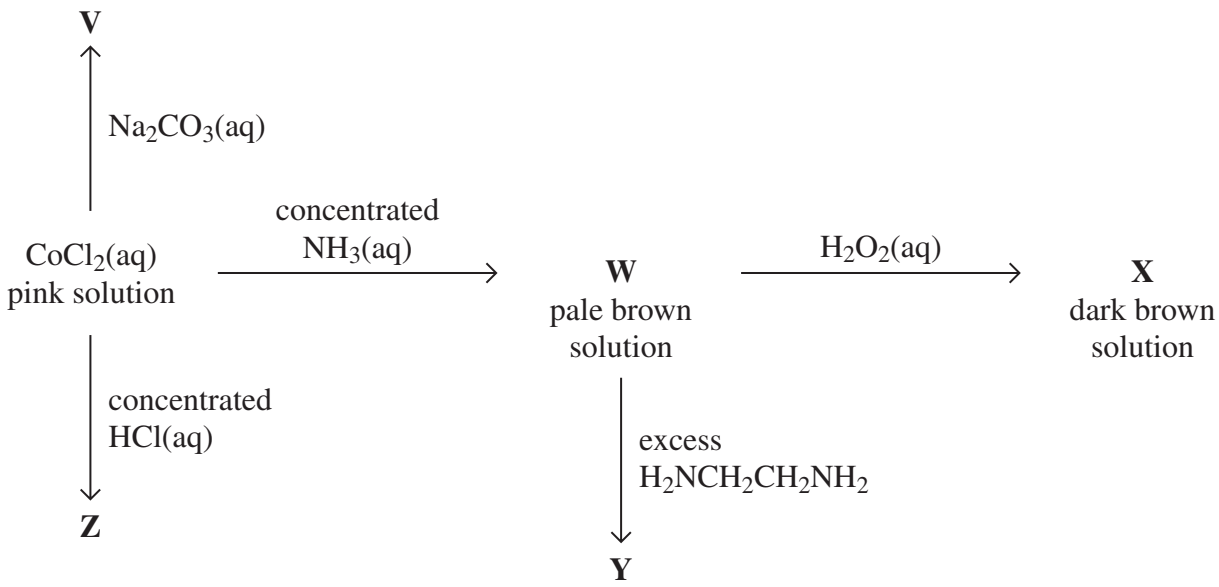
7 This question is about some reactions of cobalt compounds.



7 (a) Give the formula of the complex responsible for the pink colour in aqueous $CoCl_2$ and name its shape.

Formula .....

Name of shape .....

(2 marks)

7 (b) Give the formula of the cobalt-containing compound **V** and describe its appearance.

Formula .....

Appearance .....

(2 marks)

7 (c) Write an equation for the reaction that occurs when the pink solution is converted into **W**.

.....

(2 marks)

7 (d) Give the formula of the cobalt-containing complex in **X** and state the role of the H_2O_2 in this reaction.

Formula .....

Role of H_2O_2 .....

(2 marks)

7 (e) Give the formula of the cobalt-containing complex in **Y** and explain why this complex is more stable than the cobalt-containing complex in **W**.

Formula .....

Explanation .....

.....

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(3 marks)

7 (f) Identify the cobalt-containing complex in solution **Z** and explain why its co-ordination number is different from that in the pink solution of $CoCl_2$

Complex .....

Explanation .....

.....

(2 marks)

13

Turn over for the next question