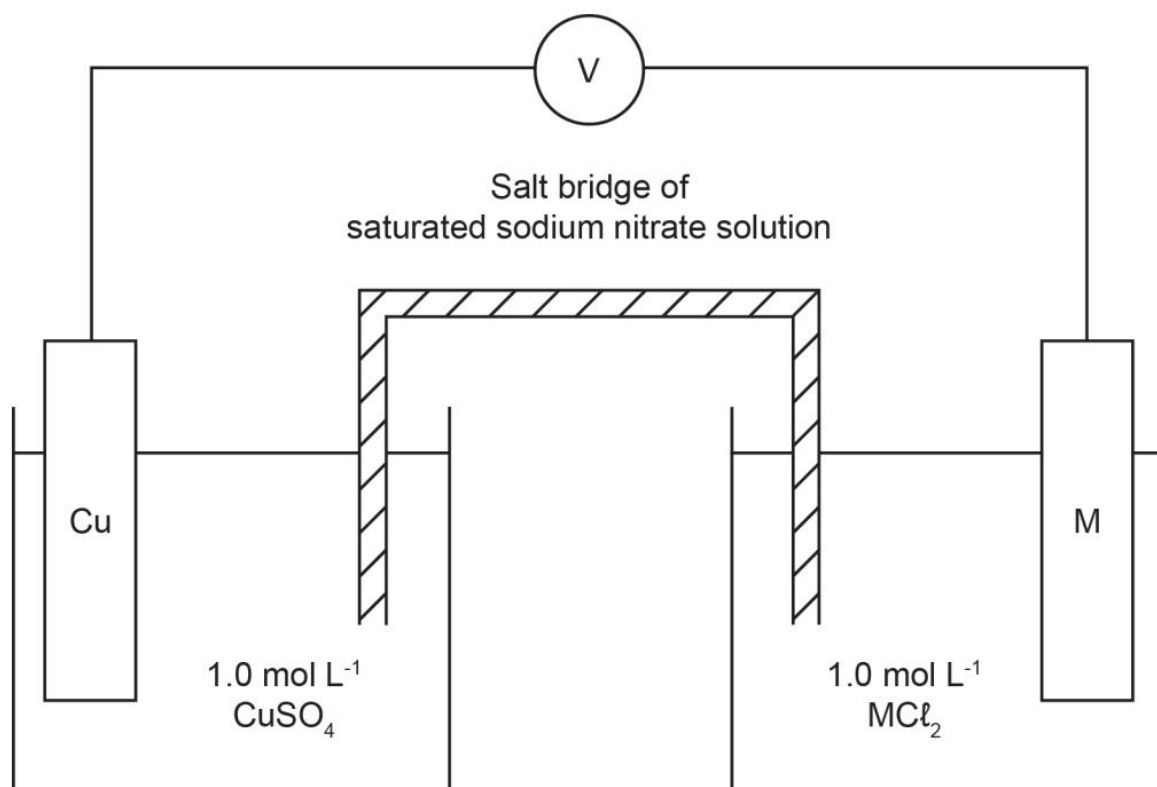


Question 34**(7 marks)**

The diagram below represents a simple galvanic cell set up at 25.0 °C.



One electrode/electrolyte pair is Cu/Cu²⁺. The other electrode is of an unknown metal, represented as M/M²⁺. It was observed, that over time, the unknown metal electrode reduced in size and the solution remained colourless.

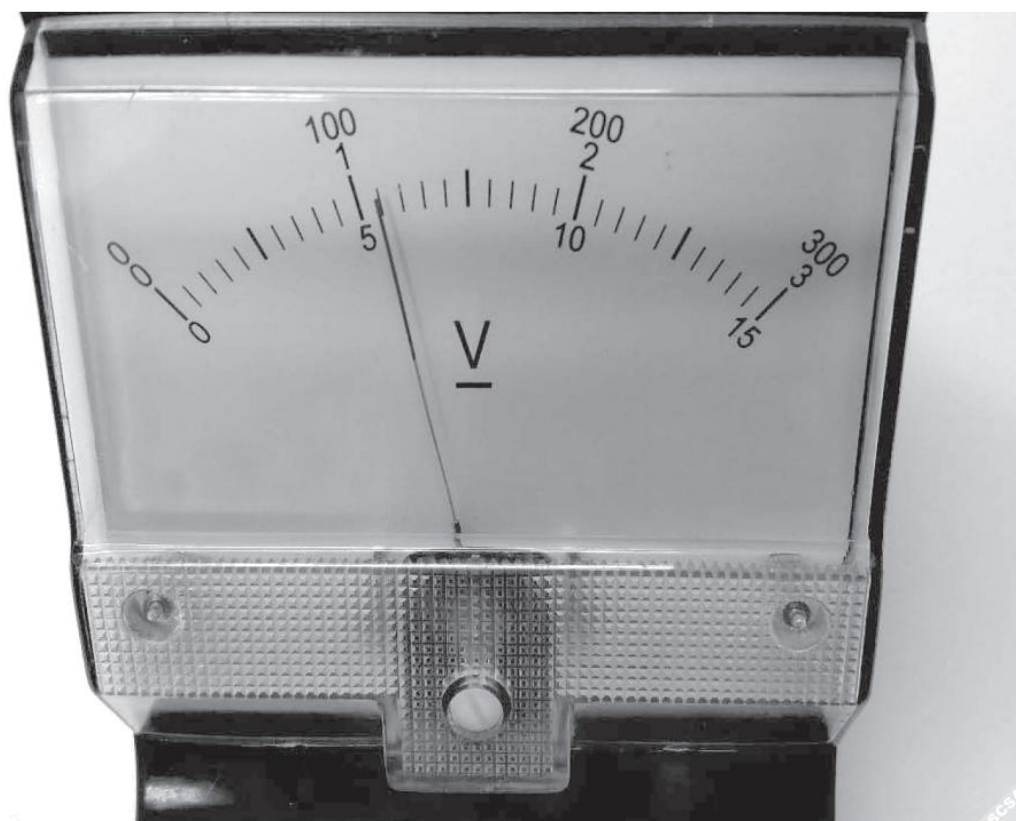
- (a) Write a chemical equation to show the reaction at the anode of the cell. (1 mark)

- (b) List **two** observations that would be expected in the Cu/Cu^{2+} cell. (2 marks)

One: _____

Two: _____

Below is a photograph of the voltmeter attached to the diagram of the cell on page 20. There are three scales on the voltmeter. The scale being used is the one with the range from 0 to 3 volts.



- (c) (i) To the appropriate degree of accuracy, what is the reading on the voltmeter? (1 mark)

- (ii) Using the voltmeter reading and other relevant information, predict the identity of the unknown metal. Clear reasoning, including a calculation, **must** be provided. (3 marks)
