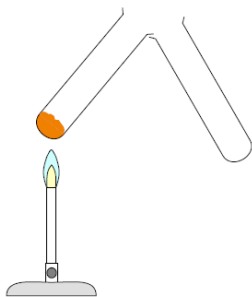


ACTIVITY 6a – AO3 in Exams

UNIT 3, Q1

Question number	Answer	Additional guidance	Mark
1(a)	<ul style="list-style-type: none"> correct balanced equation 	Example of correct equation: $(\text{NH}_4)_2\text{CO}_3 \rightarrow 2\text{NH}_3 + \text{H}_2\text{O} + \text{CO}_2$ Allow multiples H_2CO_3 for $\text{H}_2\text{O} + \text{CO}_2$ Ignore state symbols even if incorrect	(1)

Question Number	Answer	Additional guidance	Mark
1(b)	<p>For ammonia</p> <ul style="list-style-type: none"> test: reaction with hydrogen chloride / HCl(g) (1) result: white smoke (1) <p>For water</p> <ul style="list-style-type: none"> test: add (anhydrous) copper(II) sulfate or cobalt(II) chloride (1) result: white to blue or blue to pink (1) <p>For carbon dioxide</p> <ul style="list-style-type: none"> test: (add / add to) lime water or (saturated) solution of calcium hydroxide (1) result: any indication that a white suspension is formed (1) 	For all the tests ignore indicators If name and formula given both must be correct Observation marks are dependent on test Allow (add /introduce / place next to) HCl If HCl(aq) / conc HCl is used a suitable method is needed e.g. dipping a glass rod into HCl(aq) or opening a bottle of HCl(aq) close to the ammonia. Do not award 'add hydrochloric acid' / HCl(aq) / other hydrogen halides but allow the result mark Allow white fumes / white solid Do not award steamy / misty fumes / precipitate /cloud Accept CuSO_4 / CoCl_2 If start & finish colours are given both must be correct Allow just CuSO_4 turns blue or CoCl_2 turns pink Allow observation mark if CuSO_4 / CoCl_2 solutions are used Do not award CoCl_2 turns red Ignore boiling temperature measurement Accept $\text{Ca(OH)}_2(\text{aq})$ turns cloudy / turns milky / white precipitate forms	(6)

Question number	Answer	Additional guidance	Mark
1(c)	Diagram showing collecting test tube angled down with mouth of the tube close to and below that of the heated test tube	Example of diagram:  ALLOW angles to the vertical 0—75° Ignore lime water in collecting tube Do not award if additional apparatus used e.g. delivery tube. Do not award if horizontal distance between test tube lips >1cm	(1)

Question number	Answer	Additional guidance	Mark
1(d)(i)	<p>An answer that makes reference to the following points:</p> <ul style="list-style-type: none"> white and precipitate (forms) (1) identifies the precipitate as barium carbonate (1) 	<p>Ignore subsequent tests in (i) and (ii)</p> <p>Allow white solid / crystals</p> <p>Accept formula BaCO₃</p> <p>If name and formula are given, both must be correct</p> <p>Ignore ammonium chloride (and water) if the precipitate is clearly identified</p>	(2)

Question number	Answer	Additional guidance	Mark
1(d)(ii)	<p>An answer that makes reference to the following points:</p> <ul style="list-style-type: none"> effervescence (precipitate dissolves) (1) carbon dioxide (is evolved) (1) 	<p>Accept bubbling / bubbles / fizzing</p> <p>Ignore gas evolves</p> <p>Accept formula CO₂</p> <p>Ignore barium chloride / BaCl₂ (product)</p> <p>ammonium chloride / NH₄Cl</p> <p>water / H₂O</p>	(2)