

Analysing substances – Mark scheme

1.	(a)	sodium carbonate / sodium hydrogencarbonate / sodium bicarbonate $Na_2CO_3 / NaHCO_3$ <i>Ie sodium / sodium ions (1 mark)</i> <i>carbonate / carbonate ions (1 mark)</i> <i>incorrect formula including Na and $CO_3 = 1$ mark</i>	2	
	(b)	calcium chloride $CaCl_2$ <i>Ie calcium / calcium ions (1 mark)</i> <i>chloride / chloride ions (1 mark)</i> <i>incorrect formula including Ca and Cl = 1 mark</i>	2	
	(c)	iron or iron(II) ions Fe^{2+} ferrous ions <i>ignore anions</i> <i>ignore nickel / chromium</i> <i>do not accept iron(III) or ferric ions</i>	1	
				[5]
2.	(a)	copper sulfate → blue precipitate iron(II) sulfate → green precipitate	1 1	
	(b)	eg some idea of contamination <i>allow so you can see the colour change clearly / easily</i>		
	or	give misleading / incorrect results / lead to wrong conclusion <i>allow to get accurate / reliable results</i> <i>ignore fair test</i>	1	
	(c)	white	1	[4]
3.	(a)	pipette / burette	1	
	(b)	named indicator eg methyl orange / phenolphthalein not universal; accept litmus but not litmus paper	1	
	(c)	$\frac{25 \times 0.4}{1000}$ 2 for correct answer = 0.011	1	
	(d)	1KOH ≡ 1 HCl ∴ 0.01 moles HCl in 35 cm ³ ∴ $\frac{0.01 \times 1000}{35} = 0.29$ 2 for correct answer 0.3 = (1) (with correct working = (2))	1 1	[6]