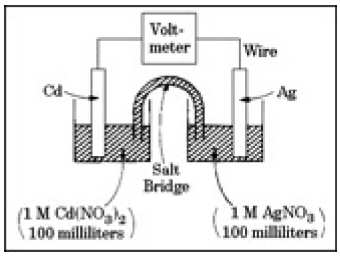
ELECTROCHEM PRACTICE

Multiple Choice

Identify the choice that best completes the statement or answers the question.



The spontaneous reaction that occurs when the cell above operates is: $2Ag^+ + Cd(s) \rightarrow 2Ag(s) + Cd^{2+}$

1. A 50-milliliter sample of a 2-molar $Cd(NO_3)_2$ solution is added to the left beaker. Which of the following occurs given the cell above?
   a. Voltage increases.
   b. Voltage decreases but remains above zero.
   c. Voltage becomes zero and remains at zero.
   d. No change in voltage occurs.
   e. Direction of voltage change cannot be predicted without additional information.
2. The salt bridge is replaced by a platinum wire. Which of the following occurs given the cell above?
   a. Voltage increases.
   b. Voltage decreases but remains above zero.
   c. Voltage becomes zero and remains at zero.
   d. No change in voltage occurs.
   e. Direction of voltage change cannot be predicted without additional information.
3. $Cu(s) + 2\ Ag^+ \rightarrow Cu^{2+} + 2\ Ag(s)$ If the equilibrium constant for the reaction above is 3.7×10^{15}, which of the following correctly describes the standard voltage, E°, and the standard free energy change, $\Delta G°$, for this reaction?
   a. E° is positive and $\Delta G°$ is negative
   b. E° is negative and $\Delta G°$ is positive
   c. E° and $\Delta G°$ are both positive
   d. E° and $\Delta G°$ are both negative
   e. E° and $\Delta G°$ are both zero
4. If 0.060 faraday is passed through an electrolytic cell containing a solution of In^{3+} ions, the maximum number of moles of In that could be deposited at the cathode is
   a. 0.010 mol b. 0.020 mol c. 0.030 mol d. 0.060 mol e. 0.18 mol
5. A copper sample containing zinc impurity is purified by electrolysis, the anode and cathode must be which of the follow ing?

	Anode	Cathode
a.	pure copper	pure zinc
b.	pure zinc	pure copper
c.	pure copper	impure copper sample
d.	impure copper sample	pure copper
e.	impure copper sample	pure zinc

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Answer Section

MULTIPLE CHOICE

1. ANS: B
2. ANS: C
3. ANS: A
4. ANS: B
5. ANS: D