

M.Sc (Chemistry)**ELECTRODE KINETICS - ELECTRODICS****LECTURE NOTES****SELF STUDY (Introduction)**

1. Displacement reactions-Electrode-Electrode reactions (*Oxidation*-Anode ; *Reduction*-Cathode)
2. Electrode , Potential & Electrode potential (SRP)-Electro chemical series
3. Reference electrodes (Primary-SHE; Secondary-SCE, Quinhydrone, Glass.....)
4. Electrode potential (SRP, V) for some typical electrodes:

K^+/K	-2.925;	Na^+/Na -2.714	; Mg^{2+}/Mg	-2.37
H_2O/H_2	-0.828 (Redn of H_2O to H_2)			
Zn^{2+}/Zn	-0.76		; Fe^{2+}/Fe	-0.44
$[Cu(NH_3)_4]^{2+}/Cu$	-0.12		; Cu^{2+}/Cu	+0.34
$[Ag(NH_3)_2]^+/Ag$	+0.373		; Ag^+/Ag	+0.80
Cu^{2+}/Cu	+0.34			
I_2/I^-	+0.54			
Br_2/Br^-	+1.056			
$O_2, H^+/H_2$	+1.229 (Redn of O_2 to H_2O)			
Cl_2/Cl^-	+1.056			
$AgI/Ag, I^-$	-0.151			
$AgBr/Ag, Br^-$	+0.095			
$AgCl/Ag, Cl^-$	+0.222			

5. Electrochemical Cells (*Galvanic & Electrolytic*)-Anode & Cathode-EMF
6. Equilibrium electro chemistry-Nernst equation (Electrode & Cells at equilibrium)
7. Electro chemical Quantities-Resistance (ohm), Conductance(S), Current (Ampere), Quantity of Current (coulomb), Potential & Potential difference (Cell) -EMF(volt).

8. Electro analytical techniques :

- Potentiometry (emf vs conc)-Potentiometric titrations
- Conductometry (Conductance vs conc)
- Amperometry (current vs conc)
- Voltametry (current vs emf)
- Cyclic voltametry (current vs emf - Cycle)
- Polarography (voltametry using DME as cathode)