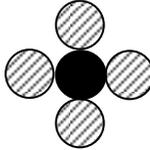


## Chemistry 1 - Foundation Tier only questions

Question Number		Sub-section			Mark	Answer	Accept	Neutral answer	Do not accept
FT	HT								
1		(a)			1	helium	He		
		(b)			2	chlorine (1) iodine (1)	Cl <sub>2</sub> / Cl I <sub>2</sub> / I		
		(c)			2	chlorine (1) iodine (1)	Cl <sub>2</sub> / Cl I <sub>2</sub> / I		

Question Number		Sub-section			Mark	Answer	Accept	Neutral answer	Do not accept
FT	HT								
2		(a)			3	calcium and chlorine (1) copper(II) oxide / copper oxide (1) MgBr <sub>2</sub> (1)		Ca and Cl / Cl <sub>2</sub>	
		(b)	(i)		1	carbon ● oxygen ○      both needed			
			(ii)	I	1				
				II	1		follow through (ft) from (b)(i)		

Question Number		Sub-section		Mark	Answer	Accept	Neutral answer	Do not accept
FT	HT							
3		(a)		2	$7 + 27 + 20 + 11$ (1) $100 - 65 = 35\%$ (1)  correct answer only (cao) (2)			
		(b)		2	increased temperature of Earth's atmosphere / global warming (1)  ice caps melting <b>faster</b> / climate change / <b>more</b> flooding / <b>more</b> extreme weather / changing weather patterns (1)			
		(c)		1	any <b>one</b> from: use renewable energy sources e.g. solar panels / wind turbines / hydroelectric / tidal / biomass nuclear power carbon capture and storage	use less electricity e.g. by using power saving light bulbs – <b>must give example</b>		

Question Number		Sub-section		Mark	Answer	Accept	Neutral answer	Do not accept
FT	HT							
4		(a)		1	magnesium zinc copper (must be correct order)	Mg Zn Cu		
		(b)		2	copper (metal) (1)  magnesium sulfate (solution) (1)	Cu  MgSO <sub>4</sub>		
		(c)		1	ZnSO <sub>4</sub>			
		(d)	(i)	1	2 PbO          2 Pb  <b>both</b> needed			
			(ii)	2	carbon (1)  as it gains oxygen (1)	C  loses electrons	reacts with oxygen	
			(iii)	1	any <b>one</b> from: aluminium is more reactive (than carbon) aluminium is too reactive carbon is less reactive (than aluminium) carbon is not reactive enough	Al is above C in reactivity series	Al is very reactive	

Question Number		Sub-section		Mark	Answer	Accept	Neutral answer	Do not accept
FT	HT							
5		(a)		1	the greater the percentage drinking fluoridated water the lower the DMFT – must clearly link graphs			
		(b)		2	sodium fluoride is used as a rat poison / toxic  bone cancer (in high concentrations)  brittle bones  discolours teeth / fluorosis  can be taken in other ways e.g toothpaste, mouthwash  mass medication / takes away individual's choice  credit (1) for mention of any of above up to (2) max or (2) for one point and some detail	unethical		



## Chemistry 1 - Common questions

Question Number		Sub-section		Mark	Answer	Accept	Neutral answer	Do not accept
7	1	(a)		1	<b>B and F (both needed)</b>			
		(b)		1	<b>D</b>			
		(c)	(i)	2	it is a semi metal / metalloid / shows properties of both metal and non-metal (1)  must give example of one property of a metal and one of non-metal e.g. conducts electricity but low density etc. (1)	idea of conflicting properties	<b>A</b>	
			(ii)	1	<b>D and E (both needed)</b>			
		(d)	(i)	2	310 – 250 (1) 540 / 60 = 9 g/cm <sup>3</sup> (1)  cao (2)			
			(ii)	2	measurements are inaccurate / not precise / incorrect  credit (1) for basic idea and additional (1) for sensible reason e.g. measuring cylinder not precise enough, only measures to nearest 10cm <sup>3</sup> (2)  accept any other sensible answers e.g. sample is impure / oxidised or volume (liquid or solid) changes with temperature		human error	

Question Number		Sub-section			Mark	Answer	Accept	Neutral answer	Do not accept
8	2	(a)	(i)		1	battery acid			
			(ii)		1	blood			
			(iii)		1	<b>pure</b> water			
		(b)			3	<b>A</b> copper carbonate (1) <b>B</b> copper oxide (1) <b>C</b> sodium hydroxide (1)	CuCO <sub>3</sub> CuO NaOH		

Question Number		Sub-section			Mark	Answer	Accept	Neutral answer	Do not accept
FT	HT								
9	3				3	nanosilver has antibacterial / antiviral / antifungal properties / kills germs (1)  could be absorbed through skin / breathed in (1)  long term effects <b>unknown</b> (1)	toxic  could be released into environment		<b>can</b> cause ...

Question Number		
FT	HT	
10	4	<p><b>Indicative content:</b></p> <p><b>copper</b> – good conductor of electricity = electrical wiring; good conductor of heat = saucepan bases; malleable = water pipes; ductile = electrical wiring; attractive colour and lustre = jewellery</p> <p><b>titanium</b> – hard and strong = hip replacements and rotor blades; low density = rotor blades; resistant to corrosion = rotor blades / hip replacements / pipes in chemical industry; high melting point = rotor blades.</p> <p><b>5–6 marks:</b> 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><b>3–4 marks:</b> 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><b>1–2 marks:</b> 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><b>0 marks:</b> The candidate does not make any attempt or give a relevant answer worthy of credit.</p>