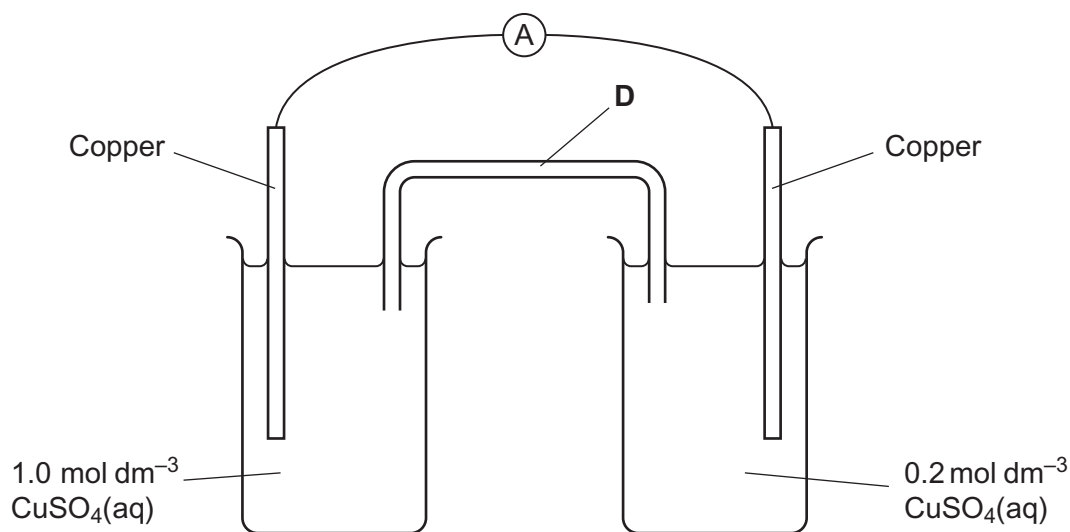


- 5 An electrochemical cell is shown in the diagram. In this cell, the amount of copper in the electrodes is much greater than the amount of copper ions in the copper sulfate solutions.



- 5 (a) Explain how the salt bridge **D** provides an electrical connection between the two electrodes.

.....
.....
(1 mark)

- 5 (b) Suggest why potassium chloride would **not** be a suitable salt for the salt bridge in this cell.

.....
.....
(1 mark)

- 5 (c) In the external circuit of this cell, the electrons flow through the ammeter from right to left.

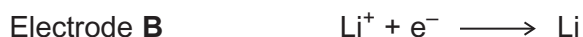
Suggest why the electrons move in this direction.

.....
.....
.....
.....
(2 marks)

- 5 (d) Explain why the current in the external circuit of this cell falls to zero after the cell has operated for some time.

.....
.....
(1 mark)

- 5 (e) The simplified electrode reactions in a rechargeable lithium cell are



Electrode B is the negative electrode.

- 5 (e) (i) The e.m.f. of this cell is 2.90 V.

Use this information to calculate a value for the electrode potential of electrode B.

.....
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(1 mark)

- 5 (e) (ii) Write an equation for the overall reaction that occurs when this lithium cell is being recharged.

.....
.....
.....
(2 marks)

- 5 (e) (iii) Suggest why the recharging of a lithium cell may lead to release of carbon dioxide into the atmosphere.

.....
.....
(1 mark)

