



WJEC Chemistry 1
Option – Higher Tier
1.6 Mark Scheme

Question	Marking details	Marks available					
		AO1	AO2	AO3	Total	Maths Prac	
4	(a)	award (1) mark for each linked 'action' and 'explanation' – (2) max if no credit awarded for linked action and explanation award (1) for two actions or two explanations action explanation blasting dust blasting noise (heavy) traffic / lorries congestion / noise / air pollution more carbon dioxide / damage to buildings landscape destruction eyesore / unsightly / visual pollution habitat destruction loss of wildlife agricultural land taken less crops grown unsustainable non-renewable resource promise of landscaping only takes place once quarry is depleted house prices fall linked to any of above	2			2	
	(b)	$\text{CaCO}_3 \rightarrow \text{CaO} + \text{CO}_2$		1		1	
	(c)	2/40 : 2.8/28 (1) 0.05 : 0.1 0.5 : 1 (1) 1 : 2 CaSi_2 (1)				1	
		Question 4 total	2	4	0	6	0

Question	Marking details	Marks available					
		AO1	AO2	AO3	Total	Maths	Prac
6	<p>Indicative content</p> <p>limestone / calcium carbonate is heated <u>strongly</u> to convert into quicklime / calcium oxide glows orange / becomes softer left to cool and small amount of water is added to quicklime to produce slaked lime / calcium hydroxide fizzing / hissing / exothermic reaction solid crumbles</p> <p>calcium carbonate → calcium oxide + carbon dioxide $\text{CaCO}_3 \rightarrow \text{CaO} + \text{CO}_2$</p> <p>calcium oxide + water → calcium hydroxide $\text{CaO} + \text{H}_2\text{O} \rightarrow \text{Ca}(\text{OH})_2$</p> <p>5-6 marks Gives methods and observations, balanced symbol equations <i>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.</i></p> <p>3-4 marks Some details of methods and observations; attempt at symbol equations <i>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.</i></p> <p>1-2 marks Some details of method or observations; attempt at word equations <i>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.</i></p> <p>0 marks No attempt made or no response worthy of credit.</p>	6			6		3
Question 6 total		6	0	0	6	0	3

10/2	Question	Marking details	Marks available					
			AO1	AO2	AO3	Total	Maths	Prac
	(a)	(thermal) decomposition	1			1		1
	(b)	(i) it glows (ii) $\text{CaCO}_3 \rightarrow \text{CaO} + \text{CO}_2$ award (1) for CaCO_3 award (1) for CaO and CO_2	1			1		1
	(c)	(i) award (1) for any of following • steam released • hissing • expands • crumbles (ii) $\text{CaO} + \text{H}_2\text{O} \rightarrow \text{Ca(OH)}_2$ award (1) for CaO and H_2O award (1) for Ca(OH)_2	1	2		2		1
		Question 10/2 total	3	4	0	7	0	3

Common questions

Question	Marking details	Marks available								
		AO1	AO2	AO3	Total	Maths	Prac			
9/1	(a)	(i)	I	(thermal) decomposition	1			1		
			II	$\text{CaCO}_3 \rightarrow \text{CaO} + \text{CO}_2$						
				award (1) for reactant award (1) for products		2		2		1
				ignore any attempt at balancing						
		(ii)		water	1			1		
	(b)			award (1) for any of following making cement / concrete / plaster making iron / steel road building in statues				1		
				neutral answers – building / building houses / buildings						
				Question 9/1 total	3	2	0	5	0	2

Question		Marking details	Marks available						
			AO1	AO2	AO3	Total	Maths	Prac	
4	(a)	(i)	decomposition	1			1		
		(ii)	award (1) for each of following <ul style="list-style-type: none"> steam formed / spits / fizzing / bubbles / effervescence (chip) expands / puffs up / cracks open / breaks up / crumbles neutral answers gas given off exothermic	2			2		2
		(iii)	reactant CaO product Ca(OH) ₂ both needed for (1) ignore any attempt at balancing		1		1		
	(b)	(i)	0.040 (2) if incorrect award (1) for $\frac{2.96}{74}$ in method		2		2	2	
		(ii)	calcium hydroxide is an alkali / a base / has pH 11 (1) accept pH values from 8-14 neutralises acid in soil (1) accept removes acidity from soil / cancels out acid in soil / raises pH of soil	2			2		2
			Question 4 total	5	3	0	8	2	4