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CHEMISTRY

DAILY PRACTICE PAPER

(DPP) - 2

ELECTROCHEMISTRY – For Electrical Conduction

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ELECTROCHEMISTRY – For Electrical Conduction

Unit - Electrochemistry **Topic - Galvanic Cell**

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Objective Problems

01. Acidified water was electrolysed using an inert electrode. The volume of gases liberated at STP was 168 mL. The amount of electricity passed through the acidified water was

(A) 96,500 C (B) 9,650 C
(C) 965 C (D) 168 C

02. Which of the following is arranged in order of increasing ionic conductance?

(A) $NH_4^+ < Ag^+ < Na^+ < Li^+$
(B) $Na^+ < NH_4^+ < Ag^+ < Li^+$
(C) $Li^+ < Na^+ < Ag^+ < NH_4^+$
(D) $Ag^+ < Li^+ < Na^+ < NH_4^+$

03. The specific conductance of a saturated AgCl solution is found to be $1.86 \times 10^{-6} S\ cm^{-1}$ and that for water is $6.0 \times 10^{-8}\ S\ cm^{-1}$. The solubility of AgCl is

(A) 1.7×10^{-3} mol L^{-1} (B) 1.3×10^{-5} mol L^{-1}
(C) 1.3×10^{-4} mol L^{-1} (D) 1.3×10^{-6} mol L^{-1}

04. The conductivity of 0.01 mol/dm^3 aqueous acetic acid at 300 K is $19.5 \times 10^{-5} ohm^{-1}cm^{-1}$ and the limiting molar conductivity of acetic acid at the same temperature is 390 $ohm^{-1}\ cm^2\ mol^{-1}$. The degree of dissociation of acetic acid is :

(A) 0.5 (B) 0.05 (C) 5×10^{-3} (D) 5×10^{-7}

05. The ionization constant of a weak electrolyte is 25×10^{-4} while the equivalent conductance of its 0.01 M solution is 19.6 s $cm^2\ eq^{-1}$. The equivalent conductance of the electrolyte at infinite dilution (in s $cm^2\ eq^{-1}$) will be :

(A) 250 (B) 196 (C) 392 (D) 384

06. The correct order of equivalent conductance at infinite dilution of LiCl, NaCl and KCl is :

(A) LiCl > NaCl > KCl (B) KCl > NaCl > LiCl
(C) NaCl > KCl > LiCl (D) LiCl > KCl > NaCl

07. On increasing the dilution, the specific conductance :

(A) Increases (B) Decreases
(C) Remains constant (D) None of the above

08. The distance between two electrodes of a cell is 2.5 cm and area of each electrode is 5 cm^2. The cell constant is :

(A) 2 (B) 12.5 (C) 7.5 (D) 0.5

09. The molar conductances of NaCl, HCl and CH_3COONa at infinite dilution are 126.45, 426.16 and $91 ohm^{-1}cm^2mol^{-1}$ 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) 689.28 $ohm^{-1}\ cm^2\ mol^{-1}$
(D) 540.48 $ohm^{-1}\ cm^2\ mol^{-1}$

10. Equivalent conductance of NaCl, HCl and C_2H_5COONa at infinite dilution are 126.45, 426.16 and 91 $ohm^{-1}\ equiv^{-1}\ cm^2$, respectively. The equivalent conductance of C_2H_5COOH is:

(A) 201.28 $ohm^{-1}\ equiv^{-1}\ cm^2$
(B) 390.71 $ohm^{-1}\ equiv^{-1}\ cm^2$
(C) 698.28 $ohm^{-1}\ equiv^{-1}\ cm^2$
(D) 540.48 $ohm^{-1}\ equiv^{-1}\ cm^2$

11. The specific conductance of 0.1 N KCl solution at 23°C is 0.012 $ohm^{-1}\ cm^{-1}$. The resistance of cell containing the solution at the same temperature was found to be 55 ohm. The cell constant will be:

(A) 0.142 cm^{-1} (B) 0.66 cm^{-1}
(C) 0.918 cm^{-1} (D) 1.12 cm^{-1}

12. The equivalent conductance of Ba^{2+} and Cl^- are respectively 127 and 76 $ohm^{-1}\ cm^2\ equiv^{-1}$ at infinite dilution. The equivalent conductance (in $ohm^{-1}\ cm^2\ equiv^{-1}$) of $BaCl_2$ at infinite dilution will be:

(A) 139.5 (B) 203 (C) 279 (D) 101.5

13. 0.04 N solution of a weak acid has specific conductance 4.23×10^{-4} mho cm^{-1} and degree of dissociation is 0.0612. The equivalent conductance of weak acid at infinite dilution is:

(A) 1.72 mho (B) 17.29 mho
(C) 142.27 mho (D) 172.79 mho

14. The resistance of 0.1 N solution of salt is found to be 2.5×10^3 ohms. The equivalent conductance of solution (cell constant = 1.15 cm^{-1}) in $ohm^{-1}\ cm^2\ equiv^{-1}$ is:

(A) 3.8 (B) 4.6 (C) 6.4 (D) 7.6

15. The best conductor of electricity is a 0.1 M solution of:

(A) H_2SO_4 (B) CH_3COOH
(C) CH_3CH_2COOH (D) boric acid

16. Which of the following statement(s) is/are correct about the conductance/resistance of a metallic conductor?
(A) The resistance of a metal increases with increase in temperature and thus thermal co-efficient of resistivity is found to be positive.
(B) The thermal coefficient of resistivity of a metallic conductor is 1/273 per ^{o}C.
(C) The conductivities of non–conductors and semi–conductors increase with increase in temperature and thus a is found to be positive.
(D) The slope of V–I curve (V plotted on Y–axis, I on X–axis) represents resistance.

17. The cell constant of a solution, whose specific conductance and observed conductance are same, is equal to
(A) 1 (B) 0 (C) 10 (D) 100

18. The unit of equivalent conductivity is:
(A) $ohm^{-1}\ cm^2(equivalent)^{-1}$
(B) ohm cm^2 (g-equivalent)
(C) ohm cm^2
(D) $ohm^{-1}\ m^{-1}$

19. What is the effect of dilution on the equivalent conductance of strong electrolyte?
(A) decrease on dilution
(B) remains unchanged
(C) increase on dilution
(D) none of the these

20. Conductivity (Unit Siemen's 'S') is directly proportional to area of the vessel and the concentration of the solution in it and is inversily proportional to the length of the vessel, then the unit of constant of proportionality is
(A) S m mol^{-1} (B) S m^2 mol^{-1}
(C) S^{-2} m^2 mol (D) S^2 m^2 mol^{-2}

21. The specific conductance of a 0.1 N KCl solution at 23°C is 0.0112 ohm^{-1} cm^{-1}. The resistance of the cell containing the solution at the same temperature was found to be 55 ohm. The cell constant will be
(A) 0.142 cm^{-1} (B) 0.918 cm^{-1}
(C) 1.12 cm^{-1} (D) 0.616 cm^{-1}

22. Cell constant is maximum in case of a
(A) wire of length 100 cm and area 100 cm^2
(B) wire of length 10 cm and area 10 cm^2
(C) one centimeter cube of a material
(D) equal in all cases

23. 0.1M H_2SO_4 is diluted to 0.01 M H_2SO_4. Hence its molar conductance will be
(A) 10 times (B) 1/10th
(C) 100 times (D) 10000 times

24. Λ_m^∞ $(BaSO_4)$ is equal to
(A) Λ_m^∞ of $(BaCl_2 + H_2SO_4 - HCl)$
(B) Λ_m^∞ of $(BaCl_2 + H_2SO_4 - 2HCl)$
(C) limiting molar conductance when graph between Λ_m and $\sqrt{C}$ is extrapolated to zero
(D) none of these

25. The limiting molar conductivities L^0 for NaCl, KBr and KCl are 126,152 and 150Scm^2mol^{-1} respectively. The L^0 for NaBr is
(A) 278 S cm^2 mol^{-1} (B) 176 S cm^2 mol^{-1}
(C) 128 S cm^2 mol^{-1} (D) 302 S cm^2 mol^{-1}

26. The highest electrical conducitivity of the following aqueous solution is of
(A) 0.1 M fluoroacetic acid
(B) 0.1 M difluoroacetic acid
(C) 0.1 M acetic acid
(D) 0.1 M chloroacetic acid

27. Resistance of a conductivity cell filled with a solution of an electrolyte of concentration 0.1M is 100W. The conductivity of this solution is 1.29 Sm^{-1}. Resistance of the same cell when filled with 0.02M of the same solution is 520W. The molar conductivity of 0.02M solution of the electrolyte will be
(A) 124 × 10^{-4} Sm^2 mol^{-1}
(B) 1240 × 10^{-4} Sm^2 mol^{-1}
(C) 1.24 × 10^4 Sm^2 mol^{-1}
(D) 12.4 × 10^{-4} Sm^2 mol^{-1}

28. The molar conductivities $\wedge^0_{NaOAc}$ and $\wedge^0_{HCl}$ at infinite dilution in water at 25°C are 91.0 and 426.2 S cm^2/mol respectively. To calculate $\wedge^0_{HOAc}$ the additional value required is
(A) KCl (B) NaOH (C) NaCl (D) H_2O

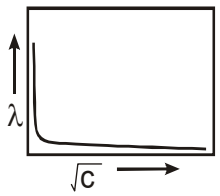
29. Resistance of 0.2 M solution of an electrolyte is 50 W. The specific conductance of the solution is 1.3 S m^{-1}. If resistance of the 0.4M solution of the same electrolyte is 260 W, its molar conductivity is
(A) 6250 S m^2 mol^{-1}
(B) 6.25 × 10^{-4} S m^2 mol^{-1}
(C) 625 × 10^{-4} S m^2 mol^{-1}
(D) 62.5 S m^2 mol^{-1}

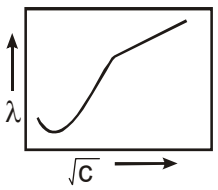
30. The correct order of equivalent conductance at infinite dilution of LiCl, NaCl and KCl is
(A) LiCl > NaCl > KCl
(B) KCl > NaCl > LiCl
(C) NaCl > KCl > LiCl
(D) LiCl > KCl > NaCl

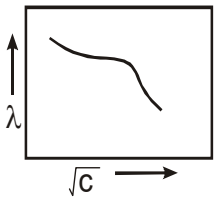
31. Saturated solution of KNO_3 is used to make salt bridge because
(A) velocity of $K^+$is greater than that ofNO^-_3
(B) velocity of NO_3^- is greater than that of K^+
(C) velocities of both K^+ and NO^-_3 are nearly the same
(D) KNO_3 is highly soluble in water

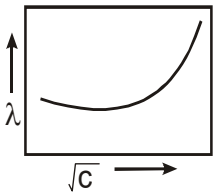
32. Equivalent conductance of $BaCl_2$, H_2SO_4 & HCl at infinite dilution are $A_¥^1$, $A_¥^2$ & $A_¥^3$ respectively. Equivalent conductance of $BaSO_4$ solution is
(A) $A_¥^1 + A_¥^2 - 2\ A_¥^3$ (B) $A_¥^1 + A_¥^2 + A_¥^3$
(C) $A_¥^1 + A_¥^2 - A_¥^3$ (D) $A_¥^1 - A_¥^2 + A_¥^3$

33. The variation of equivalent conductance of a weak electrolyte with (concentration)$^{1/2}$ is represented as

(A) 

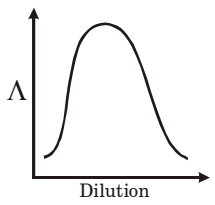
(B) 

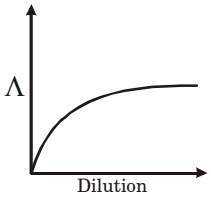
(C) 

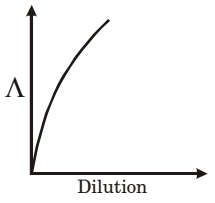
(D) 

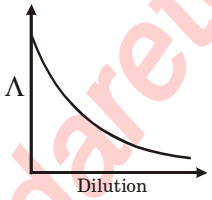
34. The specific conductance of a normal solution of KCl at 25°C is 0.002765 mho cm^{-1}. The resistance of cell containing this solution is 400 ohms. The cell constant is (in cm^{-1}):
(A) 0.965 (B) 1.106 (C) 2.206 (D) 3.306

35. Which of the following plots represents correctly variation of equivalent conductance (L) with dilution for a strong electrolyte ?

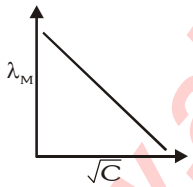
(A) 

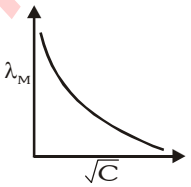
(B) 

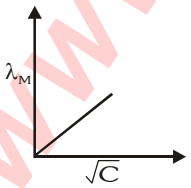
(C) 

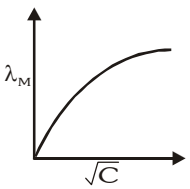
(D) 

36. Which of the following curve represents the variation of l_M with $\sqrt{C}$ for $AgNO_3$?

(A) 

(B) 

(C) 

(D) 

Subjective Problems

01. Equivalent conductivity of 0.01 N Na_2SO_4 solution is 112.4 ohm^{-1} cm^2 equivalent^{-1}. The equivalent conductivity at infinite dilution is 129.9 ohm^{-1} cm^2 equivalent^{-1}. What is the degree of dissociation in 0.01 N Na_2SO_4 solution?

Ans. 0.8653

02. Specific conductance of a saturated solution of AgBr is 8.486 x 10^{-7} ohm^{-1} cm^{-1} at 25^{0}C. Specific conductance of pure water at 25^{o}C is 0.75 x 10^{-6}ohm^{-1} cm^{-2}. Molar conductances of KBr, $AgNO_3$ and KNO_3 are 137.4, 133, 131 (S cm^2 mol^{-1}) respectively. Calculate the solubility of AgBr. (Give: At. wt.: Ag = 108; Br = 80)

Ans. 1.33 x 10^{-4} gm/litre

03. The molar conductivity of 0.1 M CH_3COOH solution is 4.6 S cm^2 mol^{-1} . What is the specific conductance and resistivity of the solution ?

Ans. 4.6 x 10^{-4} S cm^{-1}; 2173.913 ohm cm

04. The resistance of a conductivity cell filled with 0.01N solution of NaCl is 210 ohm at 18^{o}C. Calculate the equivalent conductivity of the solution. The cell constant of the conductivity cell is 0.88 cm^{-1}.

Ans. 419 S cm^{2}equivalent $^{-1}$

05. Given $\lambda^{\infty}_{Ag^+}$ =61.9 unit; $\lambda^{\infty}_{cl^-}$ =76.3 unit. Calculate solubility and solubility product of silver chloride solution with specific conductance 1.36 x 10^{-6} ohm^{-1} cm^{-1}. (Given: At. wt.:- Ag = 108; Cl = 35.5)

Ans. 1.412x10^{-3}gm/litre, 9.684x10^{-11}

06. Resistance of a 0.1M KCl solution in a conductance cell is 300 ohm and specific conductance of 0.1M KCl is 1.29 x 10^{-2} ohm^{-1} cm^{-1}. The resistance of 0.1M NaCl solution in the same cell is 380 ohm. Calculate the equivalent conductivity of the 0.1M NaCl solution.

Ans. 101.842 ohm^{-1}cm^2/gm-equiv

07. A solution of 0.1acetic acid at 25^{0}C has a specific conductance of 5.226x10^{-4}ohm^{-1}cm $^{-1}$.
(i) Find the equivalent conductivity of 0.1 M acetic acid.
(ii) Find the equivalent conductivity of acetic acid at infinite dilution (K_a for acetic acid =1.8x10^{-5}).

Ans. (i) 5.226 ohm^{-1}cm^2/equiv. (ii) 389.523 mho cm^2/equiv.

08. Calculate the degree of dissociation of water at 298K. Conductivity of water is 6.33 x 10^{-8} ohm^{-1} cm^{-1}.
Given $\lambda^{\infty}_{H^+}$=349.8mhomol^{-1}cm^2,
$\lambda^{\infty}_{OH^-}$=198.3mhomol^{-1}cm^2. Density of H_2O = 0.997 gm/ml

Ans. 2.085 x 10^{-9}

09. Dissociation constant of propionic acid is 1.35 x 10^{-5} mol litre^{-1}. It's equivalent conductivity at infinite dilution works out as 386 ohm^{-1} cm^2/ equiv. Calculate specific resistance of 0.1N solution of the acid.

Ans. 2229.697 ohm cm

10. The conductivity of pure water in a conductivity cell with electrodes of cross sectional area 4 cm^2 and 2 cm apart is 8 x 10^{-7} S cm^{-1}.
(i) What is resistance of conductivity cell ?
(ii) What current would flow through the cell under an applied potential difference of 1 volt?

Ans. (i) 6.25 x 10^5 ohm, (ii) 1.6 x 10^{-6} amp

11. Specific conductance of saturated solution of $BaSO_4$ at 25° C is 3.59 x 10^{-5} ohm^{-1} cm^{-1} and conductivity of water is 0.618 x 10-5 ohm^{-1} cm^{-1}. Equivalent ionic conductances at infinite dilution of 1/2 Ba^{2+} and 1/2 SO_4^{2-} are 63.6 and 79.8 ohm^{-1} cm^2 per equivalent respectively. Calculate the solubility and solubility product of $BaSO_4$ assuming complete dissociation in the saturated solution.

Ans. 2.41 x 10^{-2} gm/litre ; 1.07 x 10^{-8} mole/litre^2

12. Specific conductivity of acetic acid at a dilution of 70 litre (1 mole in 70 litre) is 5.3x10^{-4}ohm^{-1}cm^{-1}. The equivalent conductance at in finite dilution is 400 ohm^{-1} cm^2 / equivalent. Calculate degree of dissociation, the coincentration of hydrogen ions.

Ans. 0.0927, 1.324 x 10^{-7} M

13. The equivalent conducatance at 25^{0}C of N/50 acetic acid solution is 11.92 ohm^{-2} cm^2/ equiv. The equivalent ionic conductance at infinite dilution of H^+ ions CH_3COO^- ion are 360 and 40 ohm^{-1} cm^2/equivalent respectively.Calculate dissociation constant of acetic acid.

Ans. 1.78 x 10^{-5}

14. The specific conductance at 25^{0}C of a saturated solution of $SrSO_4$ is 1.482 x 10^{-4} ohm^{-1} cm^{-1} while that of water used is 1.5 x 10^{-6} mho cm^{-1}. Determine at 25^{0}C the solubility in gm per litre of $SrSO_4$ in water. Equivalent ionic conductance sof Sr^{2+} and SO_4^{2-} ions at infinite dilution are 59.46 and 79.8 respectively.
[Sr = 87.6, S = 32, O = 16]

Ans. 0.0967gm/L

15. The resistance of conductivity cell filled with 0.01M KCl was found to be 161.8 ohms at 25^{o}C and when filled with 0.005 M NaOH was found to be 190 ohms. Specific conductance of 0.01M KCl at 25^{o}C is 0.001408 ohm^{-1} cm^{-1}. Find cell constant, specific conductance and equivalent conductance of sodium hydroxide solution.

Ans. 0.2278cm^{-1}; 1.198 x 10^{-3} ohm^{-1} cm^{-1} ; 239.6 ohm^{-1}cm^{2}equiv^{-1}

16. Calculate the equivalent conductivity of Potash alum at infinite dilution
Given: $\lambda^{\infty}_{equ.}(K^+) \rightarrow 50.1$ W^{-1}cm^{2}equ^{-1};
$\lambda^{\infty}_{equ.}(Al^{3+}) \rightarrow 30.8$ W^{-1}cm^{2}equ^{-1};
$\lambda^{\infty}_{equ.}(SO_4^{2-}) \rightarrow 43.2$ W^{-1}cm^{2}equ^{-1}

Ans. 57.221 W^{-1}cm^{2}equ^{-1}

17. In a fuel cell, H_2 & O_2 react to produce electricity. In the process, H_2 gas is oxidized at the anode & O_2 at the cathode . If 67.2 litre of H_2 at STP react in 15 minutes, what is the average current produced ? If the entire current is used for electrode deposition of Cu from Cu (II) solution, how many grams of Cu will be deposited? Anode : $H_2 + 2OH^- \longrightarrow 2H_2O + 2e$
cathode : $O_2 + 2H_2O + 4e^- \longrightarrow 4OH^-$

Ans. 643.33amp,190.5g

18. The conductivity of 0.001 M Na_2SO_4 solution is 2.6x10^{-4}W^{-1}cm^{-1} and increases to 7.0 x 10^{-4}W^{-1}cm^{-1} when the solution is saturated with $CaSO_4$. The molar conductivities of Na^+ and Ca^{2+} are 50W^{-1}cm^{2}mol^{-1} and 120W^{-1}cm^2 mol^{-1}, respectively. Calculate (a) the conductivity of only $CaSO_4$ in the solution, (b) solubility of $CaSO_4$, and (c) solubility product of $CaSO_4$. The conductivity of water used is 0.50 x10^{-6}W^{-1}cm^{-1}.

Ans. (a) 279.5 W^{-1} cm^{2}mol^{-1};
(b)1.576 x 10^{-3}mol dm^{-3};
(c) 4.056 x 10^{-6} M^2

19. For a saturated solution of AgCl at 25°C, specific conductance is 3.41 x 10^{-6} ohm^{-1} cm^{-1} and that of water used for preparing the solution was 1.6 x 10^{-6} ohm^{-1} cm^{-1}. What is the solubility product of AgCl? Given : Λ^{∞}_{eqv} (AgCl) = 138.3 ohm^{-1} cm^{-1} equiv^{-1}.

Ans. 1.72 x 10^{-10} M^2

20. The resistance of a solution 'A' is 50 ohms and that of solution 'B' is 100 ohms, both solutions being taken in the same conductivity cell. If equal volumes of solution A and B are mixed what will be the resistance of the mixture using the same cell. (Assume that there is no increase in the degree of dissociation of A and B on mixing.)

Ans. R = 66.67 ohms

21. In a conductivity cell the two platinum electrodes, each of area 10 sq. cm. are fixed 1.5 cm apart. The cell contained 0.05 N solution of a salt. If the two electrodes are just half dipped into the solution which has a resistance of 50 ohms, find equivalent conductance of the salt solution.

Ans. 120 mho cm^2 eq^{-1}

22. The equivalent conductance of 0.10 N solution of $MgCl_2$ is 97.1 mho cm^2 eq^{-1}. A cell with electrodes that are 1.50 cm^2 in surface are and 0.50 cm apart is filled with 0.1N $MgCl_2$ solution. How much current will flow when the potential difference between the electrodes is 5 volts?

Ans. 0.1456 amp

23. At 18°C the mobilities of NH_4^+ and ClO_4^- ions are 6.6×10^{-4} and 5.7×10^{-4} cm^2 $volt^{-1}$ sec^{-1} at infinite dilution. Calculate equivalent conductance of ammonium chlorate solution.

Ans. 118.67 mho cm^2 eq^{-1}

24. The equivalent conductance of an infinitely dilute solution NH_4Cl is 150 and the ionic conductances of OH^- and Cl^- ions are 198 and 76 respectively. What will be the equivalent conductance of the solution of NH_4OH at infinite dilution. If the equivalent conductance of a 0.01 N solution NH_4OH is 9.6, what will be its degree of dissociation?

Ans. 272, 0.0353s

25. Calculate the dissociation constant of water at 25°C from the following data.
Specific conductance of H_2O = 5.8×10^{-8} mho cm^{-1}, $l^{\infty}_{H^+}$ = 350.0 and $l^{\infty}_{OH^-}$ = 198.0 mho cm^2

Ans. 1.8×10^{-16} mole/litre

26. Calculate K_a of acetic acid if its 0.05 N solution has equivalent conductance of 7.36 mho cm^2 at 25°C. ($l^{\infty}_{CH_3COOH}$ = 390.70)

Ans. 1.76×10^{-5} mole/litre

27. The sp. cond. of a saturated solution of AgCl at 25°C after substracting the sp. conductance of conductivity of water is 2.28×10^{-6} mho cm^{-1}. Find the solubility product of AgCl at 25°C. (l^{∞}_{AgCl} = 138.3 mho cm^2)

Ans. 2.70×10^{-10} (mole/litre)^2

28. The specific conductance of a N/10 KCl solution at 18°C is 1.12×10^{-2} mho cm^{-1}. The resistance of the solution contained in the cell is found to be 65 ohms. Calculate the cell constant.

Ans. 0.728 cm^{-1}

29. When a solution of conductance 1.342mho m^{-1} was placed in a conductivity cell with parallel electrodes, the resistance was found to be 170.5 ohm. The area of the electrodes is 1.86×10^{-4} sq.meter. Calculate the distance between the two electrodes in meter.

Ans. 4.25×10^{-2} metres

30. The resistance of two electrolytes X and Y were found to be 45 and 100 respectively when equal volumes of both the solutions were taken in the same cell in two different experiments. If equal volumes of these solutions are mixed in the same cell, what will be the conductance of the mixture?

Ans. 0.016 mho

31. The resistance of an aqueous solution containing 0.624 g of $CuSO_4 . 5H_2O$ per 100 cm^3 of the solution in a conductance cell of cell constant 153.7 per meter is 520 ohms at 298 K. Calculate the molar conductivity. ($CuSO_4 . 5H_2O$ = 249.5)

Ans. 118.2 mho cm^2 mol^{-1}

32. Given the equivalent conductance of sodium butyrate, sodium chloride and hydrogen chloride as 83, 127 and 426 mho cm^2 at 25°C respectively. Calculate the equivalent conductance of butyric acid at infinite dilution.

Ans. 382 mho cm^2 eq^{-1}

33. For 0.0128 N solution of acetic acid at 25°C, equivalent conductance of the solution is 1.4 mho cm^3 eq^{-1} and l^{∞} = 391 mho cm^2 eq^{-1}. Calculate dissociation constant (K_a) of acetic acid.

Ans. 1.6×10^{-7}

34. The specific conductance at 25°C of a saturated solution of $SrSO_4$ is 1.482×10^{-4} ohm^{-1} cm^{-1} while that of water used is 1.5×10^{-6} mho cm^{-1}. Determine at 25°C the solubility in g per litre of $SrSO_4$ in water. Molar ionic conductance of Sr^{2+} and SO_4^{2-} ions at infinite dilution are 59.46 and 79.8 ohm^{-1} cm^2 $mole^{-1}$ respectively. [Sr = 87.6, S = 32, O = 16]

Ans. 0.1934 g/L

35. Specific conductance of pure water at 25°C is 0.58×10^{-7} mho cm^{-1}. Calculate ionic product of water (K_W) if ionic conductances of H^+ and OH^- ions at infinite dilution are 350 and 198 mho cm^2 respectively at 25°C.

Ans. 1×10^{-14} (mole/litre)^2

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ANSWER KEYS

Chapter – Electrochemistry

Topic – Electrical Conduction

DPP – 2

Q.	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15
Ans.	C	C	B	B	C	B	A	D	B	B	B	C	D	B	A
Q.	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
Ans.	C	A	A	C	A	D	D	A	B	C	B	A	C	B	B
Q.	31	32	33	34	35	36									
Ans.	C	C	A	B	B	A									

Thank you for your love and support, we hope you are always being happy and get success in your life, we are happy to see you again.

Regards from Learnaf team