

Chemistry 2 - Foundation tier only questions

Question Number		Sub-section			Mark	Answer	Accept	Neutral answer	Do not accept
FT	HT								
1		(a)	(i)		1	condenser			
			(ii)		1	chromatography			
		(b)			1	C	distillation		

Question Number		Sub-section		Mark	Answer	Accept	Neutral answer	Do not accept
2		(a)		1	C			
		(b)		1	any named metal e.g. sodium, magnesium	symbol e.g. Na, Mg		
		(c)		1	A / D	graphite / metal named in part (b)	carbon	
		(d)		1	B			

Question Number		Sub-section		Mark	Answer	Accept	Neutral answer	Do not accept
FT	HT							
3		(a)	(i)	1	2, 8, 8			
			(ii)	1	D		Al	
			(iii)	2	B and D – both needed (1) they have the same number of electrons in their outer shell / they both have three electrons in their outer shell (1) 2 nd mark may be awarded if A and C given	boron and aluminium		A and C
		(b)	(i)	1	40			
			(ii)	2	16 ÷ 40 (1) 40 (1) error carried forward from (i) correct answer only (2)			

Question Number		Sub-section			Mark	Answer	Accept	Neutral answer	Do not accept
FT	HT		(i)						
4		(a)	(i)		1	B			
			(ii)		1	water		H ₂ O hydrogen oxide	hydroxide
		(b)	(i)		1	8			
			(ii)		1	4			
			(iii)		1	C ₂ H ₆	CH ₃ CH ₃		$ \begin{array}{c} \text{H} \quad \text{H} \\ \quad \\ \text{H}-\text{C}-\text{C}-\text{H} \\ \quad \\ \text{H} \quad \text{H} \end{array} $

Question Number		Sub-section		Mark	Answer	Accept	Neutral answer	Do not accept
5		(a)	(i)	1	gas escaped during time taken to place the bung in the flask	gas syringe 'sticks'	human error	
			(ii)	3	all points plotted correctly [$\pm\frac{1}{2}$ square] (2) seven points plotted correctly (1) smooth curve drawn, not passing through (10,8) (1)	curve through (10,8) if (0,0) not plotted		
			(iii)	1	value read correctly from graph [$\pm\frac{1}{2}$ cm ³] ecf possible from any curve – except to give 8			8
			(iv)	1	line continues horizontally / volume stops increasing		straight line	
			(v)	2	less time (1) more time (1)			
		(b)		2	4 days - correct answer only (2) if answer incorrect (1) for any indication of correct working e.g. from 30-20°C doubles time from 1 day to 2 days			

Question Number		Sub-section		Mark	Answer	Accept	Neutral answer	Do not accept
FT	HT							
6		(a)		1	shape memory polymer → regains original shape when heated thermoplastic → softens when heated thermoset → does not change when heated			
		(b)	(i)	1	ethene		C ₂ H ₄ alkene	
			(ii)	2	D (1) fluorine atoms present / hydrocarbons include carbon and hydrogen atoms only / doesn't contain hydrogen atoms (1)			
			(iii)	2	B (1) it has a double bond (1)	ethene it is unsaturated		
		(c)		1	$ \begin{array}{c} \text{H} \quad \text{H} \quad \text{H} \\ \quad \quad / \\ \text{H}-\text{C}-\text{C}=\text{C} \\ \quad \quad \backslash \\ \text{H} \quad \quad \text{H} \end{array} $			

Chemistry 2 - Common questions

Question Number									
FT	HT	Sub-section			Mark	Answer	Accept	Neutral answer	Do not accept
7	1	(a)			3	sedimentation – removes large particles/objects (1) filtration – removes smaller particles (1) chlorination – kills bacteria (1)			
		(b)			2	removal of salt from seawater (1) distillation (1)	osmosis		

Question Number		Sub-section			Mark	Answer	Accept	Neutral answer	Do not accept
FT	HT	(a)	(i)						
8	2				3	burns - lilac flame (1R) Reserved mark <ul style="list-style-type: none"> • floats • moves • melts / spherical shape • effervesces / fizzes / bubbles • spits / sparks / pops any two for (1) each up to 2 max		dissolves disappears produces hydrogen	red / yellow / blue / green flame
			(ii)		1	the piece of potassium could have been too big / could have been too little water / water could have been hot / potassium could have stuck to the side of trough			
		(b)			2	2KOH + H ₂ (2) (1) for KOH if any errors			

Question Number		Sub-section		Mark	Answer	Accept	Neutral answer	Do not accept
FT	HT							
9	3	(a)		3	David – mean of all four values ($54 \div 4 = 13.5$) (1) Haf – mean of three values, with indication which three were selected (1) Haf's value is better as she used repeatable values only / discarded the value that appears to be suspect (1)			
		(b)		1	A		8	
		(c)		2	B (1) some hardness has been removed by boiling but some remains (1)			
		(d)		1	calcium (ion) / magnesium (ion)	$\text{Ca}^{2+} / \text{Mg}^{2+}$		

Question Number		Mark	Answer
FT	HT		
10	4	6 QWC	<p>Indicative content</p> <ul style="list-style-type: none"> • element has a mass number of 35 and atomic number of 17 • 17 protons given by atomic number; must have same number of electrons because atoms are neutral • 17 electrons arranged in shells; electronic structure 2, 8, 7 • element is in Period 3; number of occupied electron shells • element is in Group 7; number of electrons in the outer shell • element E is chlorine • number of neutrons is 18; difference between mass number and atomic number <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>