19CH201 - ENGINEERING CHEMISTRY

UNIT-2 - ENERGY STORAGE DEVICES

Types of Batteries

Primary Battery (Primary Cell)

In these cells, the electrode reactions cannot be reversed by passing an external current. The reactions are possible only once and the battery will be dead after use. They cannot be recharged.

Examples: Dry cell, mercury cell.

Secondary Battery (Secondary Cell)

In these cells, the electrode reactions can be reversed by passing an external current. Therefore, they can be recharged and used repeatedly. They are also known as **Storage cells** or **accumulators.**

Examples: Lead acid storage cell, Ni - Cd cell.

Flow Battery (Fuel Cell)

The reactants, products and electrolytes continuously passingthrough the cell, the chemical energy is converted to electrical energy. *Examples: Hydrogen - oxygen fuel cell.*

DIFFERENCES

Primary Batteries	Secondary Batteries
Cell reaction is irreversible	Cell reaction is reversible.
Must be discarded after use.	May be recharged
Have relatively short shelf life	Have long shelf life.
Function only as galvanic cells .	Functions both galvanic Cell & as electrolytic cell.
They cannot be used as storage devices	They can be used as energy storage devices (e.g. solar/ thermal energy converted to electrical energy)
They cannot be recharged e.g. Dry cell.	They can be recharged. $Li\text{-}MnO_2$ battery. Lead acid, Ni-Cd battery.