

Chemistry Class 10 - Chapter 4: Electrochemistry (Short Questions)

Q: What is a Fuel Cell?

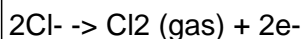
Answer: A fuel cell is a device that produces electricity through a chemical reaction between a fuel (like hydrogen) and oxygen. It converts the chemical energy of the fuel directly into electrical energy.

Example: The Hydrogen-Oxygen Fuel Cell is a common example.

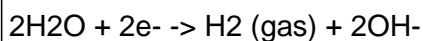
Q: Write Chemical Reactions that Occur in Nelson's Cell.

Answer: Following reactions occur in Nelson's Cell:

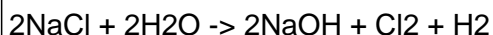
At Anode (Oxidation Reaction):



At Cathode (Reduction Reaction):



Overall Reaction:



Q: Why Tin-Plated Steel is Used to Make Food Cans?

Answer: Tin-plated steel is used to make food cans because:

1. Tin coating protects the steel from rusting.
2. Tin is less reactive, so it does not react with the food stored inside the can.
3. Steel provides strength to the can, making it durable.
4. Tin-plated steel is affordable and provides good protection.

Q: Explain One Example from Daily Life Which Involves an Oxidation-Reduction Reaction.

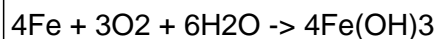
Answer: One common example of an oxidation-reduction (redox) reaction is the rusting of iron.

When iron objects are exposed to air and moisture:

- Iron (Fe) gets oxidized to form iron oxide (rust).
- Oxygen (O₂) from the air gets reduced.

Reaction:

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Q: Define Electrochemical Series.

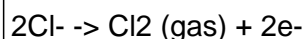
Answer: The Electrochemical Series is a list of elements, mainly metals, arranged in order of their standard reduction potentials (the ability of an element to gain electrons under standard conditions).

Q: Why Does Chlorine Gas Form at the Anode During the Electrolysis of Molten Lead(II) Chloride?

Answer: During electrolysis of molten PbCl_2 , chloride ions (Cl^-) move towards the positive anode.

At the anode, they lose electrons (oxidation) and form chlorine gas.

Reaction:



Q: How Do Hydrogen-Oxygen Fuel Cells Benefit the Environment Compared to Gasoline Engines?

Answer: Hydrogen-oxygen fuel cells are environment-friendly because:

- They produce only water as a by-product, unlike gasoline engines which release harmful gases.
- They do not emit greenhouse gases, reducing global warming.
- Hydrogen can be obtained from renewable sources.
- Fuel cells produce less noise pollution.