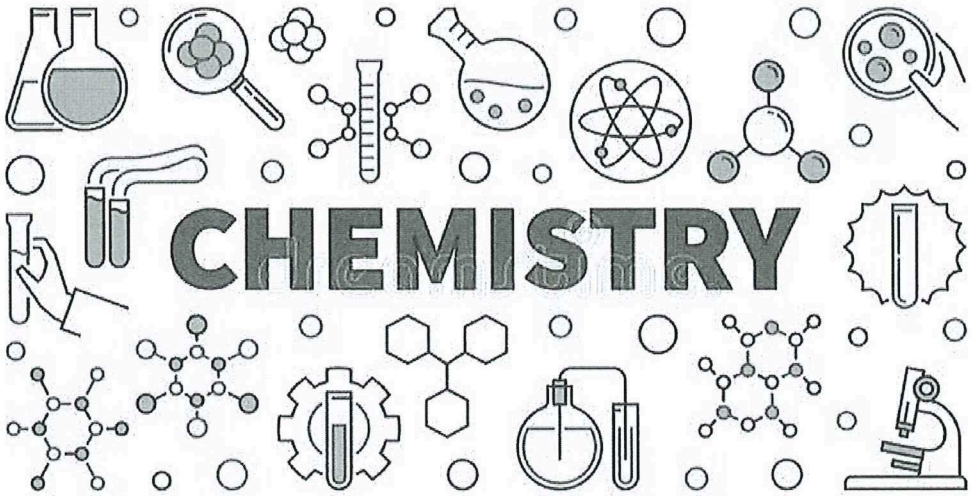
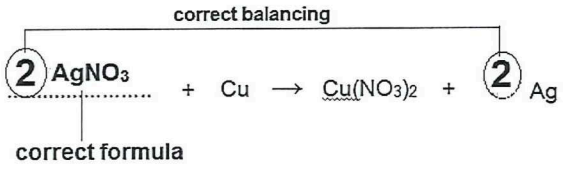


WJEC Chemistry 2

Dual Award – Foundation Tier

2.4 Mark Scheme

Question				Marking details	Marks available					
					AO1	AO2	AO3	Total	Maths	Prac
2	(a)	(i)		(a reaction that) gives out / releases heat accept 'temperature increases'	1			1		1
		(ii)	I	aluminium / Al do not accept aluminium oxide		1		1		
			II	accept any of following • removal of oxygen • loss of oxygen • to take away oxygen accept correct reference to gain of electrons	1			1		
		(iii)		aluminium is more reactive than chromium / chromium is less reactive than aluminium accept aluminium is more reactive / chromium is less reactive		1		1		

Question				Marking details	Marks available					
					AO1	AO2	AO3	Total	Maths	Prac
	(b)	(i)		colour change / goes blue – due to <u>copper nitrate</u> (1) <u>silver</u> (metal) forms / <u>silver</u> (metal) coats the copper (1) award (1) for reference to colour change **and** metal/solid forming without naming products references to exothermic / fizzing are neutral			2	2		2
		(ii)		 award (1) for correct formula for silver nitrate award (1) for correct balancing only if formula is correct accept $Ag(NO_3)$ as correct formula		2		2	1	
				Question 2 total	**2**	**4**	**2**	**8**	**1**	**3**

Question				Marking details	Marks available					
					AO1	AO2	AO3	Total	Maths	Prac
8/2	(a)			3466 (2) if incorrect award (1) for indication of correct bonds formed e.g. (4 × O—H) and (2 × C=O) / (4 × 464) and (2 × 805)		2		2	2	
	(b)			818 / −818 (1) ecf possible from part (a) award (1) for any of following explanations • more energy is released than taken in • more energy out than energy in • energy out is bigger than energy in • overall change is negative (if −818 calculated)		2		2	1	
				Question 8/2 total	**0**	**4**	**0**	**4**	**3**	**0**

Question				Marking details	Marks available					
					AO1	AO2	AO3	Total	Maths	Prac
2	(a)	(i)		measuring cylinder (1) thermometer (1)	2			2		2
		(ii)		award (1) for either of following repeat the method compare results with another group	1			1		1
		(iii)		exothermic		1		1		1
	(b)	(i)		436 + 243 accept either of following add H—H and Cl—Cl add the first two numbers		1		1		
		(ii)		864 (2) if incorrect award (1) for 2 × 432 / 2 × H—Cl		2		2		
		(iii)		**c** (1) **d** (1)	2			2		
				Question 2 total	**5**	**4**	**0**	**9**	**0**	**4**

Question				Marking details	Marks available					
					AO1	AO2	AO3	Total	Maths	Prac
3	(a)	(i)		same concentration / strength (1) same temperature (1) neutral answer - reference to volume or amount of acid	2			2		2
		(ii)		**B** **A** **D** **C** order correct (1) award (1) for any of following the more reactive (the metal) the more bubbles / fizzing the less reactive (the metal) the less bubbles / fizzing the most reactive (metal) has the most bubbles / fizzing the least reactive (metal) has the least bubbles / fizzing accept reference to **B** having the <u>most</u> bubbles or **C** having <u>no bubbles</u> / the <u>least</u> bubbles if correct order given		2		2		2

Question				Marking details	Marks available					
					AO1	AO2	AO3	Total	Maths	Prac
	(b)	(i)		thermometer is not in the acid / solution / in the air (1) award (1) for any of following will not measure the <u>temperature</u> of the reaction mixture / acid / solution will measure the <u>temperature</u> of the air will not get a <u>temperature</u> rise / change <u>temperature</u> will be lower than expected <u>temperature</u> recording will be incorrect neutral answers unreliable / inaccurate results thermometer gives wrong reading different temperature			2	2		2
		(ii)	I	metal **D** test **2** **both** needed accept correct answer circled in table		1		1		1
			II	23 accept 22 / 24 accept correct answer written in table		1		1	1	1
			III	accept any value in the range 14.1 to 21.9 accept any range that falls within this range e.g. 15-21			1	1	1	

Question				Marking details	Marks available					
					AO1	AO2	AO3	Total	Maths	Prac
	(c)	(i)		$Mg + \boxed{2}\ HCl \longrightarrow MgCl_2 + H_2$ award (1) for formula award (1) for balancing only if formula is correct		2		2		
		(ii)		magnesium nitrate accept $Mg(NO_3)_2$		1		1		
				Question 3 total	**2**	**7**	**3**	**12**	**2**	**8**