

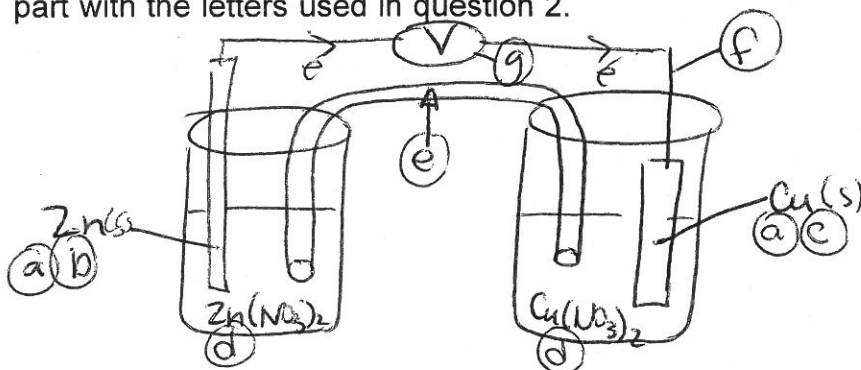
20

Name: Key
Blk: _____ Date: _____

Chemistry 12
Electrochemistry Lesson #8
THE ELECTROCHEMICAL CELL!!!

READ in HEBDEN pgs 215 - 217 THEN ANSWER THE FOLLOWING QUESTIONS:

1. Draw a sample ELECTROCHEMICAL CELL in the space below, label each part with the letters used in question 2.



2. Define or give the function of the following terms:

a. Electrode: a conductor at which $\frac{1}{2}$ rxns occur,

b. Anode: the electrode where OXIDATION occurs.

c. Cathode: the electrode where REDUCTION occurs.

d. Electrolytic Solutions: a solute that forms a solution that conducts an electric current; a substance that ionizes in water to produce individual ions.

e. Salt Bridge: allows ions to pass from one $\frac{1}{2}$ cell to the other

f. Wire: allows electrons to flow from ANODE to CATHODE

g. Voltmeter: a device used to measure electric potential differences in VOLTS.

3. a. At the ANODE OXIDATION occurs.

b. At the CATHODE REDUCTION occurs.

15

4. What is the overall rule for the movement of:

a. Cat ions in an electrochemical cell

CATIONS flow to the CATHODE

b. Anions in an electrochemical cell

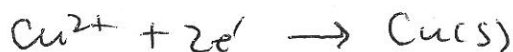
ANIONS flow to the ANODE

c. electrons in an electrochemical cell

FROM ANODE to CATHODE

5. In general, which electrode will **increase in mass** and which will **decrease in mass**? Use equations to support your answer.

Increase in mass → CATHODE (reduction occurs)



decrease in mass → ANODE (oxidation occurs)



Seat work/Homework: Ex # 34 + 35 on pg 217 in the space below

PLO's: U1-U5

#34.



a) Ni(s) is the ANODE

b) SO_4^{2-} flow towards the ANODE (Ni(s))

c) e^- flow from ANODE to CATHODE \therefore from Ni(s) to Cu(s)

d) $0.025 \text{ mol Cu(s)} \times \frac{2 \text{ mol } e^-}{1 \text{ mol Cu(s)}} = 0.050 \text{ mol } e^-$

e) Ni^{2+} flow toward the CATHODE (Cu(s)).

#35. a) $\text{Sn(s)} + 2\text{Ag}^+ \rightarrow \text{Sn}^{2+} + 2\text{Ag(s)}$

b) Ag(s) is the Cathode

c) Ag^+ flow toward the Cathode (Ag(s)).

d) e^- flow from ANODE to CATHODE \therefore from Sn(s) to Ag(s).

PLO's U1 - U5

e) Ag gains mass

f) $0.010 \text{ mol Sn} \times \frac{2 \text{ mol } e^-}{1 \text{ mol Sn}} = 0.020 \text{ mol } e^-$

g) $0.020 \text{ mol Sn} \times \frac{2 \text{ mol Ag}}{2 \text{ mol } e^-} = 0.040 \text{ mol Ag}$

h) electrons do not flow through the SALT BRIDGE!

15