Practice Question Set For A-Level
Subject : Chemistry
Paper-1 Topic: Inorganic 1

Merit Minds
www.merit-minds.com
Exam Preparation and Free Resources

Name of the Student:_____
Max. Marks : 19 Marks **Time : 19 Minutes**

Mark Schemes

Q1.

(a) $NaCl + H_2SO_4 \rightarrow NaHSO_4 + HCl$

Allow 2 NaCl + $H_2SO_4 \rightarrow Na_2SO_4 + 2\ HCl$

1

Proton donor

Allow (Bronsted-Lowry) acid

1

(b) $2\ NaBr + 2\ H_2SO_4 \rightarrow Na_2SO_4 + SO_2 + Br_2 + 2\ H_2O$
Or
$2\ NaBr + 3\ H_2SO_4 \rightarrow 2\ NaHSO_4 + SO_2 + Br_2 + 2\ H_2O$
Or
$2\ H^+ + 2\ Br^- + H_2SO_4 \rightarrow SO_2 + Br_2 + 2\ H_2O$
Or
$4\ H^+ + 2\ Br^- + SO_4^{2-} \rightarrow SO_2 + Br_2 + 2\ H_2O$

Ignore 2 NaBr + $H_2SO_4 \rightarrow Na_2SO_4 + 2\ HBr$
Ignore NaBr + $H_2SO_4 \rightarrow NaHSO_4 + HBr$

1

brown gas or brown fumes or orange gas or orange fumes

Do not accept yellow solid
Ignore fizzing and misty fumes

1

Oxidising agent

Allow electron acceptor
Ignore acid / proton donor

1

(c) (+)5 and -1

1

(d) Is oxidised and reduced

Allow undergoes disproportionation
Allows gains and loses electrons

1

(e) D AgBr

Ignore state symbols

1

E Ag_2CO_3

1

Downloaded from www.merit-minds.com

F CO_2

1

$2\ Ag^+ + CO_3^{2-} \rightarrow Ag_2CO_3$

1

$AgBr + 2\ NH_3 \rightarrow Ag(NH_3)_2^+ + Br^-$

Or → $Ag(NH_3)_2Br$

One mark for $Ag(NH_3)_2^+$ and 1 mark for equation

If D = AgCl, then allow 2 marks for

$AgCl + 2\ NH_3 \rightarrow Ag(NH_3)_2^+ + Cl^-$

2

[13]

Downloaded from www.merit-minds.com

Q2.

Marks awarded for this answer will be determined by the quality of written communication as well as the standard of the scientific response. Examiners should apply a 'best-fit' approach to the marking. **Additional tests limits to lower mark within a level.** This would include, for example, adding silver nitrate to the already identified sodium carbonate. Use of hydrochloric acid with silver nitrate also limits to lower mark within a level as this would not be a logical sequence/method that would work.	
Level 3 5-6 marks	All stages are covered and each stage is generally correct and virtually complete. Answer is communicated coherently and shows a logical progression from Stage 1 to Stages 2 and 3 to identify all three compounds in a logical sequence with results and equations for all compounds stated. **Covers 2 tests with matching observations, conclusions and equations**
Level 2 3-4 marks	All stages are covered but stage(s) may be incomplete or may contain inaccuracies OR two stages are covered and are generally correct and virtually complete. Answer is communicated mainly coherently and shows a logical progression from Stage 1 to Stages 2 and 3. **Covers 2 compounds** Isolated tests on named compounds – max LEVEL 2
Level 1 1-2 marks	Two stages are covered but stage(s) may be incomplete or may contain inaccuracies OR only one stage is covered but is generally correct and virtually complete. Answer includes isolated statements but these are not presented in a logical order.

Indicative Chemistry Content

Stage 1 Suggested tests
1a Add named acid to all 3
1b Add water / make into a solution
1c Add $AgNO_3$
Ignore addition of NH_3 / Ignore additional test for CO_2 produced

Stage 2 Expected observations - conclusions
2a Na_2CO_3 will fizz with acid
2b NaCl gives white ppt with $AgNO_3$
2c NaF shows no (visible) change / no ppt
Additional incorrect observations loses point

Stage 3 Equations – state symbols must match method
3a $Na_2CO_3 + 2HNO_3 \rightarrow 2NaNO_3 + CO_2 + H_2O$ … or ionic
3b $AgNO_3 + NaCl \rightarrow AgCl + NaNO_3$
… or ionic
3c correct state symbols

[6]

Downloaded from www.merit-minds.com