**Equilibrium electrochemistry**

* Half-reactions and electrodes
* Varieties of cells
* The electromotive force
* Standard potentials
* Applications of standard potentials

► **“Electrochemical method”** : The ability to make precise measurements of currents and potential differences (voltages)

► **“Electrochemical cell”** : Consists of two electrodes contact with an electrolyte

► **“Galvanic cell”** : An electrochemical cell that produces electricity as a result of the spontaneous reaction

► **“Electrolytic cell”** : An electrochemical cell in which a nonspontaneous reaction is driven by an external source of current.

**Half-reactions and electrodes**

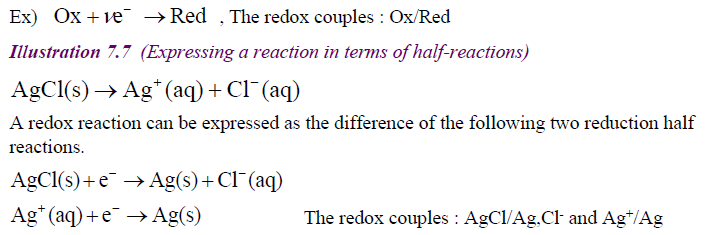
**Oxidation** : The removal of electrons from a species

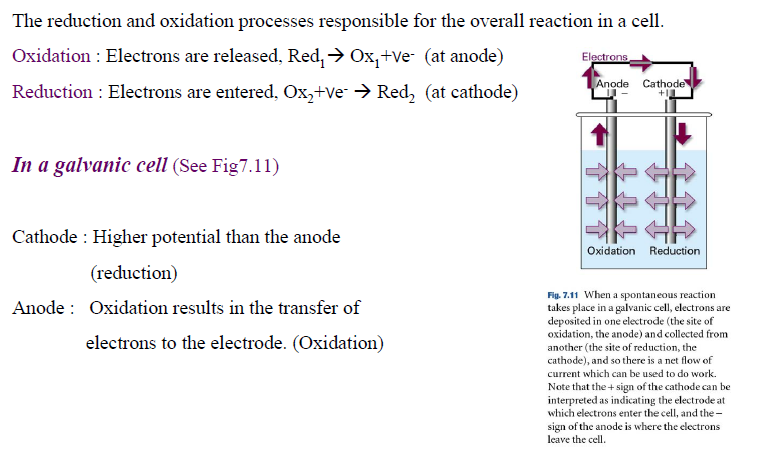
**Reduction** : The addition of electrons to a species

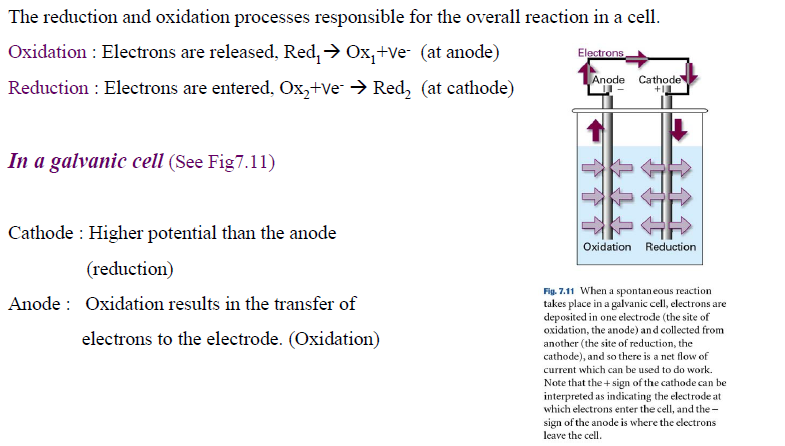
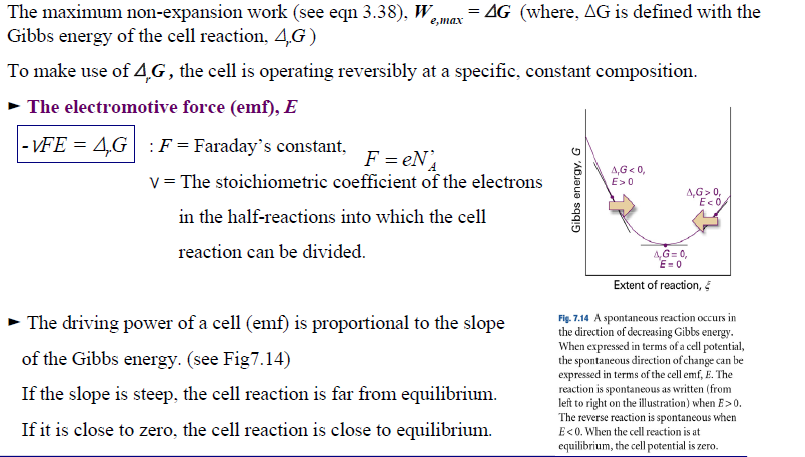
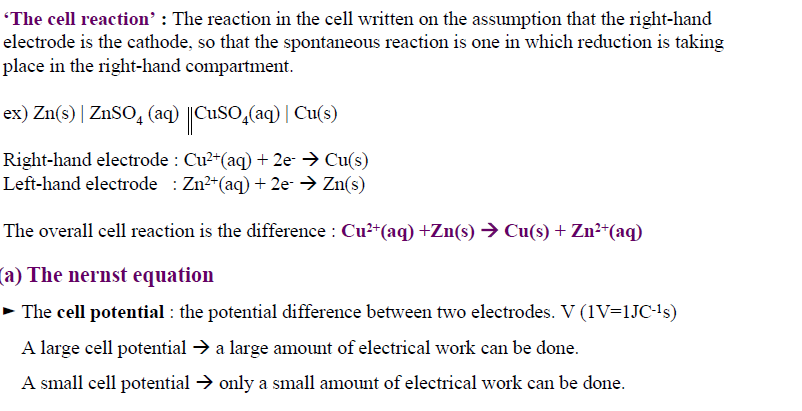
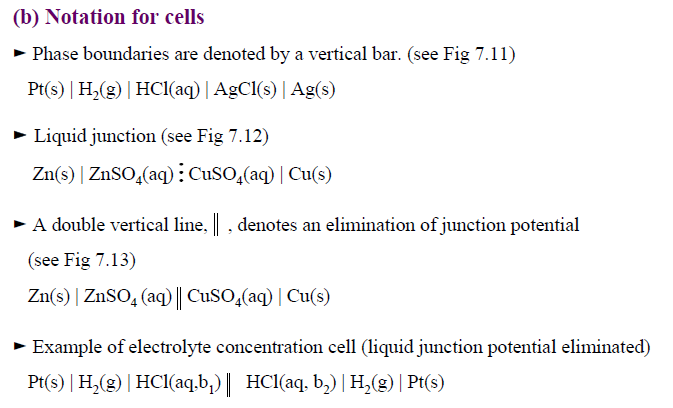
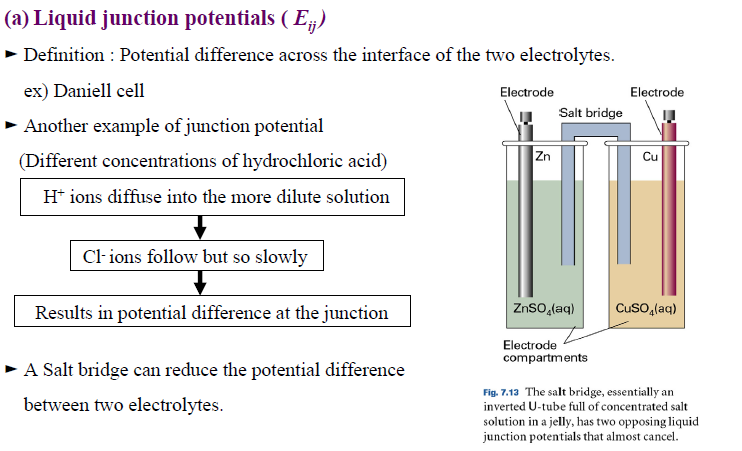
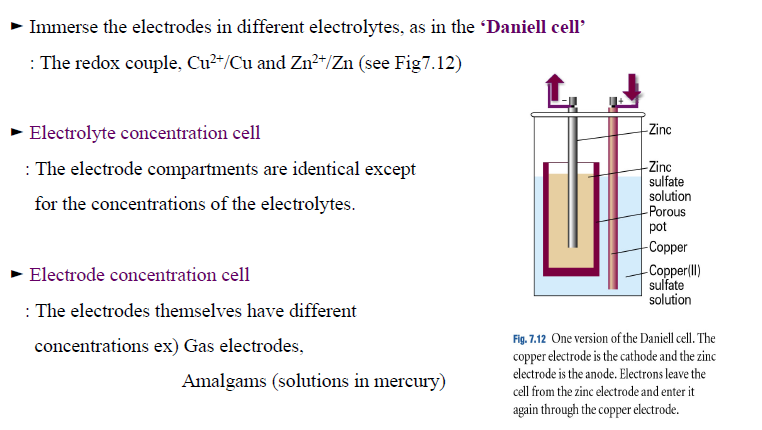
**Redox reaction** : Transfer of electrons from one species to another.

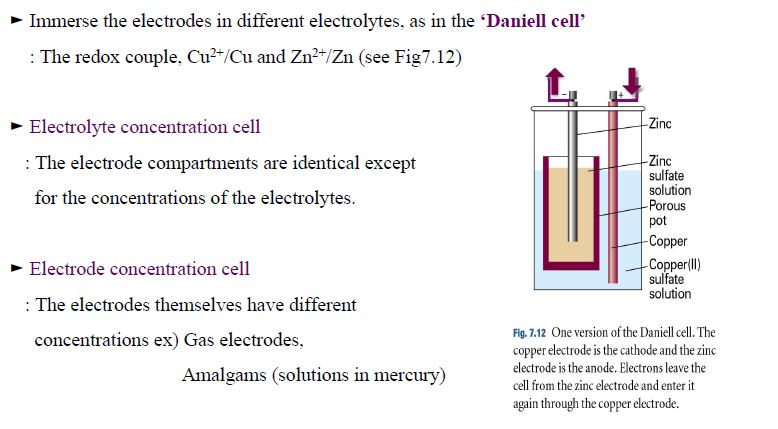
**Reducing agent** =The electron donor, **Oxidizing agent** = the electron acceptor

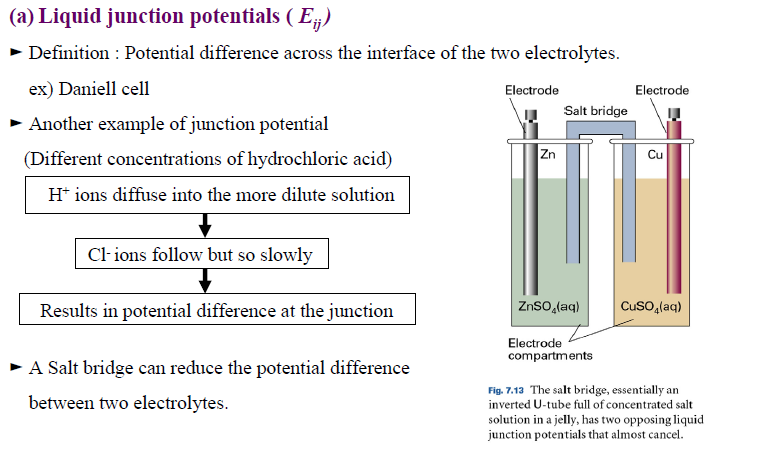
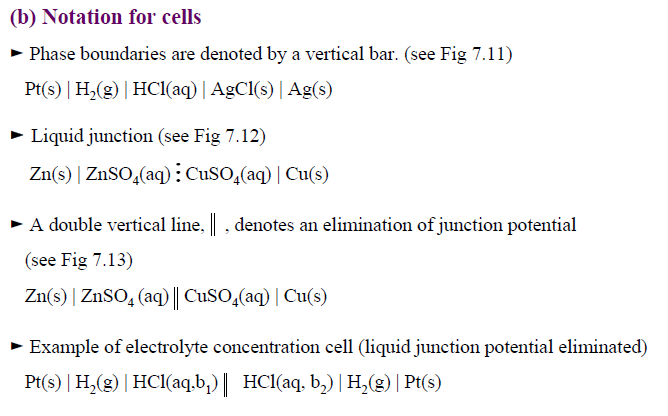
**Redox couple** : Expressed by the reduced and oxidized species in a half-reaction

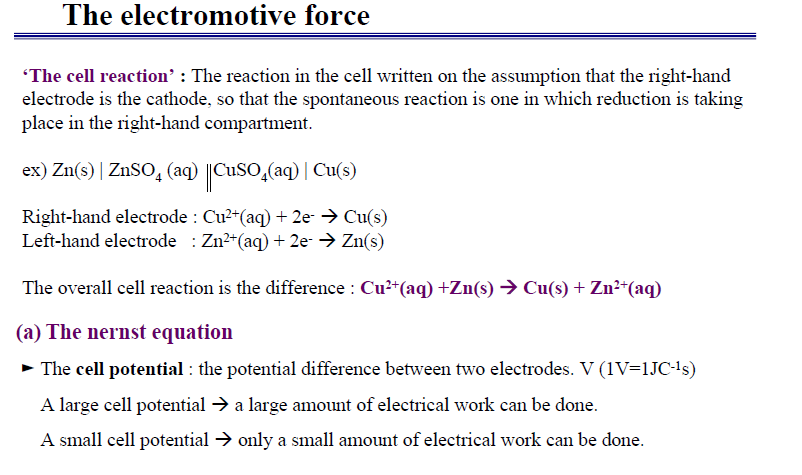


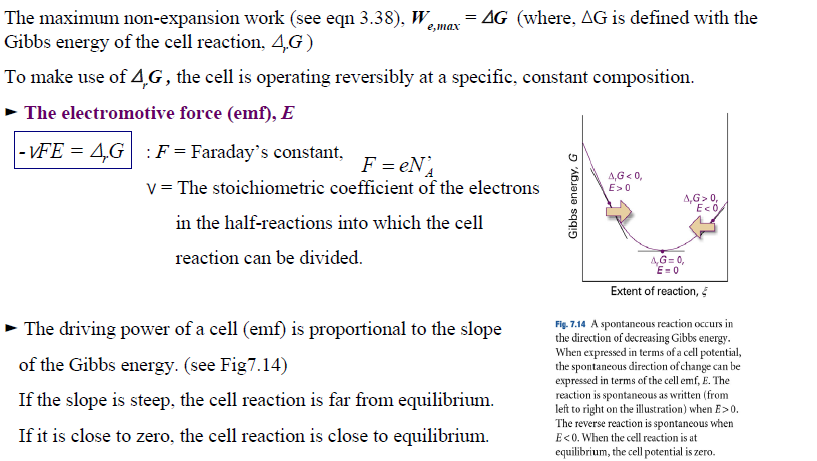


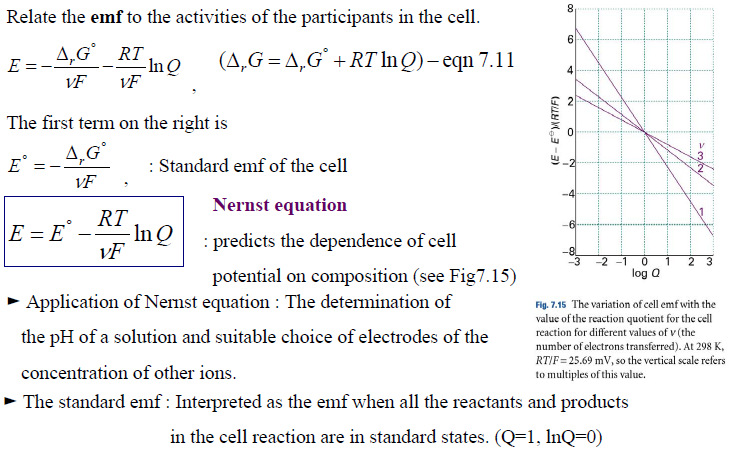




**Varieties of cells** 







**Standard potentials**

We can define the potential of one of the electrodes as zero and then assign values to others on that basis

