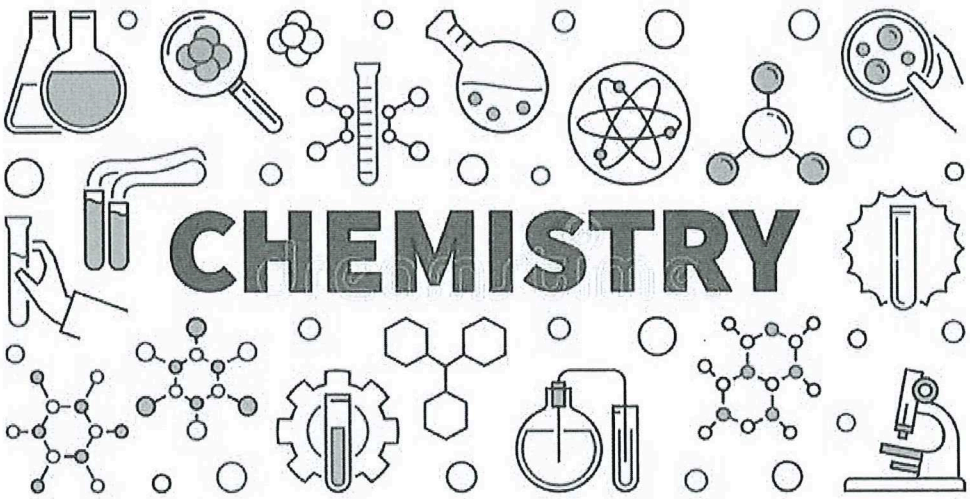


WJEC Chemistry 2

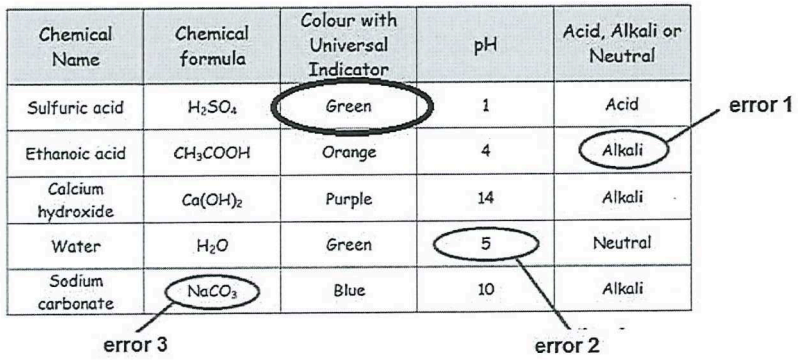
Dual Award – Foundation Tier

2.2 Mark Scheme

Foundation Tier only questions

Question				Marking details	Marks available					
					AO1	AO2	AO3	Total	Maths	Prac
1	(a)	(i)		water / H_2O	1			1		
		(ii)		displacement **(neutralisation)** oxidation reduction do not award if more than one word selected	1			1		1
	(b)	(i)		**1** and **3** / 4 : 28s and 4 :32			1	1	1	1
		(ii)		270 do not accept answers that have **not** used the mean value		1		1	1	
		(iii)		takes the least amount of time / is the fastest (to turn the indicator green / neutralise the acid)			1	1		1
				Question 1 total	**2**	**1**	**2**	**5**	**2**	**3**

Question				Marking details	Marks available					
					AO1	AO2	AO3	Total	Maths	Prac
6				**Indicative content** Stage 1 • excess copper(II) carbonate added to the sulfuric acid (description) • to ensure all of the acid is used up / neutralised (explanation) • fizzing / solution turns blue (description) • CO_2 formed (explanation) • word equation / symbol equation (explanation) Stage 2 • mixture is filtered (description) • excess copper(II) carbonate is removed (explanation) Stage 3 • solution is heated / left in a warm place / left on windowsill (description) • water evaporates / copper(II) sulfate crystals form (explanation)	6			6		6
				5-6 marks Good description of all three stages, including explanations and equation *There is a sustained line of reasoning which is coherent, relevant, substantiated and logically structured. The candidate uses appropriate scientific terminology and accurate spelling, punctuation and grammar.* **3-4 marks** Basic description of all three stages, attempt at explanation *There is a line of reasoning which is partially coherent, largely relevant, supported by some evidence and with some structure. The candidate uses mainly appropriate scientific terminology and some accurate spelling, punctuation and grammar.* **1-2 marks** Basic description of the process *There is a basic line of reasoning which is not coherent, largely irrelevant, supported by limited evidence and with very little structure. The candidate uses limited scientific terminology and inaccuracies in spelling, punctuation and grammar.* **0 marks** *No attempt made or no response worthy of credit.*						
				Question 6 total	**6**	**0**	**0**	**6**	**0**	**6**

Question				Marking details	Marks available					
					AO1	AO2	AO3	Total	Maths	Prac
2	*(a)*	(i)		correction 1 – (should be) acid (1) correction 2 – (should be pH) 7 (1) correction 3 – (should be) Na_2CO_3 (1) award credit for correct corrections in any order	1 1	1		3		3
		(ii)		 'green' circled do not accept more than one circled		1		1		1
	(b)	(i)		carbon dioxide / CO_2 (1) barium chloride / $BaCl_2$ (1)	2			2		2
		(ii)		<u>limewater</u> goes <u>milky</u> accept alternative descriptions to milky e.g. turns white / cloudy	1			1		1

Question				Marking details	Marks available					
					AO1	AO2	AO3	Total	Maths	Prac
	(c)	(i)	I	**C**		1		1		
			II	33		1		1	1	
		(ii)		exothermic	1			1		
	(d)	(i)		magnesium sulfate		1		1		
		(ii)		lit splint goes pop accept burning splint do not accept glowing splint	1			1		1
		(iii)	I	Zn^{2+} **and** Cl^-	1			1		
			II	$ZnCl_2$ do not allow ECF from part I		1		1		
				Question 2 total	**8**	**6**	**0**	**14**	**1**	**8**

Question				Marking details	Marks available					
					AO1	AO2	AO3	Total	Maths	Prac
7/2	(a)	(i)		**A** magnesium / Mg (1) **B** carbon dioxide / CO_2 (1)		2		2		
		(ii)		**C** $CuCl_2$ (1) **D** H_2O (1) neutral answers – names of compounds **C** and **D**		2		2		
	(b)			**2**HCl + **Na_2CO_3** → 2NaCl + H_2O + CO_2 award (1) for correct formula award (1) for balancing mark independently – balancing mark can be awarded even if the formula is incorrect		2		2		
	(c)	(i)		white precipitate / solid (forms)	1			1		1
		(ii)		$Ag^+(aq) + Cl^-(aq) \longrightarrow AgCl(aq)$ ☐ $Ag^-(aq) + Cl^+(aq) \longrightarrow AgCl(aq)$ ☐ $Ag^+(aq) + Cl^-(aq) \longrightarrow AgCl(s)$ ✓ $Ag^+(s) + Cl^-(s) \longrightarrow AgCl(s)$ ☐ $Ag^-(aq) + Cl^+(aq) \longrightarrow AgCl(s)$ ☐			1	1		
				Question 7/2 total	**1**	**6**	**1**	**8**	**0**	**1**

Question				Marking details	Marks available					
					AO1	AO2	AO3	Total	Maths	Prac
5	(a)	(i)		F → B → E → A → D → C award (2) for all stages in correct order award (1) for stage **B** in correct place	2			2		2
		(ii)		**E** (1) likely to overshoot the end-point / add too much acid / go past the point of neutralisation / miss colour change (1)	2			2		2
	(b)	(i)		sulfuric acid accept H_2SO_4		1		1		
		(ii)		K_2SO_4		1		1		
				Question 5 total	**4**	**2**	**0**	**6**	**0**	**4**