

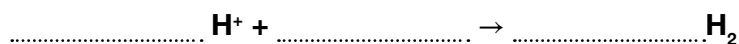
The electrolysis of aqueous solutions

① State the products formed when the following **aqueous** solutions undergo electrolysis. (4 marks, ★★★)

- a **Copper(II) chloride**
- b **Potassium bromide**
- c **Zinc(II) sulfate**
- d **Sodium carbonate**

② When a solution of sodium chloride undergoes electrolysis, two gases are formed at the electrodes.

a The gas formed at the cathode is hydrogen. Complete the half equation for this reaction. (2 marks, ★★★)



b What is the name of the gas formed at the anode? Write a half equation to show how it is formed. (3 marks, ★★★)

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③ A solution of lithium iodide, LiI, undergoes electrolysis.

a This solution contains a mixture of ions, including iodide, I^- , ions. State the other **three** ions present. (2 marks, ★★★)

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b Explain what happens to the iodide ions during electrolysis. (3 marks, ★★★)

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c What is the name of the remaining solution? (1 mark, ★★★)

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④ When a solution of copper(II) sulfate undergoes electrolysis, one of the products formed is oxygen.

a At which electrode is the oxygen formed? (1 mark, ★)

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b Write a half equation to show the formation of oxygen. (3 marks, ★★★)

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