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, ★★★)

..... H^+ + ... → ..... H_2

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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