

Name: KEY Official Class: _____ Date: _____

Teacher: _____ Period: _____ Class: _____

Introduction to Electrochemical Cells Practice Questions

COMPREHENSION QUESTIONS: Use the reading above to help answer the following questions.

1. What is a voltaic cell?

a type of electrochemical cell which involves a spontaneous chemical reaction (chemical energy \rightarrow electrical energy)

2. What is an electrolytic cell?

a type of electrochemical cell which requires energy (electrical current) to force a non-spontaneous reaction (electrical energy \rightarrow chemical energy)

3. Which electrochemical cell is spontaneous? Which electrochemical cell is non-spontaneous?

- Voltaic cells are spontaneous

- electrolytic cells are non-spontaneous.

4. What happens when something is oxidized? What happens when something is reduced?

- when something is oxidized, electrons are lost and oxidation # increases.

- when something is reduced, electrons are gained and oxidation # decreases.

5. What occurs at the anode? What occurs at the cathode?

Oxidation occurs at the anode always

reduction happens at the cathode always

6. What is the function of the salt bridge?

the salt bridge allows for ion transfer.

7. Which way do the electrons travel to?

electrons flow anode to cathode - always

8. How can Table J be used to determine the anode and cathode?

~~the~~ of the two metals - the higher one loses e^- , is oxidized, is anode
the lower one gains e^- , is reduced, is cathode

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USING TABLE J: Use Table J to determine which is electrode is the anode and which is the cathode, and determine if it is oxidized or reduced.

1. Cu & Zn

- a. Zn is the anode and is being oxidized because electrons are lost.
b. Cu is the cathode and is being reduced because electrons are gained.

2. Pb & Zn

- a. Zn is the anode and is being oxidized because electrons are lost.
b. Pb is the cathode and is being reduced because electrons are gained.

3. Ba & Li

- a. Li is the anode and is being oxidized because electrons are lost.
b. Ba is the cathode and is being reduced because electrons are gained.

4. Au and Pb

- a. Pb is the anode and is being oxidized because electrons are lost.
b. Au is the cathode and is being reduced because electrons are gained.

5. Mn and Zn

- a. Mn is the anode and is being oxidized because electrons are lost.
b. Zn is the cathode and is being reduced because electrons are gained.

6. Fe & Zn

- a. Zn is the anode and is being oxidized because electrons are lost.
b. Fe is the cathode and is being reduced because electrons are gained.

7. Co & Ca

- a. Ca is the anode and is being oxidized because electrons are lost.
b. Co is the cathode and is being reduced because electrons are gained.

8. Co & Ni

- a. Co is the anode and is being oxidized because electrons are lost.
b. Ni is the cathode and is being reduced because electrons are gained.

9. Cu & Mg

- a. Mg is the anode and is being oxidized because electrons are lost.
b. Cu is the cathode and is being reduced because electrons are gained.

10. Zn & Al

- a. Al is the anode and is being oxidized because electrons are lost.
b. Zn is the cathode and is being reduced because electrons are gained.