

**5** This question is about test-tube reactions of some ions in aqueous solution.

For each reaction in parts **(a)** to **(d)**, state the colour of the original solution.  
State what you would observe after the named reagent has been added to the solution.  
In each case, write an equation for the reaction that occurs.

**5 (a)** An excess of dilute sulfuric acid is added to a solution containing  $\text{CrO}_4^{2-}$  ions.

Colour of original solution .....

Observation after an excess of reagent has been added .....

.....

Equation

.....

(3 marks)

**5 (b)** Sodium hydroxide solution is added to a solution containing  $[\text{Fe}(\text{H}_2\text{O})_6]^{3+}$  ions.

Colour of original solution .....

Observation after reagent has been added .....

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Equation

.....

(3 marks)

**5 (c)** An excess of ammonia solution is added to a solution containing  $[\text{Cu}(\text{H}_2\text{O})_6]^{2+}$  ions.

Colour of original solution .....

Observation after an excess of reagent has been added .....

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Equation

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(3 marks)



**5 (d)** Sodium carbonate solution is added to a solution containing  $[\text{Al}(\text{H}_2\text{O})_6]^{3+}$  ions.

Colour of original solution .....

Observations after reagent has been added .....

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.....

.....

Equation

.....

(4 marks)

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**Turn over for the next question**

**Turn over ►**

