

TESTS FOR GASES, CATIONS AND ANIONS 2

MARK SCHEMES

Q1.

Question	Answers	Extra information	Mark
(i)	carbonate (ions) give (white) ppt (with silver nitrate)	credit cannot be obtained for incorrect reactions	1
	(nitric) acid reacts with / removes / displaces carbonate (ions)		1
(ii)	hydrochloric acid is a chloride / contains chloride (ions) / Cl ⁻	accept hydrochloric acid reacts with silver nitrate do not accept chlorine	1
Total			3

Q2.

Question	Answers	Extra information	Mark
(a)(i)	Yellow		1
(ii)	lilac		1
(iii)	melting point		1
(b)(i)	barium chloride		1
	solid		1
(ii)	White		1
	dissolved		1
(c)	any two from:	apply list principle	2
	yellow = sodium (alum)	allow orange or yellow orange	

	lilac = potassium (alum) colourless = ammonium (alum)	allow purple if no colours given, allow 'different coloured flames' for 1 mark	
Total			9

Q3.

Question	Answers	Extra information	Mark
(i)	hydrochloric acid / HCl	accept any (named) acid	1
	carbon dioxide / CO ₂	accept bubbles / fizz / gas or limewater gets milky ignore add limewater do not accept other named gases 2nd mark dependent on first mark accept for this answer only heat gives CO ₂ / limewater milky = 1 mark	1
(ii)	(white) precipitate / solid	ignore names of substances even if incorrect accept white deposit / substance do not accept any coloured precipitate	1
(iii)	e.g. flame colour of (Na) and flame colour of (K) interfere / mask / mix with each other	accept can't see the colours' or difficult to determine the colour or both produce different colours or a correct statement of colours or hard to distinguish	1
Total			4

Q4.

Question	Answers	Extra information	Mark
(a)(i)	get wrong coloured flame/result owtte or to get the correct result	allow contaminated	1
(ii)	high melting point unreactive		1 1
(iii)	yellow-orange		1
(b)(i)	bubbles / fizz /	ignore any named gas	1

	effervescence		
(ii)	milky		1
Total			6

Q5.

Question	Answers	Extra information	Mark
(i)	<p>Na₂CO₃: HCl → (odourless) gas (1) CO₂ / carbon dioxide (1)</p> <p>NaCl: AgNO₃ → white ppt (1) silver chloride (1)</p> <p>NaNO₃: Al + NaOH → pungent /sharp smell / choking gas (1) NH₃ / ammonia (1)</p> <p>Na₂SO₄: BaCl₂ → white ppt (1) barium sulfate (1)</p>	<p>each correct test and one result = 1 mark one other result for any test = 1 mark this mark can only be awarded once</p>	<p>1</p> <p>1</p> <p>1</p> <p>1</p> <p>1</p>
(ii)	<p>all would give a yellow / yellow-orange (flame) / same coloured (flame) / same results</p> <p>or</p> <p>they all contain sodium owtte</p>	allow orange (flame)	1
Total			6