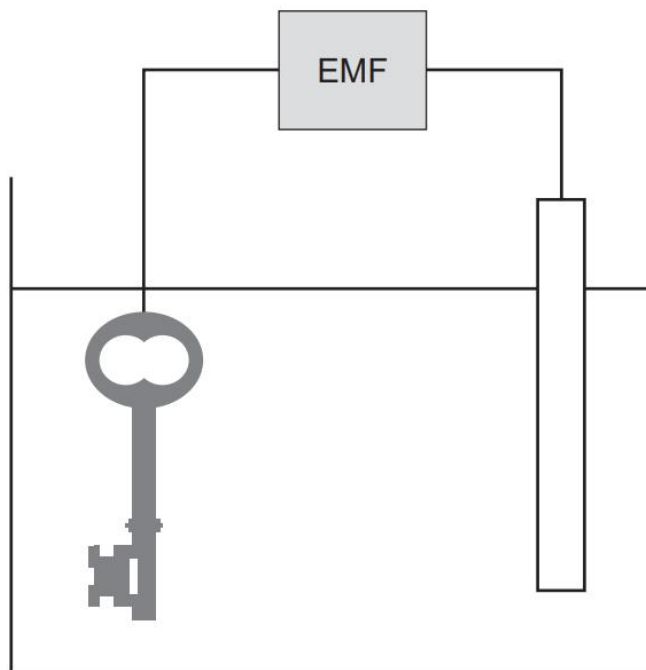


Question 31**(13 marks)**

A solution that contains silver cyanide, $\text{AgCN}(\text{aq})$, is used to plate a key with silver.



- (a) Label the above diagram to show the:
- cathode and anode
 - direction of electron flow
 - direction of ion flow
 - polarity (positive/negative) of each electrode.

(4 marks)

A salt bridge is required in galvanic cells but is **not** required in the electroplating cell above.

(b) Explain this difference between these two cells. (3 marks)

Use excerpts from the Material Safety Data Sheet for silver cyanide shown below to answer part (c) and part (d).

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- (c) Explain why action is taken to maintain the pH above 8 as a safety precaution during the electroplating process using silver cyanide. (3 marks)

- (d) Suggest **three** other safety measures that should be taken during the electroplating process and indicate how each addresses a specific potential hazard to either the workers or the environment. (3 marks)

One: _____

Two: _____

Three: _____
