**CHEMISTRY 2022-23 May 3, 2023**

**Today’s Agenda (Day 149)**

1. HOUSEKEEPING ITEMS

**🡪**  BRING:

1. Homework Check:

🡪LABS: Launch Lab 18, 19 and 20 – **DUE: May 3**

1. Class Activity:

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🡪BEGIN: Chapter 20 PPT Review

1. **Section 20.1 – Voltaic Cells**
2. Section 20.2 – Batteries
3. Section 20.3 - Electrolysis

HOMEWORK:

* READ: Chapter 20 – Electrochemistry
* COMPLETE:
* STUDY: Chapter 20 Test

REMINDERS:

* TEST: **Ch 20 🡪 ~~April 20~~ May 9**

**CHEMISTRY 2022-23 MINI LAB**

**CHAPTER 19 MINI LAB – Observe a Redox Reaction**

How can tarnish be removed from silver?

**Procedure **

1. Read and complete the lab safety form.

2. Lightly buff a piece of **aluminum foil** with **steel wool** to remove any oxide coating.

3. Wrap a **small, tarnished object** in the aluminum foil, making sure that the tarnished area makes firm contact with the foil.

4. Place the wrapped object in a **400-mL beaker** and add a sufficient volume of **tap water** to cover it completely.

5. Add about 1 spoonful of **baking soda** and about 1 spoonful of **table salt** to the beaker.

6. Using **beaker tongs**, set the beaker and its contents on a **hot plate**, and heat until the water is almost boiling. Maintain the heat for approximately 15 min, until the tarnish disappears.

**Analysis**

1. Write the equation for the reaction of silver with hydrogen sulfide that yields silver sulfide and hydrogen.

2. Write the equation for the reaction of the tarnish (silver sulfide) with the aluminum foil that yields aluminum sulfide and silver.

3. Determine which metal, aluminum or silver, is more reactive. How do you know this from your results?

4. Explain why you should not use an aluminum pan to clean silver objects.

**CHEMISTRY 2022-23 MINI LAB**

**CHAPTER 20 MINI LAB – Observe Corrosion**

**Which metal will corrode?**

**Procedure **

1. Read and complete the lab safety form.

2. Use **sandpaper** to buff the surfaces of four **iron** **nails**. Wrap two nails with **magnesium ribbon** and two nails with **copper**. Wrap the metals tightly so that the nails do not slip out.

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3. Place each of the nails in a separate **beaker**. Add **distilled water** to one of the beakers containing a copper-wrapped nail and one of the beakers containing a magnesium-wrapped nail. Add enough distilled water to just cover the wrapped nails. Add **salt water** to two additional beakers. Record your observations of the nails in each beaker.

4. Let the beakers stand overnight in the warmest place available. Examine the nails and solutions the next day and record your observations.

**Analysis**

1. Describe the difference between copper-wrapped nails in the distilled water and the salt water after they have been standing overnight.

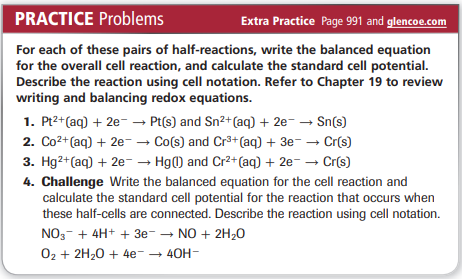
2. Describe the difference between the magnesium-wrapped nails in the distilled water and in the salt water.

3. Explain the difference between a copper-wrapped nail and a magnesium-wrapped nail.

**CHEMISTRY 2022-23 PRACTICE PROBLEM**

**CHAPTER 20 - Electrochemistry**

**Practice Problems 20.1 –** Calculate a Cell Potential



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**CHEMISTRY 2022-23 PROBLEM-SOLVING LAB**

**CHAPTER 20 - Data Analysis Lab**

**How can you get electric current from microbes?** Scientists have studied the use of microbes as biofuel cells. A biofuel cell directly converts microbial metabolic energy into electric current. An electron mediator facilitates transfer of electrons to an electrode. An electron mediator is a compound that taps into the electron transport chain of cells and steals the electrons that are produced.

**Data and Observations**

The graph shows the current produced in a biofuel cell with (blue line) and without (green line) the use of an electron mediator.

Chart, line chart

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**Think Critically**

1. Infer the approximate time when the electron mediator was introduced.

2. Determine Did the introduction of the electron mediator make a difference in the current production? Explain your answer.

3. Analyze What is the highest current obtained by the cell?

**CHEMISTRY 2022-23 CHEM LAB 17**

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**CHEMISTRY 2022-23 CHEM LAB 19**

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