27/03/21

Basic Terminologies

Electrolytes — strong
             — weak
} ∴ conductance

Electrolytic conductance – mobility of ions

↓

molar conductance, specific conduct.

Transport number - Fraction of current carried

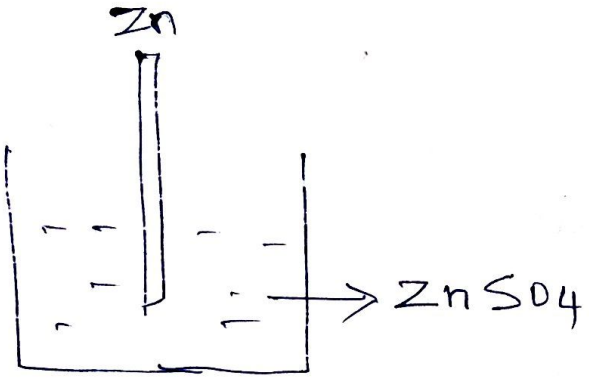
t_+ t_-

Application

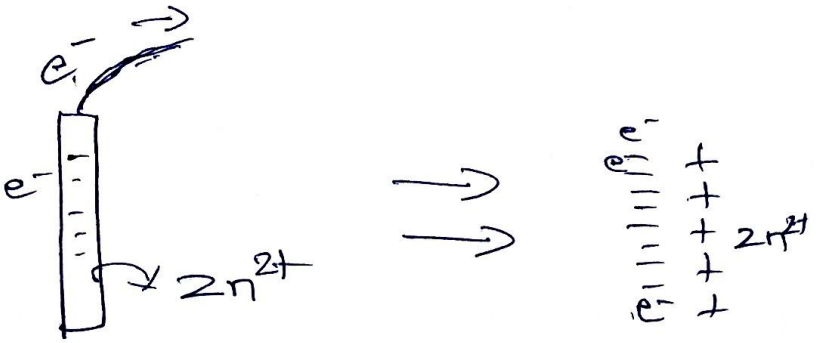
conductance – Acid base titrations

conductometric →
- NaOH vs HCl
- NaOH vs CH_3COOH
- NH_4OH vs HCl
- NH_4OH vs CH_3COOH

Electrode potential



$Zn \longrightarrow Zn^{2+} + 2e^-$

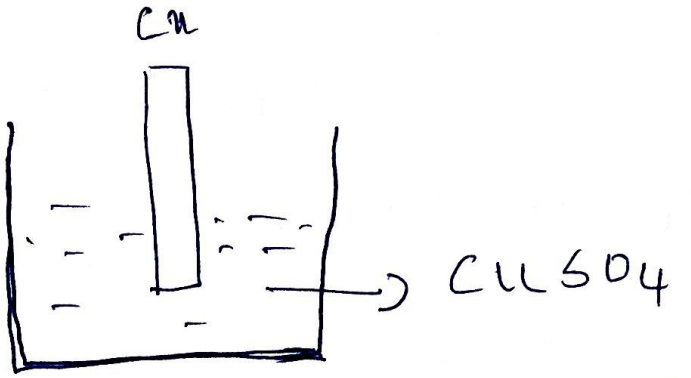


The magnitude of Force developed

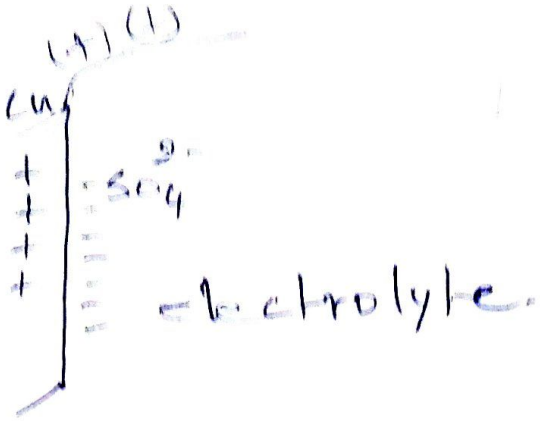
$e^- \Rightarrow$ Flow

Oxidation potential

Ily



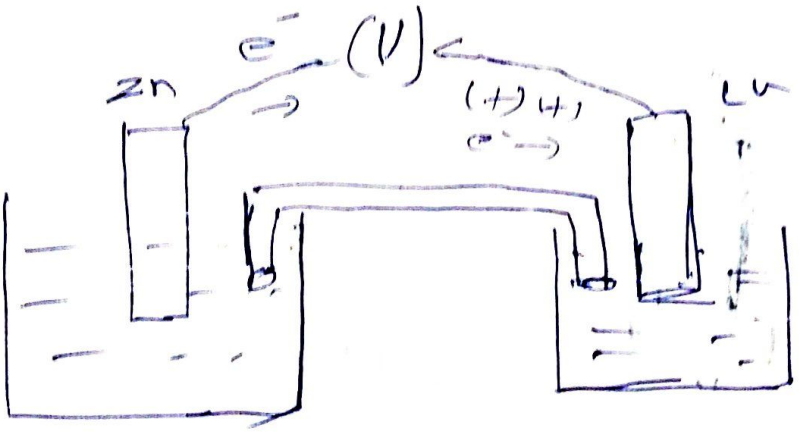
$Cu^{2+} + 2e^- \longrightarrow Cu_{(s)}$



inherently Reductive

To some extent Cu gets deposited reduced.

Thereupon (+)ve charges generated



e⁻ Flow

Zn - Electrode potential.

Half cell

Standard Electrode

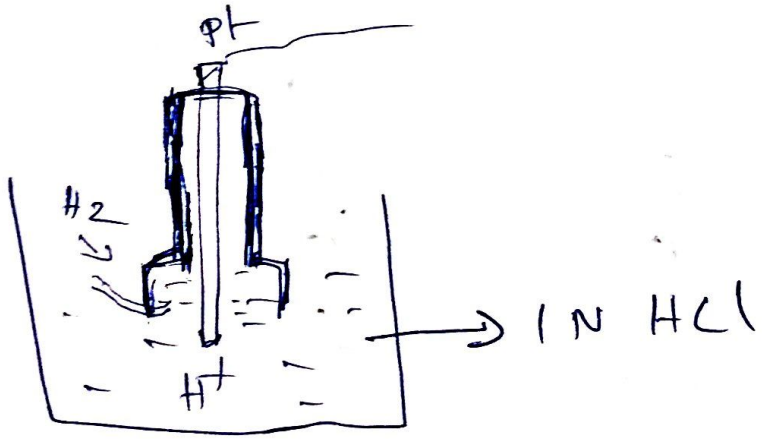
Residual Potential

Taken as Zero.

Primary – Standard Hydrogen

Secondary → SCE, Ag/AgCl

SHE



$H_2 \longrightarrow 2H^+ + 2e^-$ oxidation

$2H^+ + 2e^- \longrightarrow H_2\uparrow$ Reduction

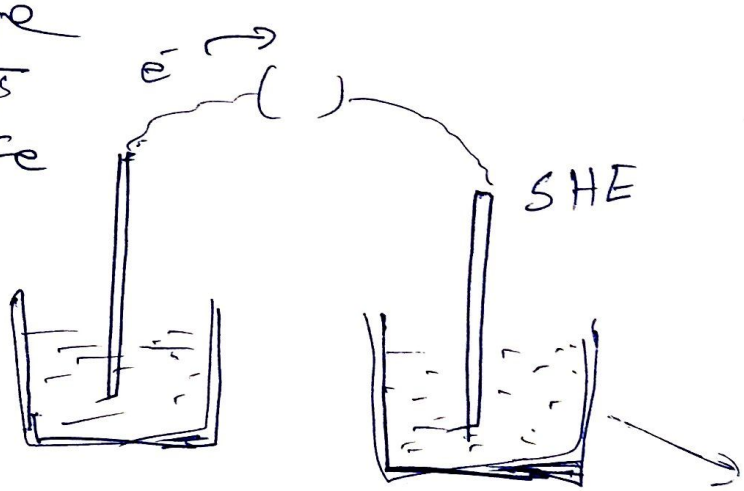
} → V = 0

Single Electrode potential

Zn, Cu, Al, Ag, Au, Pb etc...

Oxidative Materials

Zn / Al / Fe



Reduction

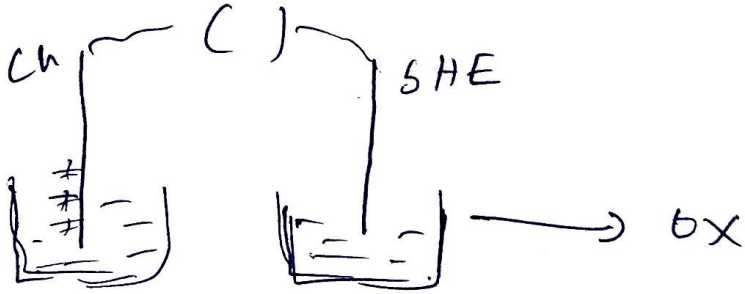
$Zn \longrightarrow Zn^{2+} + 2e^-$

$Al \longrightarrow Al^{3+} + 3e^-$

$Fe \longrightarrow Fe^{2+} + 2e^-$

$\Big\} \longrightarrow 2e^- + 2H^+ \longrightarrow H_2 \uparrow$

Reductive Materials



Oxidation

$Cu^{2+} + 2e^- \longrightarrow Cu$

$Ag^+ + e^- \longrightarrow Ag$

$\Big\}$

$H_2 \longrightarrow 2H^+ + 2e^-$