

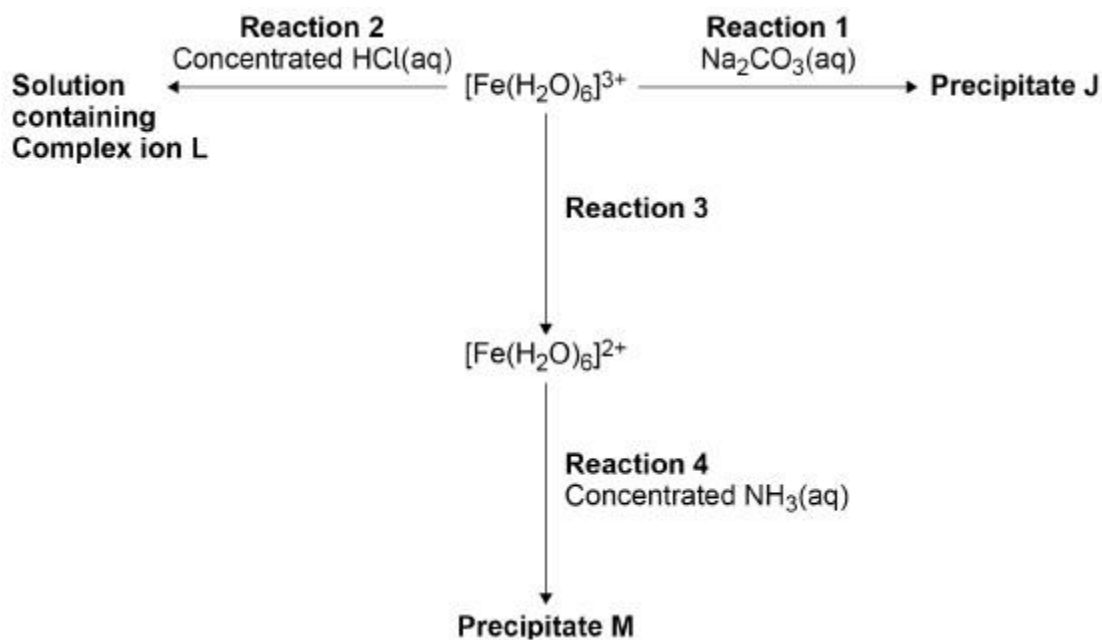
Name of the Student: _____

Max. Marks : 23 Marks

Time : 23 Minutes

Q1.

The diagram shows some reactions of aqueous iron ions.



- (a) Give the formula of **Precipitate J** and state its colour.

Give an equation for **Reaction 1**.Formula of **J** _____

Colour _____

Equation _____

(3)

- (b) Give the formula of **L** and an equation for **Reaction 2**.

Formula of **L** _____

Equation _____

(2)

- (c) Suggest a reagent for **Reaction 3**.

(2)

- Colour

- You should draw the structures of the examples chosen.

[illegible]

(Total 14 marks)

Q2.

- (a) When anhydrous aluminium chloride reacts with water, solution **Y** is formed that contains a complex aluminium ion, **Z**, and chloride ions.

Give an equation for this reaction.

(1)

- (b) Give an equation to show how the complex ion **Z** can act as a Brønsted–Lowry acid with water.

(1)

- (c) Describe **two** observations you would make when an excess of sodium carbonate solution is added to solution **Y**.

Give an equation for the reaction. In your equation, include the formula of each complex aluminium species.

Observation 1 _____

Observation 2 _____

Equation _____

(3)

- (d) Aqueous potassium hydroxide is added, until in excess, to solution **Y**.

Describe **two** observations you would make.

For each observation give an equation for the reaction that occurs.

In your equations, include the formula of each complex aluminium species.

Observation 1 _____

Equation 1 _____

Observation 2 _____

Equation 2 _____

(4)

(Total 9 marks)