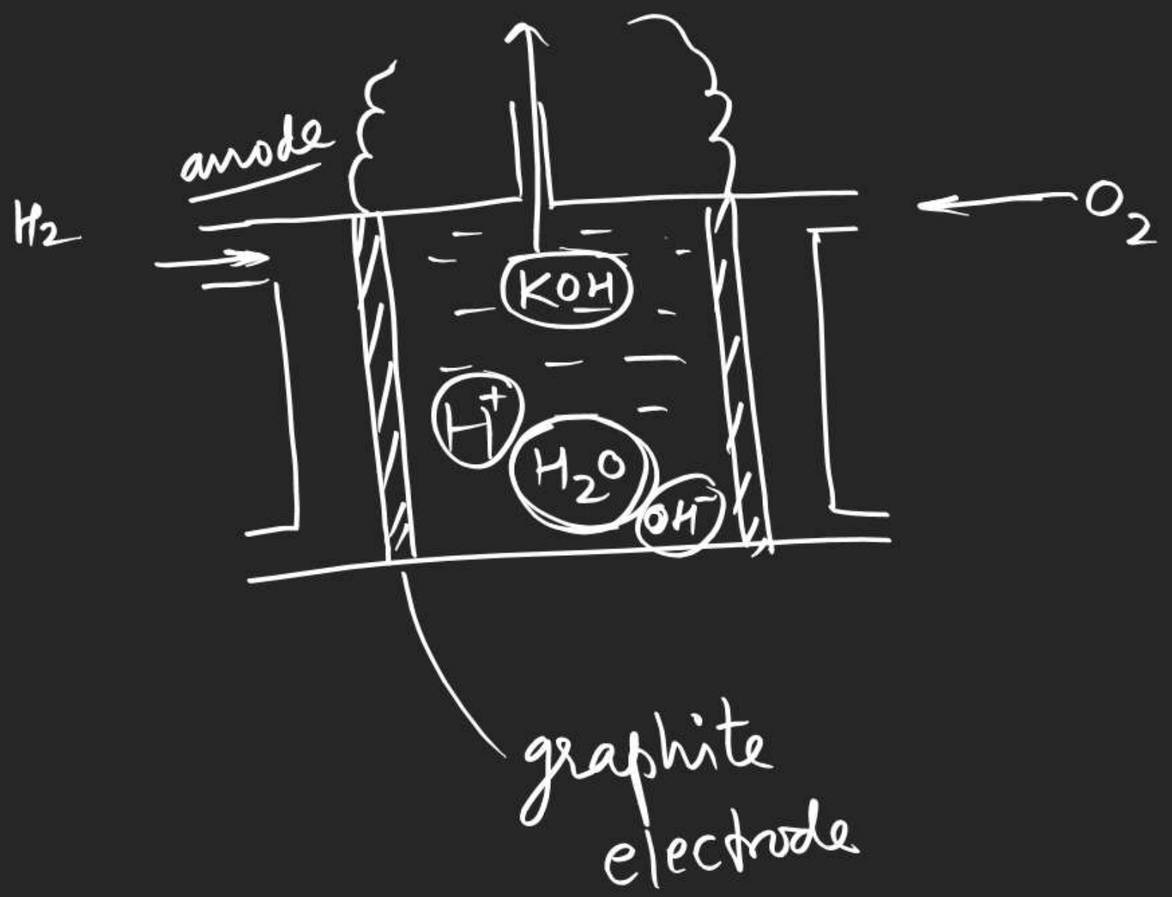
(ii) Ni-Cd cell

$$Ni(OH)_3 \longrightarrow Ni(OH)_2$$

$$Cd \longrightarrow Cd(OH)_2$$

Nishant Jindal

Fuel Cell :→



$$2H_2 \longrightarrow 4H^+ + 4e^-$$

$$O_2 + 2H_2O + 4e^- \rightarrow 4OH^-$$

$$2H_2 + O_2 \rightarrow 2H_2O$$

$$\frac{\Delta G}{\Delta H} \times 100$$

Nishant Jindal

Conductance & Conductivity

Property of the substance which facilitates the flow of charge.

$$\text{Conductance } (G) = \frac{1}{R}$$

ohm^{-1}

Ω^{-1}

mho

Siemen (S)

There are two types of conductance

Metallic	Electrolytic
(1) Charge carriers are e^-	(1) Charge carriers are ions
(2) Charge carries are e^- always	(2) But carriers i.e ions change with solution.
(3) As T ↑ conductance ↓	(3) As T ↑ conductance ↑

Nishant Jindal

Conductivity (K)

↑ Kappa

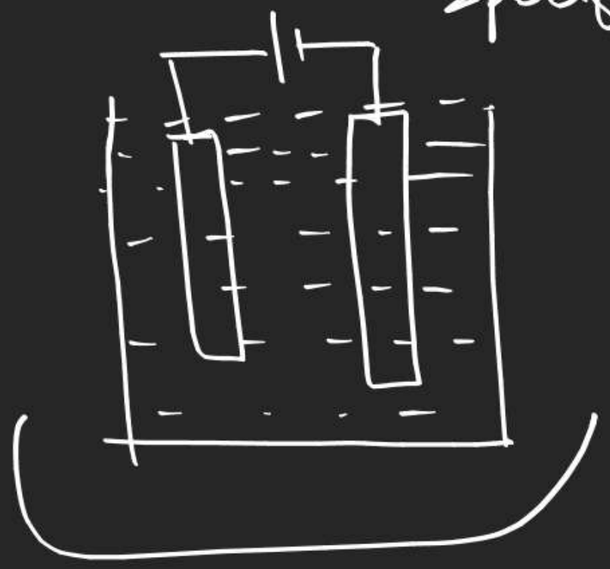
$K = \frac{1}{\rho}$ ← resistivity or specific resistance

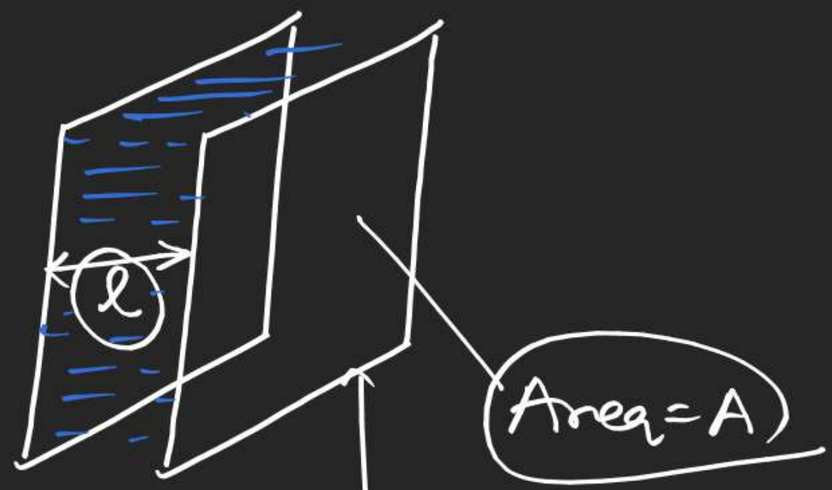
$R \propto \frac{l}{A}$

$R = \rho \frac{l}{A}$

$\frac{1}{\rho} = \frac{1}{R} \times \frac{l}{A}$

$K = G \frac{l}{A}$





Volume of Solution = A × l

plane parallel plates

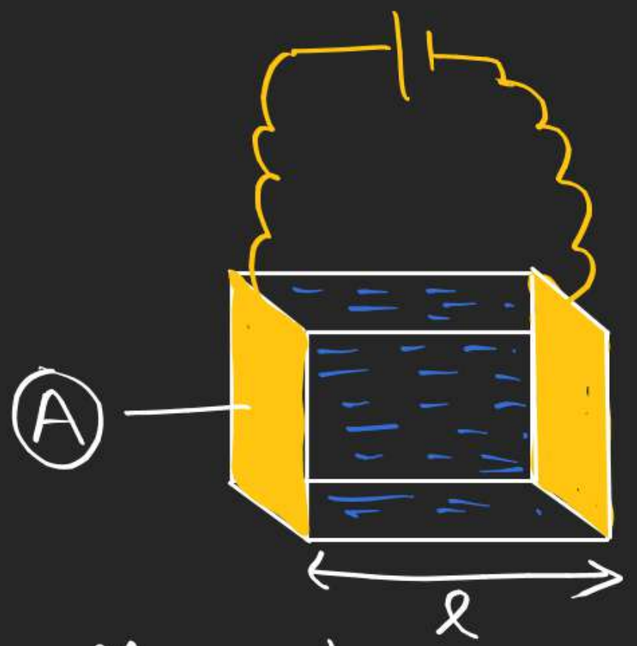
Nishant Jindal

$$K = G \times \frac{l}{A}$$

Scm^{-1} or Sm^{-1}

$$R = \rho \frac{l}{A}$$

1M NaCl
2M NaCl



$\frac{l}{A}$ = cell constant
$= G^*$

Conductivity is independent of l & A but depends on concentration of Solution.

as conc ↑ K ↑

Nishant Jindal

NaCl

KNO_3

$\ell =$ ✓

$A =$

moles =

Ag

Cu

Standard resistance

$\ell = 5\,cm$

$A = 0.1\,cm^2$

Nishant Jindal

Λ_m :⟶

1M NaCl

$$K = G \cdot \frac{\ell}{A} \cdot \frac{\ell}{\ell}$$

$$\Lambda_m = \frac{G \cdot \ell^2}{\eta} = \frac{K \times V}{\eta} = \frac{K \times V}{M \times V} = \frac{K}{M}$$

Λ_m ⟶ It is independent of ℓ & A

but depends on concentration.

JEE-Adv

21–26, 36, 37, 39

JEE Mains

Nishant Jindal