

Section B

Answer **all** questions in the spaces provided.

6 Aqueous metal ions can be identified by test-tube reactions.

For each of the following, describe what you would observe.

Write an equation or equations for any reactions that occur.

6 (a) The addition of aqueous sodium carbonate to a solution containing $[\text{Fe}(\text{H}_2\text{O})_6]^{3+}(\text{aq})$ ions.

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(4 marks)

6 (b) The addition of aqueous sodium hydroxide, dropwise until in excess, to a solution containing $[\text{Al}(\text{H}_2\text{O})_6]^{3+}(\text{aq})$ ions.

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(4 marks)



- 6 (c)** The addition of dilute aqueous ammonia, dropwise until in excess, to a solution containing $[\text{Cu}(\text{H}_2\text{O})_6]^{2+}(\text{aq})$ ions.

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(4 marks)

- 6 (d)** The addition of concentrated hydrochloric acid, dropwise until in excess, to a solution containing $[\text{Cu}(\text{H}_2\text{O})_6]^{2+}(\text{aq})$ ions.

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(2 marks)

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Turn over for the next question

Turn over ►

