

Identification of Ions and Gases

Mark Scheme 3

Level	IGCSE
Subject	Chemistry
Exam Board	CIE
Topic	Acids, Bases and Salts
Sub-Topic	Identification of Ions and Gases
Paper Type	Alternative to Practical
Booklet	Mark Scheme 3

Time Allowed: 57 minutes

Score: /47

Percentage: /100

1 tests on solid **E**

- (c) (i)** white (1)
precipitate (1)
with excess dissolves/clears/colourless (1) [3]
- (ii)** white precipitate (1)
insoluble/no change (in excess) (1) [2]
- (d)** contains water/hydrated (1) [1]
- (e)** ammonia (1) not ammonium [1]
- (f)** nitrate (1)
hydrated salt (1)
not a sulfate (1) max [2] [2]

- 2 (a) (i) blue (1) [1]
 (ii) blue (1) precipitate (1) [2]
 (iii) blue precipitate (1)
 deep / royal blue (1) solution (1) or precipitate dissolves [3]
- (c) sulfuric acid (2) acid or sulfate only (1) [2]

[Total: 8]

- 3 (a) add dilute acid (1) fizz, no fizz (1) or correct chloride test [2]
- (b) litmus paper/named indicator (1) turns blue (1) bleached (1) [3]
- (c) sodium hydroxide/ammonia (solution) (1) green (precipitate) (1)
 brown (precipitate) (1) [3]

4 tests on solid **S**

- (c) blue precipitate (1) [1]
 (ii) blue (1) precipitate (1) [2]
 dissolves/clears (1) deep/royal blue (1) [2]
 (iii) white (1) precipitate (1) [2]
- (f) **V** is more reactive or converse (1) [1]
 (ii) oxygen (1) [1]
- (g) catalyst/transition metal/manganese oxide any two points (2)
V is a better catalyst = 2 [2]

- 5 (a) (conical) flask (1) (gas) syringe (1) [2]
- (b) to stop loss of gas owtte/stop mixing/so that they don't react [1]
- (c) glowing splint (1) relights (1)
lighted splint = 0 ignore 'pops' [2]
- 6 (a) add aluminium/Devarda's alloy and sodium hydroxide (warm) (1)
ammonia/alkaline gas formed/turns red litmus blue (1)
for a 'near miss' in reagents allow a mark for ammonia [2]
- (b) boiling point (1) 100°C (1) [2]
- (c) bromine (water) (1)
goes colourless (1)
not clear [2]