

Electrochemistry Quiz PDF

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Discuss the role of Gibbs free energy in determining the spontaneity of an electrochemical reaction.

What is the main purpose of electroplating?

- To generate electricity
- To prevent corrosion
- To increase weight
- To produce hydrogen gas

Describe the process of electroplating and its industrial applications.

What is the primary function of a salt bridge in a galvanic cell?

- To generate electrons
- To maintain electrical neutrality
- To increase cell potential

- To provide a surface for the reaction

Explain how Faraday's laws of electrolysis are used to calculate the mass of a substance deposited at an electrode.

Describe how the Nernst equation is used to calculate cell potential under non-standard conditions.

Which of the following is a characteristic of a galvanic cell?

- Requires an external power source
- Converts chemical energy into electrical energy
- Involves the electrolysis of water
- Has no salt bridge

Which of the following statements about corrosion are true?

- It is a redox reaction
- It can be prevented by electroplating
- It only occurs in metals
- It can be minimized by cathodic protection

Explain the difference between a galvanic cell and an electrolytic cell.

Discuss the mechanisms and methods used to prevent corrosion in metals.

Which of the following are components of a galvanic cell?

- Anode
- Cathode
- Salt bridge
- External power source

What does the Nernst equation calculate?

- Standard cell potential
- Gibbs free energy
- Cell potential under non-standard conditions
- Equilibrium constant

In a redox reaction, which component is reduced?

- The oxidizing agent
- The reducing agent
- The catalyst
- The electrolyte

Which of the following metals is used as the standard electrode in electrochemical cells?

- Copper
- Zinc
- Silver
- Hydrogen

In an electrolytic cell, the anode is:

- Positively charged
- Negatively charged
- Neutral
- Not part of the cell

Which of the following is a secondary battery?

- Alkaline battery
- Lead-acid battery
- Zinc-carbon battery
- Lithium primary battery

Which processes occur at the cathode in an electrochemical cell?

- Oxidation
- Reduction
- Electron gain
- Electron loss

What are the characteristics of a fuel cell?

- Converts chemical energy into electrical energy
- Requires continuous fuel supply
- Is rechargeable
- Produces water as a byproduct

Which of the following are applications of electrochemistry?

- Electroplating
- Fuel cells
- Corrosion prevention
- Photosynthesis

What factors affect the cell potential of an electrochemical cell?

- Temperature
- Concentration of solutions
- Pressure
- Type of salt bridge