

Assessment Schedule – 2005

Science: Describe aspects of chemistry (90189)

Evidence Statement

Q	Achievement	Achievement with Merit	Achievement with Excellence
1(a)(i) 1(a)(ii) 1(a)(iii)	11 12 1 (2 of 3 reqd)		
1(b)(i) 1(b)(ii) 1(b)(iii)	8 2 2,8 in diag. (3 of 3 reqd)		
1(c)	Aluminium is +3 and oxygen is -2 OR Two aluminium ions (not atoms) balance three oxygen ions OR charge on Al ₂ O ₃ is balanced / neutral.	Explanation of 2 to 3 ratio in terms of charge balance OR number of electrons transferred.	
1(d)	K ₂ O Mg(NO ₃) ₂ CaS (NH ₄) ₂ SO ₄ (any TWO)	any THREE (ie at least ONE correct use of brackets)	
1(e)	copper chloride zinc hydroxide potassium fluoride (any TWO)		
1(f)	Next to each other (or equivalent statement eg O in Gp 16 and F in 17) (p) OR O has 6 electrons in outer shell and F has 7 electrons in outer shell. (e) OR F forms -1 ions and O forms -2 ions (i). F gains 1e and O gains 2e. <i>Codes</i> <i>p=position; e= electron config; i = ion formation.</i> <i>p/e/i For BOTH O and F</i>	Link position to ions OR Link position to electron arrangement / atomic number OR Link electron arrangement to ion formation. Eg atomic no. (differs by 1) therefore in adjacent groups / electron arrangement different by 1 electron in outer shell, therefore groups next to each other / ions F ¹⁻ and O ²⁻ as F gains 1e and O gains 2e / group no / F = 17(7) or O = 16(6) gives outer electrons. <i>TWO of p,e or i linked for BOTH O and F</i>	Position is linked to electron configuration / atomic number and ion formation. Eg O has atomic no. 8 (2,6) and F has atomic no. 9 (2,7) so F is alongside O / O in gp 16(6) and F in gp 17(7) : F has 1 more e in its outer shell than O (or equivalent) : F needs 1 e to form F ¹⁻ and O needs 2 e to make O ²⁻ (or equivalent). <i>p:e:i linked together for BOTH O and F</i>

Q	Achievement	Achievement with Merit	Achievement with Excellence
2(a)	Fe = strong, Cu = electrical conductor / ductile, Al = malleable / shiny / high melting point		
2(b)	copper + oxygen → copper oxide OR Cu + O ₂ → CuO All correct (if formulas used they must be correct).		
2(c)(i)	Hydrogen / H ₂		
2(c)(ii)	HCl formula correct.	Fe + HCl → FeCl ₂ + H ₂ All formulae correct (no charges).	Fe + 2HCl → FeCl ₂ + H ₂ All formulae correct and balanced
2(d)(i)	bright white light / (Mg metal) turns to white or grey powder / ash. Not Achieved if any flame colour other than bright or white mentioned.		
2(d)(ii)	Bubbles / fizzing / effervescence / Mg slowly disappears (not dissolved) OR nothing as Mg does not react with water unless it is near boiling.		
2(d)(iii)	Blue is the basic colour of litmus (b) OR The solution is basic / alkaline (s) OR Solution contains Mg(OH) ₂ or OH ⁻ . (h)	TWO Achievement statements linked. TWO of b:s:h	b:s:h Eg: Blue is the basic colour of litmus so the solution is basic because the solution contains Mg(OH) ₂
2(e)	To stop it reacting with water / oxygen OR oil acts as a barrier to keep water / oxygen out.	Sodium reacts with water / oxygen : oil acts as a barrier to keep water / oxygen out (or equivalent statement). Must have the idea that the oil is acting as a barrier not just “that oil stops Na reacting”.	

Q	Achievement	Achievement with Merit	Achievement with Excellence
3(a)(i) (ii)	yellow, green, blue (all required in order) Red		
3(a)(iii)	NaOH increases the pH. OR NaOH neutralizes / cancels out the acid.	NaOH increases the pH by neutralising or cancelling out the acid.	Low pH means more acid (<i>hydrogen ions</i>) : As the NaOH base added, acid is neutralised / cancelled out reaching pH 7 / neutral : more NaOH increases further / pH = 11+. Correct use of 'neutralises' reqd. <i>Reference to H⁺ ions not reqd.</i>
3(b)(i)	The one that fizzes with acid is the carbonate. OR The one that doesn't fizz is the oxide. Note: Do not accept any mention of the oxide producing a gas as an Achievement statement, nor the use of any other equipment or tests.		
3(b)(ii)	Any TWO formulae correct (excluding water). ie TWO of Mg(OH) ₂ , H ₂ SO ₄ , MgSO ₄	Mg(OH) ₂ + H ₂ SO ₄ = MgSO ₄ + H ₂ O ALL formulae correct.	Mg(OH) ₂ + H ₂ SO ₄ = MgSO ₄ + 2H ₂ O ALL correct and balanced.

Judgement Statement

Achievement	Achievement with Merit	Achievement with Excellence
ELEVEN opportunities answered at Achievement (or higher). 11 × A	FOURTEEN opportunities answered with FIVE at Merit (or higher) and NINE at Achievement level. 5 × M plus 9 × A	SIXTEEN opportunities answered with THREE at Excellence level (with at least one balanced equation and one discussion), FOUR at Merit level and NINE at Achievement level. 3 × E plus 4 × M plus 9 × A