Practice Question Set For A-Level
Subject : Chemistry
Paper-1 Topic: Inorganic 2

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Name of the Student:_____
Max. Marks : 14 Marks **Time : 14 Minutes**

Mark Schemes

Q1.

(a) Brown ppt/solid

1

Gas evolved/effervescence

1

$2[Fe(H_2O)_6]^{3+} + 3CO_3^{2-} \rightarrow 2Fe(H_2O)_3(OH)_3 + 3CO_2 + 3H_2O$

Must be stated, Allow CO_2 evolved. Do not allow CO_2 alone
Correct iron product (1) allow $Fe(OH)_3$ and in equation
Balanced equation (1)

2

(b) White ppt/solid

1

Colourless Solution

Only award M2 if M1 given or initial ppt mentioned

1

$[Al(H_2O)_6]^{3+} + 3OH^- \rightarrow Al(H_2O)_3(OH)_3 + 3H_2O$

Allow $[Al(H_2O)_6]^{3+} + 3OH^- \rightarrow Al(OH)_3 + 6H_2O$

1

$Al(H_2O)_3(OH)_3 + 3OH^- \rightarrow [Al(OH)_6]^{3-} + 3H_2O$

Allow formation of $[Al(H_2O)_{6-x}(OH)_x]^{(x-3)-}$ where x = 4,5,6
Allow product without water ligands
Allow formation of correct product from $[Al(H_2O)_6]^{3+}$

1

(c) Blue ppt/solid

1

(Dissolves to give a) deep blue solution

Only award M2 if M1 given or initial ppt mentioned

1

$[Cu(H_2O)_6]^{2+} + 2NH_3 \rightarrow Cu(H_2O)_4(OH)_2 + 2NH_4^+$

Allow $[Cu(H_2O)_6]^{2+} + 2NH_3 \rightarrow Cu(OH)_2 + 2NH_4^+ + 4H_2O$
Allow two equations: $NH_3 + H_2O \rightarrow NH_4^+ + OH^-$
then $[Cu(H_2O)_6]^{2+} + 2OH^- \rightarrow Cu(OH)_2 + 4H_2O$ etc

1

$Cu(H_2O)_4(OH)_2 + 4NH_3 \rightarrow [Cu(H_2O)_2(NH_3)_4]^{2+} + 2OH^- + 2H_2O$

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Allow $[Cu(H_2O)_6]^{2+} + 4NH_3 \rightarrow [Cu(H_2O)_2(NH_3)_4]^{2+} + 4H_2O$

1

(d) Green/yellow <u>solution</u>

1

$[Cu(H_2O)_6]^{2+} + 4Cl^- \rightarrow [CuCl_4]^{2-} + 6H_2O$

1

[14]

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