YAKEEN NEET 2.0

2026

Electrochemistry

Physical Chemistry Lecture -10

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Topics to be covered

1. MEDICS TEST, Revision of Last Class
2. Conductors
3. Conductivity & Kohlrausch law
4. MPQ, Home work from modules

Rule to Attend Class

1. Always sit in a peaceful environment with headphone and be ready with your copy and pen.
2. Never ever attend a class from in between or don't join a live class in the middle of the chapter.
3. Make sure to revise the last class before attending the next class & always complete your home work along with DPP.
4. Never ever engage in chat whether live or recorded on the topic which is not being discussed in current class as by doing so u can be blocked by the admin team or your subscription can be cancelled.

Rule to Attend Class

5. Try to make maximum notes during the class if something is left then u can use the notes pdf after the class to complete the remaining class.
6. Always ask your doubts in doubt section to get answer from faculty. Before asking any doubt please check whether same doubt has been asked by someone or not.
7. Don't watch the videos in high speed if you want to understand better.


There is one big flaw in your Preparation that's name is Backlog ? What do we say to Backlog ?
NOT TODAY !!!

MEDICS

Mastery
Checks your grasp over NEET-level concepts

Evaluation
Judging both knowledge and test-smartness

Decision Making
Testing your speed + accuracy under pressure

Intuition
Some answers need gut + logic – can you spot the trick?

Concepts
It's all about strong basics – no shortcuts here

Strategy

The MEDICS test – built for those who heal, hustle, and hope.

Question [NCERT: PL-49,50 | JEE Mains Jan. 29, 2025 (II)]

O_2 gas will be evolved as a product of electrolysis of:

(A) an aqueous solution of $AgNO_3$ using silver electrodes.

(B) an aqueous solution of $AgNO_3$ using platinum electrodes.

(C) a dilute solution of H_2SO_4 using platinum electrodes. →

(D) a high concentration solution of H_2SO_4 using platinum electrodes.

Choose the correct answer from the options given below:

A. (B) and (C) only

B. (A) and (D) only

C. (B) and (D) only

D. (A) and (C) only

$Ag \Rightarrow Ag^+ + 1e^-$

$Ag^+ + 1e^- \Rightarrow Ag$

$SO_4^{2-} < OH^-$

$2OH^- \Rightarrow$

HSO_4^-

Question . [NCERT: PL-53 | NV, JEE Mains Jan. 28, 2025 (II)]

Electrolysis of 600 mL aqueous solution of NaCl for 5 min changes the pH of the solution to 12. The current in Amperes used for the given electrolysis is ______ . (Nearest integer).

$NaCl(aq.) \longrightarrow H_2(g) + Cl_2(g) + aq.\ NaOH$

$V = 600\,ml$

$pH = 12 \Rightarrow pOH = 2 \Rightarrow [OH^-] = 10^{-2}\,M$

$t = 5\,min. = 300\,sec.$

$I = ?$

$$M = \frac{n}{V(L)} \Rightarrow n = M \times V(L) = \frac{10^{-2} \times 6\cancel{00}}{10\cancel{00}} = 6 \times 10^{-3}$$

$$m = \frac{G.M.M. \times I \times t}{n \times F}$$

$$\frac{m}{G.M.M.} = \frac{I \times t}{n \times F}$$

$$\cancel{6}^{2} \times 10^{-3} = \frac{I \times \cancel{3}\cancel{00}}{1 \times 965\cancel{00}}$$

$$1930 \times 10^{-3} = I$$

$$I = 1.930 \approx 2$$

Question [NCERT: PL-53 | JEE Mains Jan. 22, 2025 (1)]

Which of the following electrolyte can be used to obtain $H_2S_2O_8$ by the process of electrolysis?

x aq. Na_2SO_4 SO_4^{2-} < OH^- | $2HSO_4^- \rightarrow H_2S_2O_8 + 2e^-$

(A) Dilute solution of sodium sulphate

(B) Dilute solution of sulphuric acid

(C) Concentrated solution of sulphuric acid

HSO_4^- OH^-

↓

D.P. less

(D) Acidified dilute solution of sodium sulphate

Question [NCERT: PL-51 | JEE Mains April 6, 2024 (II)]

How can an electrochemical cell be converted into an electrolytic cell?

(A) Applying an external opposite potential greater than E°_{cell}

(B) Reversing the flow of ions in salt bridge.

(C) Applying an external opposite potential lower than E°_{cell}

(D) Exchanging the electrodes at anode and cathode

Question–[NCERT: PL-51 | Online JEE Mains May 19, 2012] or JEE advance.

The standard potentials of Ag^+/Ag, $Hg_2^{2+}/2Hg$, Cu^{2+}/Cu and Mg^{2+}/Mg electrodes are 0.80, 0.79, 0.34 and –2.37 V, respectively. An aqueous solution which contains one mole per litre of the salts of each of the four metals is electrolyzed. With increasing voltage, the correct sequence of deposition of the metals at the cathode is

$Ag^+(aq) \rightarrow H^+,\ Hg_2^{2+}$

$Hg_2^{2+}(aq) \rightarrow H^+,\ Cu^{2+}$

$Cu^{2+}(aq)$

$Mg^{2+}(aq) \rightarrow Mg^{2+},\ H^+$

$2H^+ + 2e^- \rightarrow H_2(g)$

Ag, Hg, Cu

(A) Ag, Hg, Cu, Mg

(B) Cu, Hg. Ag only

(C) Ag, Hg, Cu only

(D) Mg, Cu, Hg. Ag

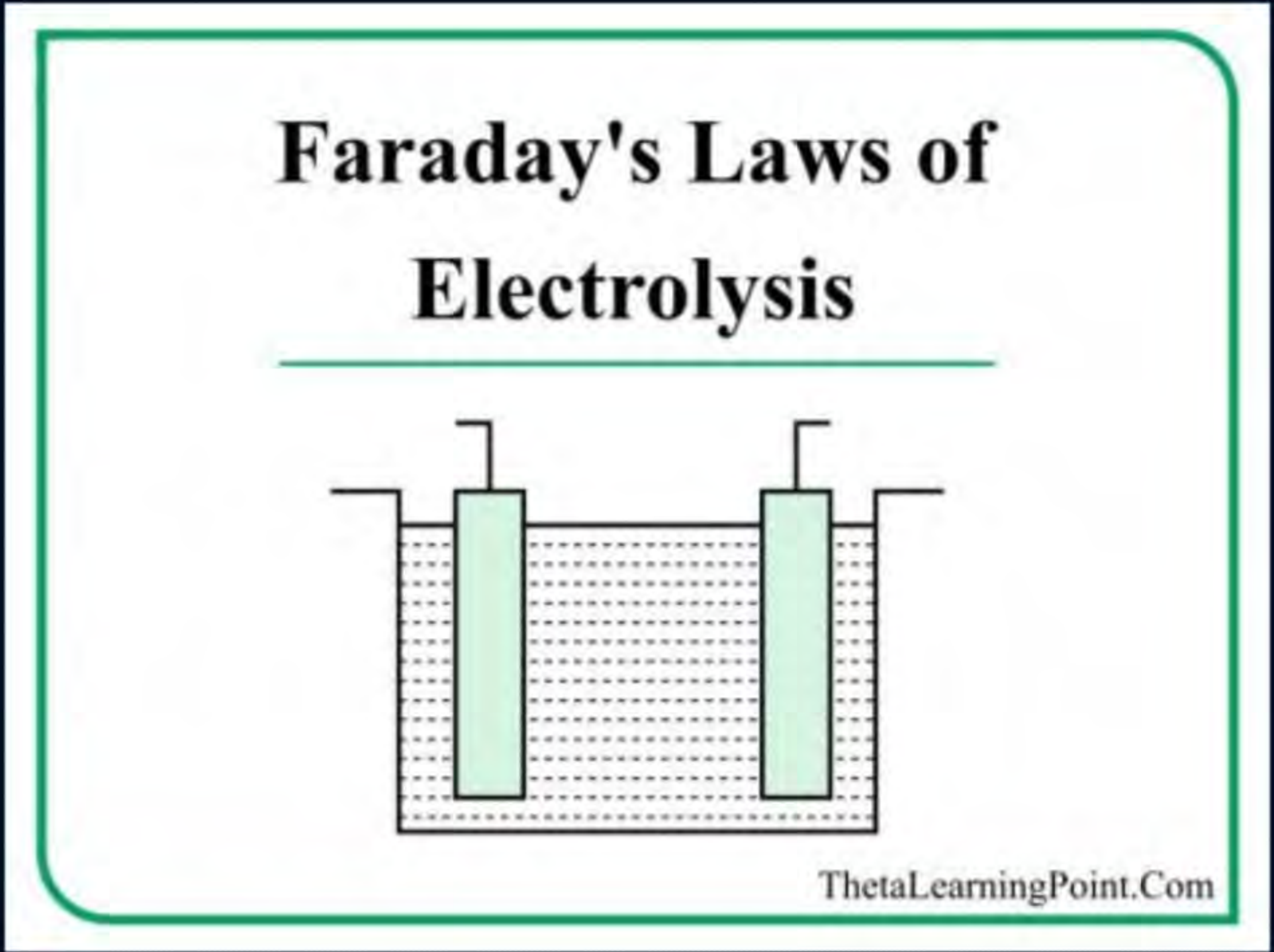
Solutions → Lec-1 to Lec-6. → Tomorrow → MEDICS test

Revision of Last Class

1g eq deposit = 1F

1 mole ~~~ = nF

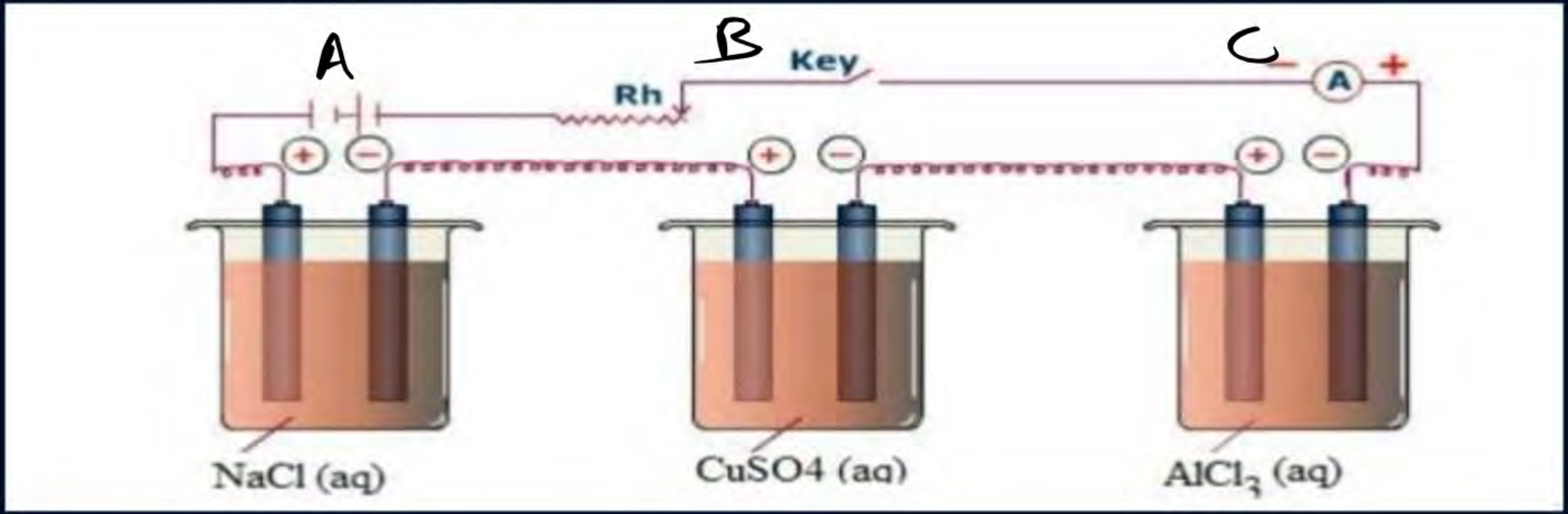
1 mole e^- Charge = 1F



Faraday's Second Law of Electrolysis

$$\frac{W_A}{E_A} = \frac{W_B}{E_B} = \frac{W_C}{E_C}$$

$$\therefore \frac{W_A}{W_B} = \frac{E_A}{E_B}$$



Conductors

- Which can conduct electricity

For Ex.: $Cu(s)$, $Ag(s)$, aq. $Na^{+}Cl^{-}$

Type of Conductors

- There are two types
  - (a) Metallic Conductors → electricity conduct due to electrons
  - (b) Electrolytic Conductors → ions

Metallic Conductors

➢ Metals $\rightarrow$ Cu(s), Ag(s)

Electricity is conducted by electrons

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

$$Cu(s) \longrightarrow Cu^{+} + 1e^-$$

$$Na(s) \longrightarrow Na^{+} + 1e^-$$

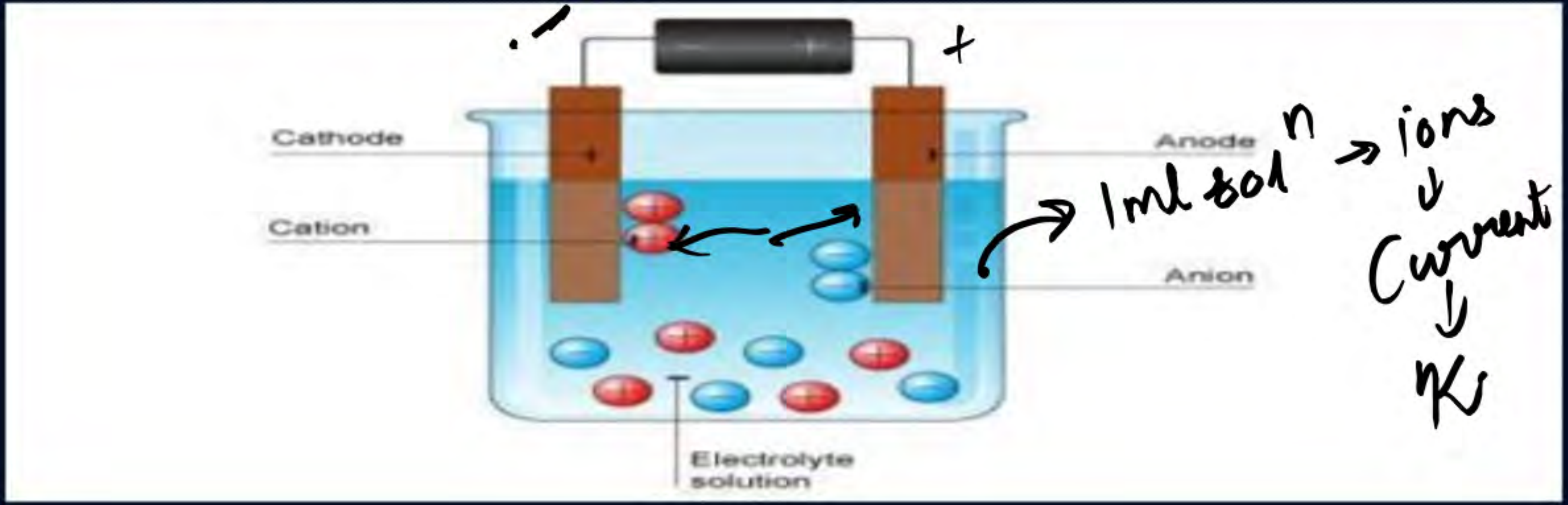
$$Ca(s) \longrightarrow Ca^{2+} + 2e^-$$

Electrolytic Conductors

- Electrolytes in aq. solution or molten state.

For Ex.: aq. NaCl, aq. Na_2SO_4 etc.

But in solid they do not conduct electricity movement of ions is main reason for conductivity



- NaCl(*s*) do not conduct electricity as due to strong ionic bond they are not free to move.

Types of Electrolytic Conductors

- **Strong Electrolytes: $\alpha = 1$**

  Fully dissociate in water

For Ex.: Na^+Cl^-, Na_2SO_4

- **Weak Electrolyte: $\alpha < 1$**

  They do not dissociate completely in water.

For Ex. CH_3COOH, $HCOOH$ etc

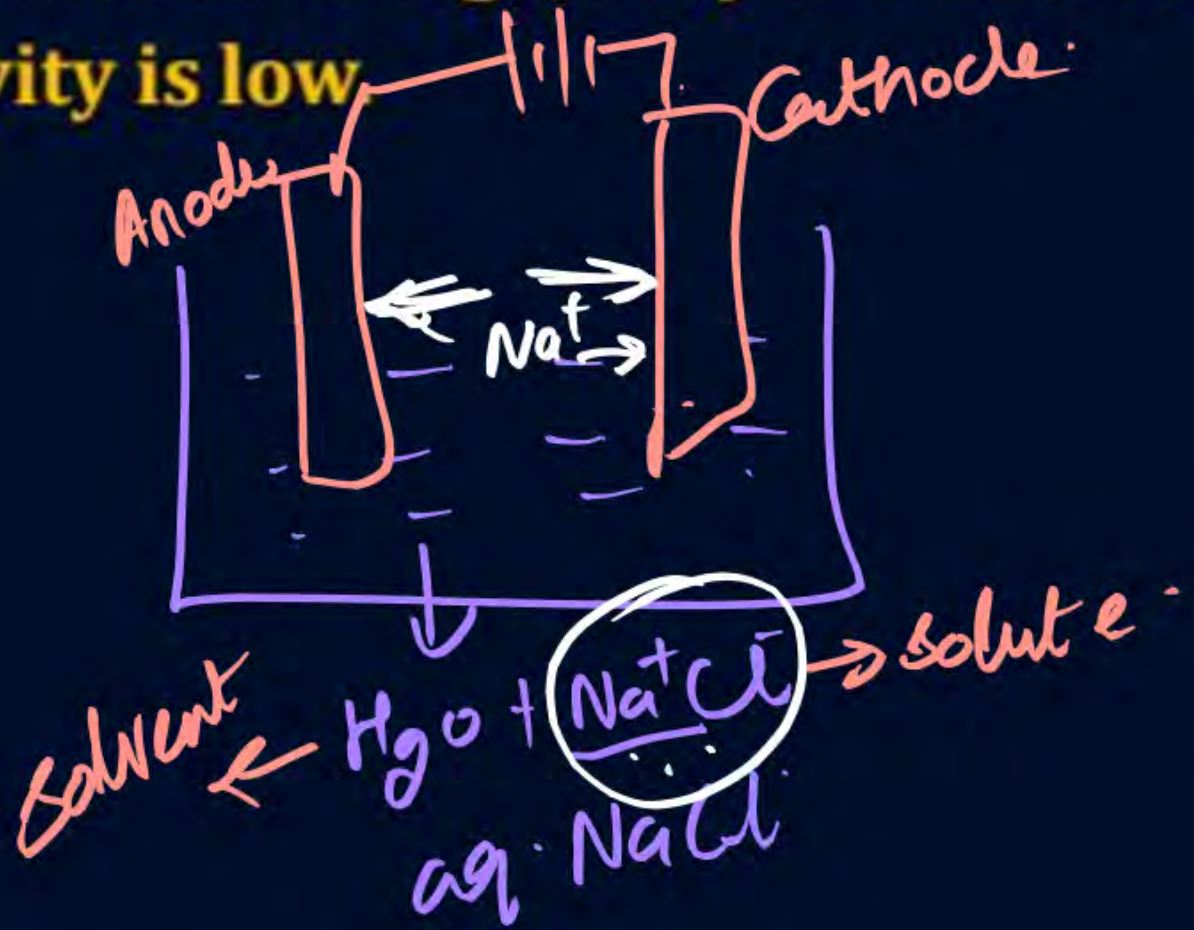
Metallic Conductors	Electrolytic Conductors
1. No mass flow	1. Mass flow $Na^+ + 1e^- \rightarrow Na(s)$
2. Only physical changes occur $Ag(s) \longrightarrow Ag^+ + 1e^-$	2. Both physical and chemical changes occure aq. $Na^+Cl \rightarrow$ electrolysis done after electrolysis H_2, Cl_2 released and aq. NaOH.
3. Conducting power $\propto$ 1/Temperature $T\uparrow R\uparrow \therefore C.P.\downarrow$	3. Conducting power $\propto$ Temperature
4. Faraday's laws not followed	4. Faraday's laws are followed

Electrolytic Conductors Factors Affecting Conductivity

Solute-solute Interaction $\propto \dfrac{1}{\text{electrical Conductivity}}$

➢ **If solute-solute interaction is high, they are not free to move**

∴ Electrical conductivity is low



Solvent-solvent Interaction $\propto \dfrac{1}{\text{Electrical Conductivity.}}$

- If viscosity of solvent is high lesser is the conductivity of solution.

For Ex.: Honey has higher viscosity than water

$\therefore$ Electrolytic conductance of solute in Honey is quite less.

Solute-solvent Interaction $\propto \frac{1}{\text{electrical Conductivity}}$

➢ $NaCl(s) + H_2O \longrightarrow Na^+(aq) + Cl^-(aq)$

Solute Solvent

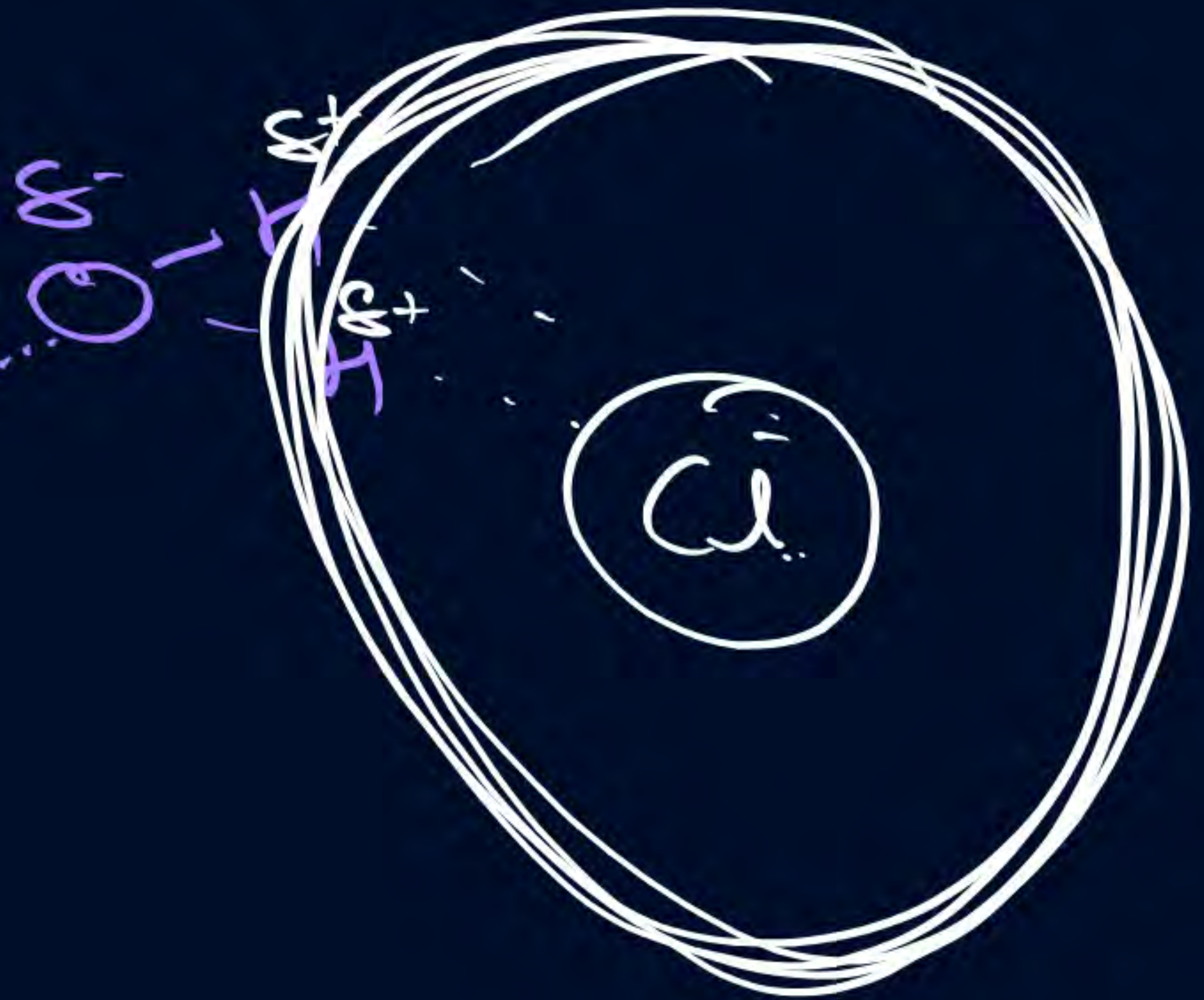
MIT

Before hydration

Small size ⇒ More Hydration

⇒ after hydration ⇒ size max.

Na^+



Solute-solvent Interaction

(aq.) Li^+

(aq.) Na^+

(aq.) K^+

(aq.) Rb^+

(aq.) Cs^+

Hydration ↓

size ↓ [redacted]

electrical Cond. ↑ [redacted]

or

Ionic mobility ↑ [redacted]

$Li^+(g)$

$Na^+(g)$

$K^+(g)$

$Rb^+(g)$

$Cs^+(g)$

size ↑

Grothus Dopper Mechanism

MIT

- **Grothus Dopper Mechanism or Jumping Mechanism:-** Due to jumping mechanism, H^+ has highest ionic mobility followed by OH^- ion's ionic mobility

$H^+ > OH^-$

Ionic mobility ↑

Concentration

- **Strong Electrolyte:-** As concentration increases number of ions increases and electrical conductance increases

For Ex.: Na^+Cl^-

1M NaCl < 2M NaCl.

$\xrightarrow{\qquad\qquad\qquad\qquad}$

Cond. ↑

Concentration

- **Weak Electrolyte:-** $V \uparrow$ $C \downarrow$ $\alpha \uparrow$ $\therefore$ ions $\uparrow$ $\therefore$ elec. Cond. $\uparrow$

Temperature

- **Temperature increase:-** Electrical conductivity increase for electrolytic conductors.

QUESTION (NEET 2017)

Ionic mobility of which of the following alkali metal ions is lowest when aqueous solution of their salts are put under an electric field?

(A) K

(B) Rb

(C) Li

(D) Na

Resistance (R) → ability to resist the current passage.

- Unit: Ohm or Ω

Conductance (G or C)

$$G = \frac{1}{R}$$

unit = ohm^{-1} or Siemens(S) or mho

Specific Resistance Or Resistivity (ρ)

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

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

$$\rho = R \times \frac{a}{l}$$

Unit of ρ = ohm cm

Specific Conductance Or Conductivity (κ) → (kappa)

Reciprocal of resistivity.

MIT

$$K = \frac{1}{\rho}$$

$$K = \frac{1 \times l}{R \times a}$$

unit of $K = S\,cm^{-1}$

$K \rightarrow$ Current of all ions present in 1 ml of sol^n.

$1\,ml = 1\,cm^3$

QUESTION

Strong electrolytes are those which:

(A) Conduct electricity ✗

(B) Dissolve readily in water

(C) Dissociate into ions at high dilution

✓ (D) Completely dissociate into ions

QUESTION

The electric conduction of a salt solution in water depends on the:

(A) Size of its molecules

(B) Shape of its molecules

(C) Size of solvent molecules

(D) Extent of its ionization

QUESTION

Which of the following is arranged in increasing order of ionic mobility ?

(A) $I^- < Br^- < Cl^- < F^-$

(B) $F^- < Cl^- < Br^- < I^-$

(C) $F^- < I^- < Cl^- < Br^-$

(D) $F^- < Cl^- < I^- < Br^-$

$F^-(g)$

$Cl^-(g)$ size ↑

$Br^-(g)$

$I^-(g)$

QUESTION

$\uparrow C = \frac{1}{10} M$

Resistance of a decimolar solution between two electrodes 0.02 meter apart and 0.0004 m^2 in area was found to be 50 ohm. Specific conductance (k) is:

(A) 0.1 $S\,m^{-1}$

(B) 1 $S\,m^{-1}$

(C) 10 $S\,m^{-1}$

(D) 4×10^{-4} $S\,m^{-1}$

$l = 0.02\ m$

$a = 0.0004\ m^2$

$R = 50\ \Omega$

$k = \frac{1}{R} \times \frac{l}{a}$

$= \frac{1 \times 0.02 \times 10\cancel{0}}{5\cancel{0} \times 0.0004} = \frac{20}{20} = 1\ S\,m^{-1}$

MIT

l = distance b/w two electrodes.

a = area of cross-section.

$\frac{l}{a}$ = Cell Constant → remains same even if electrolyte is Changed.

Molar Conductivity (Λ_M) → electrolyte

λ_M → ions

$1 m^2 = 10^4 cm^2$

$\frac{1}{10^4} m^2 = 1 cm^2$

➢ **Current of all the ions when 1 mole electrolyte dissolved in V ml of solution.**

#IMT

$$\Lambda_M = \kappa \times V(ml)$$

$$\Lambda_M = \frac{\kappa \times 1000}{M}$$

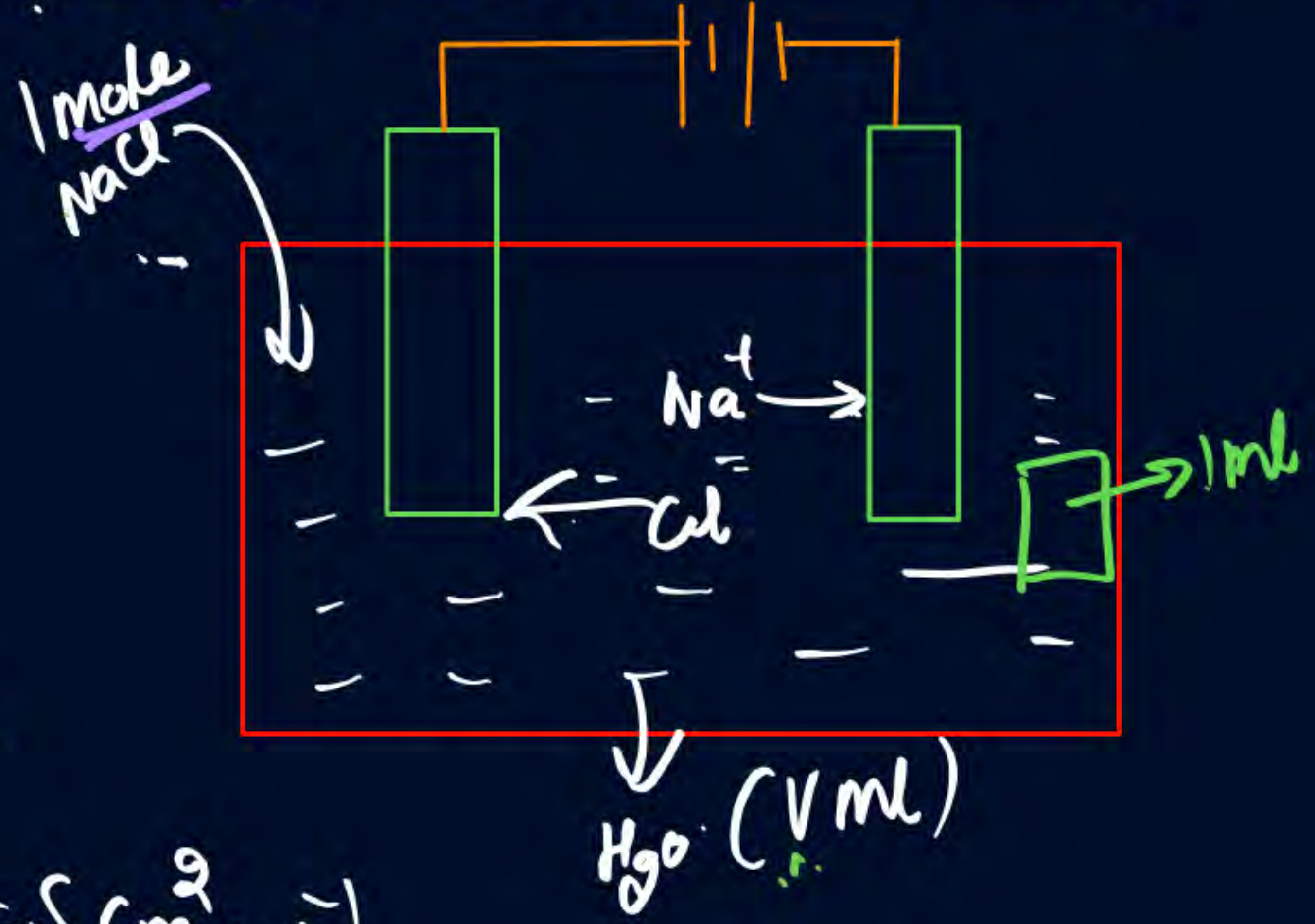
unit of $\Lambda_M = S\,cm^2\,mol^{-1}$

$$M = \frac{n_B \times 1000}{V(ml)}$$

$$n_B = 1$$

$$V(ml) = \frac{1000}{M}$$

$$\frac{S \times cm^2}{cm \times mol} = S\,cm^2\,mol^{-1}$$



QUESTION (NEET (Phase-I) 2016))

The molar conductivity of a 0.5 mol/dm^3 solution of $AgNO_3$ with electrolytic conductivity of 5.76×10^{-3} S cm^{-1} at 298 K in S cm^2/mol is:

(A) 2.88

(B) 11.52

(C) 0.086

(D) 28.8

$M = 0.5\,M$

$\kappa = 5.76 \times 10^{-3}\ S\,cm^{-1}$

$$\Lambda_M = \frac{\kappa \times 1000}{M}$$

$$= \frac{5.76 \times \cancel{10^{-3}} \times 1\cancel{000}}{0.50} = 11.52\ S\,cm^2\,mol^{-1}$$

Equivalent Conductivity ($\Lambda_{eq.}$ or Λ_N)

➢ **Current of all ions when 1 gram eq. of electrolyte is dissolved in V. ml of solution.**

MIT #

$$\boxed{\begin{aligned} \Lambda_N &= K \times V(ml) \\ \Lambda_N &= \frac{K \times 1000}{N} \\ \text{unit of } \Lambda_N &= S\,cm^2\,geq^{-1} \end{aligned}}$$

$$N = \frac{g \cdot eq \cdot \times 1000}{V(ml)}$$

$$g \cdot eq = 1$$

$$V(ml) = \frac{1000}{N}$$

QUESTION

Equivalent conductivity can be expressed in terms of specific conductance (*k*) and concentration (*N*) in gram equivalent dm^{-3} as:

(A) $k \times N$

(B) $\frac{k \times 1000}{N}$

(C) $\frac{k \times N}{1000}$

(D) $k \times N \times 1000$

$$\Lambda_N = \frac{K \times 1000}{N}$$

QUESTION (WB (JEE) 2015)

At a particular temperature the ratio of equivalent conductance to specific conductance of a 0.01(N) NaCl solution is:

$N = 0.01\,N$

(A) $10^5\ cm^3$

(B) $10^3\ cm^3$

(C) $10\ cm^3$

(D) $10^5\ cm^2$

$\frac{\Lambda_N}{K} = ?$

$\Lambda_N = \frac{K \times 1000}{N}$

$\frac{\cancel{S}\,cm^2 \times cm}{geq \times \cancel{S}}$ $\frac{\Lambda_N}{K} = \frac{1000}{N} = \frac{1000 \times 100}{0.01}$

$= 10^5$

Relation Between (Λ_M and Λ_N)

$$\Lambda_N = \frac{\kappa \times 1000}{N}$$

$N = M \times n_{factor}$

$$= \frac{\kappa \times 1000}{M \times n_{factor}}$$

$$\Lambda_N = \frac{\Lambda_M}{n_{factor}}$$

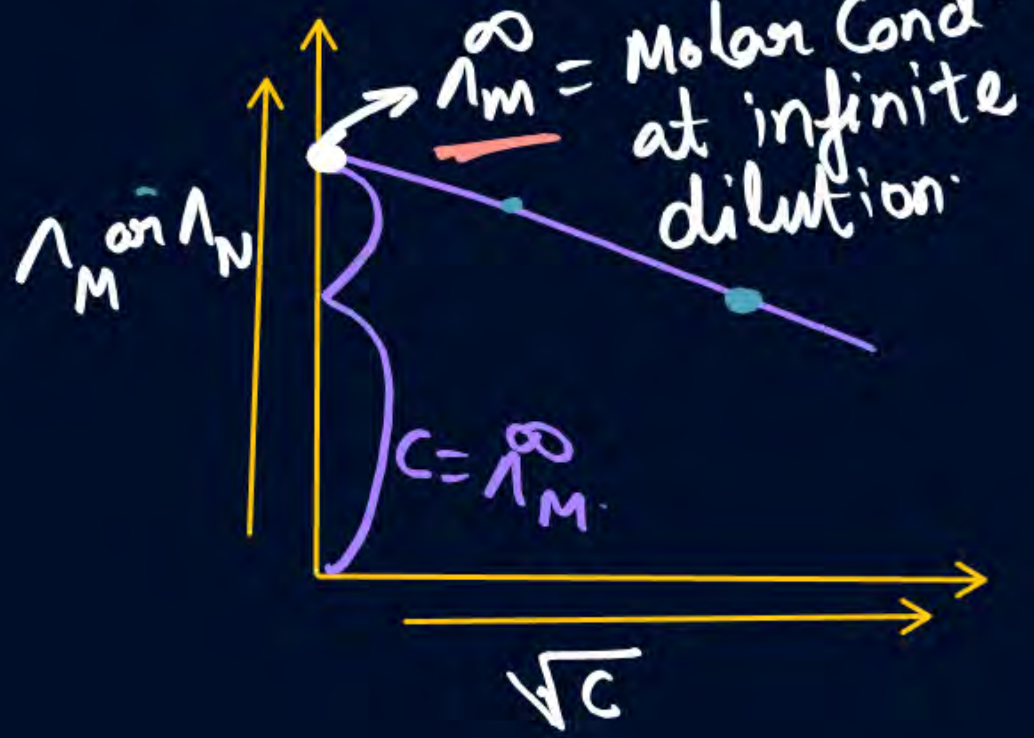
MIT

$$\boxed{\Lambda_M = \Lambda_N \times n_{factor}}$$

MaNaN

Variation of Λ_M or Λ_N with Concentration (C)

> **Strong Electrolyte:-**



$$\Lambda_M^c = \Lambda_M^\infty - b\sqrt{C}$$
$$y = c + mx$$

$m = -b$ (Debye-Huckel onsagar eqn)

$\downarrow C = \frac{n}{V}\uparrow$

$Na^+Cl^- \rightarrow Na^+ + Cl^-$

$Na^+ \rightarrow$ Cathode, $Cl^- \rightarrow$ Anode

as $V\uparrow$ (dilution $\uparrow$) ions are free to move as distance $\uparrow$ $\therefore \Lambda_M \uparrow$

b = depend upon solvent & Temp. & Charges on ions

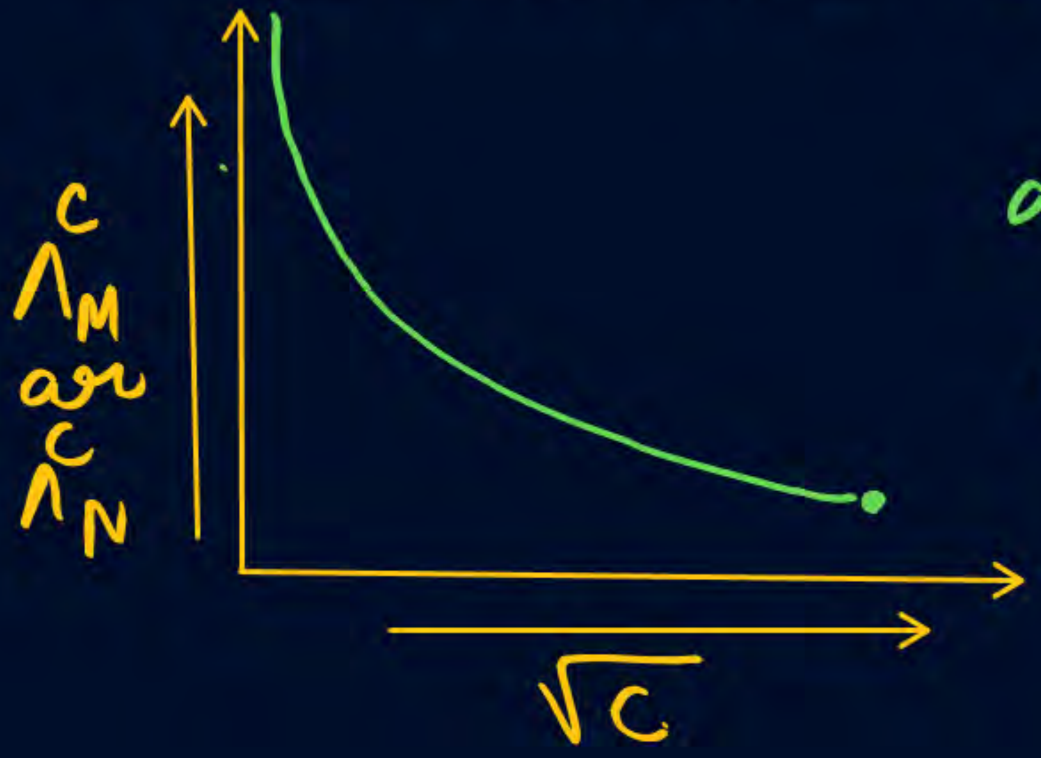
$NaCl$, $MgCl_2$, $MgSO_4$

$+1, -1,$ $+2, -1$ $+2, -2$

KCl

Variation of Λ_M or Λ_N with Concentration (C)

- **Weak Electrolyte:-** $\downarrow C = \frac{n}{V\uparrow}$ $\quad CH_3COOH + H_2O \rightarrow CH_3COO^- + H^+$



as $V\uparrow$, $C\downarrow$, $\alpha\uparrow$ $\therefore$ no. of ions $\uparrow$ $\therefore$ Λ_M or Λ_N $\uparrow$

we can't find Λ_M^∞ for weak electrolyte with help of graph.

QUESTION (AIPMT (Pre.) 2010)

An increase in equivalent conductance of a strong electrolyte with dilution is mainly due to

(A) increase in number of ions

(B) increase in ionic mobility of ions

(C) 100% ionisation of electrolyte at normal dilution

(D) increase in both, i.e., number of ions and ionic mobility of ions

QUESTION

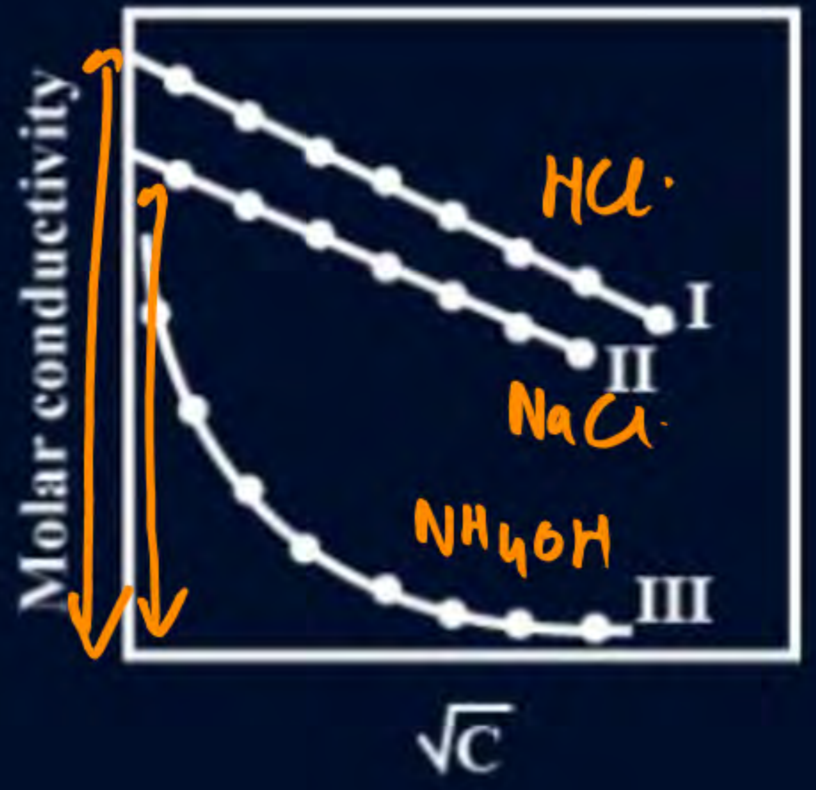
A graph was plotted between molar conductivity of various electrolytes ($NaCl$, HCl and NH_4OH) and $\sqrt{C}$ (in mol L^{-1}). Correct set is:

(A) I(NaCl), II (HCl), II(NH_4OH)

(B) I(HCl), II(NaCl), III(NH_4OH)

(C) I(NH_4OH),II (NaCl), III (HCl)

(D) I(NH_4OH), II (HC), II(NaCl)



Variation of Conductivity (k) with Dilution

- **Strong Electrolytes:-**

Variation of Conductivity (k) with Dilution

- **Weak Electrolytes:-**

Kohlrausch's Law

QUESTION (AIPMT (Pre.) 2012)

Limiting molar conductivity of NH_4OH (i.e., $\overset{0}{\Lambda}_{m(NH_4OH)}$) is equal to

(A) $\overset{0}{\Lambda}_{m(NH_4Cl)} + \overset{0}{\Lambda}_{m(NaCl)} - \overset{0}{\Lambda}_{m(NaOH)}$

(B) $\overset{0}{\Lambda}_{m(NaOH)} + \overset{0}{\Lambda}_{m(NaCl)} - \overset{0}{\Lambda}_{m(NH_4Cl)}$

(C) $\overset{0}{\Lambda}_{m(NH_4OH)} + \overset{0}{\Lambda}_{m(NH_4Cl)} - \overset{0}{\Lambda}_{m(HCl)}$

(D) $\overset{0}{\Lambda}_{m(NH_4Cl)} + \overset{0}{\Lambda}_{m(NaOH)} - \overset{0}{\Lambda}_{m(NaCl)}$

QUESTION (AIPMT (Mains) 2012)

The molar conductance's of NaCl, HCl and CH_3COONa at infinite dilution are 126.45, 426. 16 and 91ohm^{-1} cm^2 mol^{-1} respectively. The molar conductance of CH_3COOH at infinite dilution is

(A) 201.28 ohm^{-1} cm^2 mol^{-1}

(B) 390.71 ohm^{-1} cm^2 mol^{-1}

(C) 698.28 ohm^{-1} cm^2 mol^{-1}

(D) 540.48 ohm^{-1} cm^2 mol^{-1}

QUESTION (AIPMT (Main) 2010)

Which of the following expressions correctly represents the equivalent conductance at infinite dilution of $Al_2(SO_4)_3$. Given that $\lambda^o_{Al^{3+}}$ and $\lambda^o_{SO_4^{2-}}$ are the equivalent conductances at infinite dilution of the respective ions?

(A) $2\lambda^o_{Al^{3+}} + 3\lambda^o_{SO_4^{2-}}$

(B) $\lambda^o_{Al^{3+}} + \lambda^o_{SO_4^{2-}}$

(C) $(\lambda^o_{Al^{3+}} + \lambda^o_{SO_4^{2-}}) \times 6$

(D) $\frac{1}{3}\lambda^o_{Al^{3+}} + \frac{1}{2}\lambda^o_{SO_4^{2-}}$

QUESTION (WB (JEE) 2013)

Equivalent conductivity at infinite dilution for sodium-potassium oxalate ($(COO^-)_2Na^+K^+$) will be [given, molar conductivities of oxalate, K^+ and Na^+ ions at infinite dilution are 148.2, 50.1, 73.5 S cm^2 mol^{-1}, respectively]

(A) 271.8 S cm^2 eq^{-1}

(B) 67.95 S cm^2 eq^{-1}

(C) 543.6 S cm^2 eq^{-1}

(D) 135.9 S cm^2 eq^{-1}

QUESTION (WB (JEE) 2013)

The correct order of equivalent conductances at infinite dilution in water at room temperature for H^+, K^+, CH_3COO_- and HO^- ions is

(A) $HO^- > H^+ > K^+ > CH_3COO^-$

(B) $H^+ > HO^- > K^+ > CH_3COO^-$

(C) $H^+ > K^+ > HO^- > CH_3COO^-$

(D) $H^+ > K^+ > CH_3COO^- > HO^-$

QUESTION

The ionic conductivity of Ba^{2+} and Cl at infinite dilution are 127 and 76 $ohm^{-1}\ cm^2\ eq^{-1}$ respectively. The equivalent conductivity of $BaCl_2$ at infinity dilution (in $ohm^{-1}\ cm^2\ eq^{-1}$) would be:

(A) 203

(B) 279

(C) 101.5

(D) 139.5

QUESTION (Kerala PMT 2012)

The electrical properties and their respective SI units are given below. Identify the wrongly matched pair

	Electrical Property	SI Unit
A	Specific conductance	Sm^{-1}
B	Conductance	S
C	Equivalent Conductance	Sm^2 (gm equiv)$^{-1}$
D	Molar Conductance	$Sm^2\ mol^{-1}$
E	Cell Constant	m

Degree of Dissociation (α)

QUESTION (NEET 2013)

At 25°C molar conductance of 0.1 molar aqueous solution of ammonium hydroxide is 9.54 $ohm^{-1}\ cm^{-1}\ mol^{-1}$ and at infinite dilution its molar conductance is 238 $ohm\ cm^{-2}\ mol^{-1}$. The degree of ionization of ammonium hydroxide at the same concentration and temperature is:

(A) 40.800%

(B) 2.080%

(C) 20.800%

(D) 4.008%

Relation Between Ionisation Constant (K_a or K_b) & α

Magarmach Practice Questions

4 p.m. → half an hour class

QUESTION – 1

The specific conductance of a saturated solution of silver bromide is κ S cm^{-1}. The limiting ionic conductivity of Ag^+ and Br^- ions are x and y, respectively. The solubility of silver bromide in gL^{-1} is: (Molar mass of AgBr = 188)

(A) $\frac{\kappa \times 1000}{x-y}$

(B) $\frac{\kappa}{x+y} \times 188$

(C) $\frac{\kappa \times 1000 \times 188}{x+y}$

(D) $\frac{x+y}{\kappa} \times \frac{1000}{188}$

Ans :- C

QUESTION –

The resistance of 0.1 N solution of formic acid is 200 ohm and cell constant is 2.0 cm^{-1}. the equivalent conductivity (in $S\ cm^2\ eq^{-1}$) of 0.1 N formic acid is:

(A) 100

(B) 10

(C) 1

(D) None of these

Ans 100

QUESTION –

A conductance cell was filled with a 0.02 M KCl solution which has a specific conductance of 2.768×10^{-3} ohm^{-1} cm^{-1}. If its resistance is 82.4 ohm at 25°C, the cell constant is:

(A) $0.2182\ cm^{-1}$

(B) $0.2281\ cm^{-1}$

(C) $0.2821\ cm^{-1}$

(D) $0.2381\ cm^{-1}$

Ans B

QUESTION –

The ionic conductivity of Ba^{2+} and Cl^- at infinite dilution are 127 and 76 ohm^{-1} cm^2 eq^{-1} respectively. The equivalent conductivity of $BaCl_2$ at infinity dilution (in ohm^{-1} cm^2 eq^{-1}) would be:

(A) 203

(B) 279

(C) 101.5

(D) 139.5

Ans A

QUESTION –

Λ^{∞}_{AgCl} can be obtained:

(A) by extraplotation of the graph Λ and $\sqrt{C}$ to zero concentration

(B) by known values of Λ^{∞} of $AgNO_3$, HCl and HNO_3

(C) Both (A) and (B)

(D) None of these

Ans B

QUESTION –

The conductance of a salt solution (AB) measured by two parallel electrodes of area 100 cm^2 separated by 10 cm was found to be 0.0001 Ω^{-1}. If volume enclosed between two electrode contain 0.1 mole of salt, what is the molar conductivity (S cm^2 mol^{-1}) of salt at same concentration.

(A) 10

(B) 0.1

(C) 1

(D) None of these

Ans B

QUESTION

Given below are two statements:

Statement-I : For KI, molar conductivity increases steeply with dilution.

Statement-II : For carbonic acid, molar conductivity increases slowly with dilution.

In the light of the above statement, choose the correct answer from the options given below: (JEE MAINS 27 July 2nd shift-2022)

(A) Both statement I and statement II are true

(B) Both statement I and statement II are false

(C) Statement 1 is true but statement II is false

(D) Statement 1 is false but statement II is true

Ans B

QUESTION

Given below are two statements: (JEE MAINS 26 Aug. 1st shift 2021)

Statement-I : The limiting molar conductivity of KCl (strong electrolyte) is higher compared to that of CH_3COOH (weak electrolyte).

Statement-II : Molar conductivity decreases with decrease in concentration of electrolyte.

In the light of the above statements, choose the most appropriate answer from the options given below:

(A) Statement I is false but statement II is true

(B) Both statement I and statement II is true

(C) Statement I is true but statement II is false

(D) Both statement I and statement II is false

Ans D

QUESTION – (JEE Advance 2017)

The conductance of a 0.0015 M aqueous solution of a weak monobasic acid was determined by using conductivity cell consisting of platinized Pt electrodes. The distance between the electrodes is 120 cm with an area of cross section of 1 cm^2. the conductance of this solution was found to be 5×10^{-7} S. The pH of the solution is 4. The value of limiting molar conductivity (Λ°_m) of this weak monobasic acid in aqueous solution is $Z \times 10^2$ S cm^2 mol^{-1}. The value of Z is:

Ans $Z = 6$

QUESTION – (JEE Advance 2022)

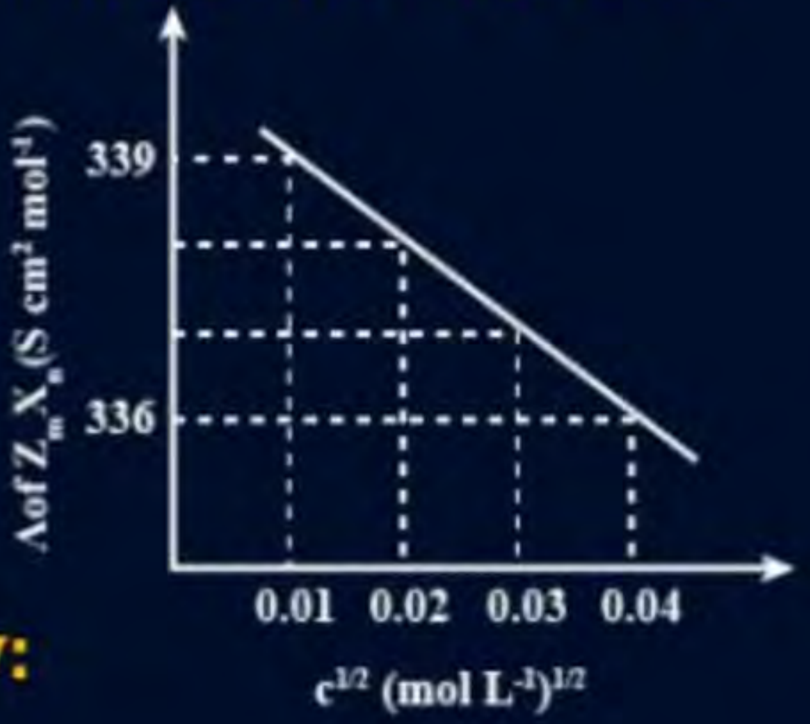
Consider the strong electrolytes Z_mX_n, U_mY_p and V_mX_n. Limiting molar conductivity ($\Lambda°$) of U_mY_p and V_mX_n are 250 and 440 S cm^2 mol^{-1}, respectively. The value of $(m + n + p)$ is ______.

Given:

Ion	Z^{n+}	U^{p+}	V^{n+}	X^{m-}	Y^{m-}
$\lambda°$(S cm^2 mol^{-1})	50.0	25.0	100.0	80.0	100.0

$\lambda°$ is limiting molar conductivity of ions.

The plot of molar conductivity (Λ) of Z_mX_n vs $c^{1/2}$ is given below:



Ans $m+n+p=8$

QUESTION

Let C_{NaCl} and C_{BaSO_4} be the conductances (in S) measured for saturated aqueous solutions of NaCl and $BaSO_4$, respectively, at a temperature T.

Which of the following is false? **(JEE MAINS 3 Sep. 1st shift 2020)**

(A) Ionic mobilities of ions from both salts increase with T.

(B) $C_{BaSO_4}(T_2) > C_{BaSO_4}(T_1)$ for $T_2 > T_1$

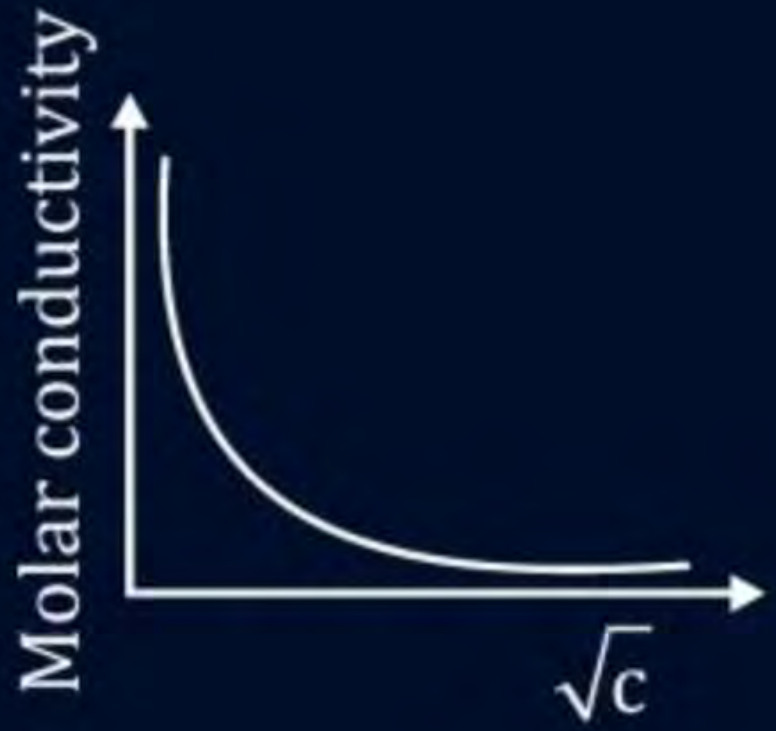
(C) $C_{NaCl}(T_2) > C_{NaCl}(T_1)$ for $T_2 > T_1$

(D) $C_{NaCl}(T_2) >> C_{BaSO_4}$ at a given T

all are correct

QUESTION

The variation of molar conductivity with concentration of an electrolyte (X) in aqueous solution is shown in the given figure. (JEE MAINS 5th sep 2nd shift 2020)



(A) HCl

(B) NaCl

(C) KNO_3

(D) CH_3COOH

Ans D

Home work from modules

Prarambh → Q 37, 38, 39, 40, 41, 42, 48, 50, 51

54, 55, 57, 59,

THANK
YOU