some hardness removed by boiling but not all / temporary hardness removed by boiling but permanent hardness remained (1)</p> <p>Alternative answer accepted for all candidates due to very common mis-interpretation of question on Welsh-medium papers</p> <p>A contains permanent hardness and C contains temporary hardness (1)</p> <p>A loses none of its hardness through boiling and C loses all of its hardness (through boiling) (1)</p>			
		(b)		2	<p>same trend / A still the hardest / B still the softest / D still contains both permanent and temporary hard water (1)</p> <p>different amount of water used / different concentration of soap solution / shaken for a different amount of time / different amount of lather formed (1)</p>			

Question Number		Mark	Guidance
FT	HT		
11	4	6	<p>Indicative content: This method of separation is called fractional distillation. Crude oil is a mixture of hydrocarbons. The crude oil is heated and vaporised before entering the column. Smaller/lower boiling hydrocarbons will rise in the column and condense higher up the column. Hydrocarbons with similar boiling points condense at the same level in the column. (Boiling point depends on the size of the molecule – larger molecules have higher boiling points.)</p> <p>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.</p> <p>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.</p> <p>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.</p> <p>0 marks: The candidate does not make any attempt or give a relevant answer worthy of credit.</p>