CHEMISTRY

BOOKS - MODERN PUBLICATION

ELECTROCHEMISTRY

Exercise

1. The electrode potential measure the :

    A. Tendency of the electrode to gain or lose electrons

    B. Tendency of the cell reaction to occur

    C. Difference in the ionisation potential of electrode and metal ion

    D. Current carried by an electrode

Answer: A

Watch Video Solution

2. Which is the correct representation for Nernst equation :

    A. $E\_rp = E°\_rp + 0.059/n$ log [oxidant]/[reductant]

    B. $E\_op = E°\_op + 0.059/n$ log [oxidant]/[reductant]

    C. $E\_op = E°\_op + 0.059/n$ log [reductant]/[oxidant]

    D. All of these

Answer: D

3. The factor temperature coefficient for emf is :

    A. $(\Delta E/\Delta T)\_p$

    B. $(\Delta E/\Delta P)\_t$

    C. $(\Delta E/\Delta V)\_t$

D. None

Answer: A

▶ Watch Video Solution

---

4. The emf of a voltaic cell is negative. So oxidation and reduction process

respecttively can be written at the :

A. LHE,RHE

B. RHE,LHE

C. Both(a)and(b)

D. None

Answer: B

▶ Watch Video Solution

5. Silver from silver nitrate is deposited by copper, because :

A. $E^\circ(Cu^{2+}/cu) \text{lt} E^\circ(Ag^+/Ag)$

B. $E^\circ(Ag^+/Ag) \text{lt} E^\circ(Cu^{2+}/Cu)$

C. $E^\circ(Cu^{2+}/Cu)\text{-}E^\circ(Ag^+/Ag)$

D. None

Answer: B

▶ **Watch Video Solution**

---

6. Standard reduction potential for,

$Li^+ Li, Zn^{2+} Zn, H^+ H_2$ and $Ag^+ Ag$ is -3.05,-0.762,0.00 and +80V. Which has highest reducing capacity?

A. Ag

B. H_2

C. Zn

D. Li

Answer: D

7. Which one is correct:

A. Ni displace Zinc from its solution

B. Zn displace iron from its solution

C. Ag displacecopper from its solution

D. Cu displace nickel from its solution

Answer: B

8. An unit of charge is :

A. volt

B. ampere

C. coulomb

D. None

Answer: C

▶ Watch Video Solution

---

9. The standard reduction potential of some electrodes are,$E°(K^+ / K$)=-2.9 V , $E°(Zn^{2+} / Zn)$=-0.76 V , $E°(H^+/H_2)$=-0.00 V , $E°(Cu^{2+} / Cu$)=+0.34 V.The strongest oxidant is:

A. Copper

B. Zinc

C. Hydrogen

D. Cu^{2+}

Answer: D

---

10. In galvanic cell,the salt bridge is used to:

A. Complete the circuit

B. To reduce liquid junction potential in the cell

C. Separate cathode solution from anode solution

D. Carry salts for chemical reactions to occur in cell

Answer: B

---

11. A current of 2 ampere was passed through solution of $CuSO_4$ and $AgNO_3$ in series.`0.635 g of copper was deposited .Then the weight of silver deposited will be:

A. 0.59g

B. 3.24g

C. 1.08g

D. 2.16g

Answer: D

▶ Watch Video Solution

12. The emf of the cell involving following changes $Zn(s) + Ni^{2+}(1M) \rightarrow Zn^{2+}(1M) + Ni(s) is 0.5105V.$ The standard emf of the cell is :

A. 0.540 V

B. 0.481

C. 0.5696

D. 0.5105

Answer: D

---

13. A current of 2.6 ampere was passed through $CuSO_4$ solution for 380 sec. The amount of Cu deposited is (at .wt. of Cu (63.5):

    A. 0.325g

    B. 0.635g

    C. 6.35g

    D. 3.175g

Answer: A

---

14. $E°$ values of Mg^{2+}/Mg is -2.37V, of Zn^{2+}/Zn is -0.76V and Fe^{2+}/Fe is -0.44V.

Which of the following statement is correct ?

A. Mg oxidises Fe

B. Zn oxidises Fe

C. Zn reduces Mg^{2+}

D. Zn reduces Fe^{2+}

Answer: D

▶ **Watch Video Solution**

---

15. On passing electricity through dilute H_2SO_4 solution the amount of substance liberated at the cathode and anode are in the ratio:

A. 1:8

B. 8:1

C. 16:1

D. 0.052777777777778

Answer: A

---

16. Passage of 96500 coulmb of electricity liberates........ Litre of O_2 at NTP during electrolysis :

A. 5.6

B. 6.5

C. 22.2

D. 11.2

Answer: A

---

17. During electrolysis of an aqueous solution of Cu^{2+} sulphate , 0.635 g of copper was deposited at cathode. The amount electricity consumed in

coulomb is :

A. 1930

B. 3860

C. 96500

D. 4825

Answer: A

▶ **Watch Video Solution**

18. The number of electrons involved in redox reactions when 1 faraday of electricity is passed through an electrolyte in solution is :

A. $6*10^{23}$

B. $8*10^{19}$

C. 96500

D. $6*10^{-23}$

Answer: A

---

19. If $Mg^{2+} + 2e \rightarrow Mg(s)$, E=-2.37V , $Cu^{2+} + 2e \rightarrow Cu(s)$, E=.+0.34V ?

Write the line notation (cell diagram) for the cell and calculate cell emf.

A. 2.71V

B. 2.30V

C. 2.80V

D. 1.46V

Answer: A

---

20. A certain quantity of electricity is passed through aqueous solution of

$AgNO_3$ and$CuSO_4$ connected in series, If Ag (at. Wt. 108) deposited at

the cathode is 1.08 g then Cu deposited at the cathode is (at. wt. of Cu is 63.53):
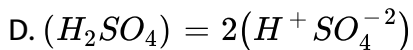
A. 6.354

B. 0.317

C. 0.6354

D. 3.177

Answer: B

▶ Watch Video Solution

21. Which of the following statement is wrong ?

A. Na^+ has different molar cunductance at infinite dilution in $Nacl$ and $NaBr$

B. degree of dissociation(alpha)=Y_(c)/Y_(m)

C. Kohlaraush law is used to find value for weak electrolytes

D. $(H_2SO_4) = 2(H^+SO_4^{-2})$

Answer: A

> ▶ Watch Video Solution

22. When same quantity of current is passed through two different electrolytes connected in series, the amount of products liberated at the electrodes are in the ratio of their.

A. atomic mass

B. equivalent mass

C. molecular mass

D. atomic number

Answer: B

> ▶ Watch Video Solution

23. The unit of electrochemical equivalent is :

A. gm/coulomb

B. gm/ampere

C. coulomb/gm

D. gm/coulomb

Answer: A

▶ Watch Video Solution

24. A current of 0.75A is passed through an acidic $CuSO_4$ for 10 min. the volume of oxygen liberated at anode at STP will be

A. 0.261cc

B. 26.1cc

C. 52.2cc

D. 0.522cc

Answer: B

---

25. The best conductor of electricity is a 1M solution of

    A. boric acid

    B. acetic acid

    C. oxalic acid

    D. sulphuric acid

Answer: D

---

26. Which will be decomposed when electric current is passed through its aqueous solution?

A. glucose

B. urea

C. common salt

D. benzene

Answer: C

> ▶ Watch Video Solution

27. The degree of dissociation of $CH_3COOHSol^n$, can be increased by

A. adding more CH_3COOH to the solution

B. adding more water to the solution

C. decreasing temerature of the solution

D. stirring the solution vigorusly

Answer: B

> ▶ Watch Video Solution

28. The limiting molar conductance of NaCl,KBr,KCl are 126,152 and 150 $ohm^{-1}cm^2mo \leq^{-1}$ respectively. The limiting molar conductance of NaBr is-

A. 120

B. 302

C. 428

D. 176

Answer: A

29. The passage of current through the solution of a certain electrolyte results in the liberation of H_2 at the cathode and Cl_2 gas at anode. The solution in the container could not be

A. $Nacl(aq)$

B. $Kcl(aq)$

C. $CaCl_2(aq)$

D. $MgCl_2(aq)$

Answer: C

▶ **Watch Video Solution**

---

30. Which of the following solutions of kcl has the largest value of molar

conductance ?

A. 0.1M

B. 0.01M

C. 0.001M

D. 1M

Answer: C

31. The mass of a substance liberated at the electrode is directly proportional to its-

    A. atomic mass

    B. equivalent mass

    C. molecluar mass

    D. none of these

Answer: B

32. Standard electrode potentials are : Fe^{+2}/Fe, $E° = -0.44V$, Fe^{+3}/Fe^{2+}, $E° = 0.77V$. Fe^{+2}, Fe^{+3} and Fe block are kept together, then

    A. Fe^{+3} increases

B. Fe^{+3} decreases

C. Fe^{+2}/Fe^{+3} remains unchanged

D. Fe decreases

Answer: B

▶ Watch Video Solution

---

33. A galvanic cell with electrode potential of zinc = +0.76V and of copper = 0.34V . The E.M.F is

A. 0.76V

B. 0.34V

C. 1.1V

D. -1.1V

Answer: C

▶ Watch Video Solution

34. The unit of equivalent conductance is

A. $ohm^{-1}cm^2$ (equivalent)

B. $ohm cm^2$ (g-equivalent)

C. $ohm cm^2$

D. $ohm^{-1}m^{-1}$

Answer: A

▶ Watch Video Solution

35. The standard reduction potential for $Fe^{2+} \mid Fe$ and $Sn^{2+} \mid Sn$ electrodes are $-0.44V$ and $-0.14V$ respectively. For the cell reaction, $Fe^{2+} + Sn \rightarrow Fe + Sn^{2+}$, the standard emf is :

A. 0.30V

B. -0.30V

C. 0.58V

D. -0.58V

Answer: A

36. Total charge on 1 mole of a monovalent metal ion is equal to :

A. 9.65 *10^4 coulombs

B. 1.6*10^-19coulombs

C. 6.2*10^18coulombs

D. none of these

Answer: A
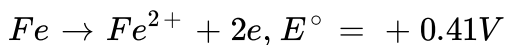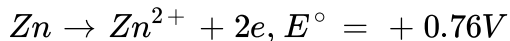
37. $E°$ for the half cell reactions are as,
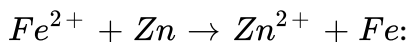
$$Zn \rightarrow Zn^{2+} + 2e, E° = +0.76V$$

$$Fe \rightarrow Fe^{2+} + 2e, E° = +0.41V$$

The $E°$ for the cell reaction.

$$Fe^{2+} + Zn \rightarrow Zn^{2+} + Fe:$$

A. -120V

B. 0.32V

C. -0.32V

D. 1.20V

Answer: B

▶ **Watch Video Solution**

---

38. without losing its concentration $ZnCl_2$ solution can not be kept in contact with

A. Au

B. Al

C. Pb

D. Ag

Answer: A

▶ Watch Video Solution

39. . . . . grams of chlorine can be prepared by the electrolysis of molten sodium chloride with 10 amperes current passed for 10min.

A. 2.2

B. 4.4

C. 3.8

D. 5

Answer: A

40. The unit of cell constant is . . . .

    A. $ohm^{-1}cm^2$

    B. cm^{-1}

    C. $ohm^{-1}cm^{-1}$

    D. $ohm^{-(1)}cm^2$ /gm equivalent

Answer: B

41. 96500 Coulomb will deposite . . . . of metal.

    A. one electrochemical equivalent

    B. one gm

    C. one gm equivalent

D. one gm molecular mass

Answer: C

▶ **Watch Video Solution**

42. Which is the strongest reducing agent?

A. $Zn(s)$

B. $Cr(s)$

C. $H_2(g)$

D. $Fe^{2+}(aq)$

Answer: A

▶ **Watch Video Solution**

43. four alkali metals A, B, C, D are having respectively standard electrode potential as -3.05 v -1.66, 0.8 and - 0.40 v.which one will be more reducing?
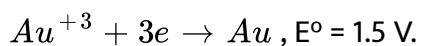
A. A

B. B

C. C

D. D

Answer: A

44. Given:

$Au^{+3} + 3e \rightarrow Au$, E° = 1.5 V.

$Au^{+} + e \rightarrow Au$, E° =1.69V The reduction potential for Au^{+3}/Au^{+} is

A. -1.405 V

B. 1.405 V

C. 0.405V

D. 0.469 V

Answer: B

> ▶ Watch Video Solution

---

45. Given l/a=0.5 cm^{-1},R=50 ohm, N=1.0. The equivalent conductance of the electrolytic cell is

A. 10 $ohm^{-1}cm^2gmeq^{-1}$

B. 20$ohm^{-1}cm^2gmeq^{-1}$

C. 300 $ohm^{-1}cm^2gmeq^{-1}$

D. 100 $ohm^{-1}cm^2gmeq^{-1}$

Answer: A

> ▶ Watch Video Solution

46. Which of the following expression is correct ?

A. $\Delta G^\circ = -nFE^\circ cell$

B. $\Delta G^\circ = +nFE^\circ cell$

C. $\Delta G^\circ = -2.303\ RTnFE^\circ cell$

D. $\Delta G^\circ = -nFlog\ Kc$

Answer: A

▶ **Watch Video Solution**

---

47. Two electrochemical cells $Zn|Zn^{+2}||Cu^{+2}|Cu$ and $Fe|Fe^{+2}||Cu^{+2}|Cu$ are connected in series. Write the cell reaction in each case. What will be the net e.m.f of the cell at 25°C given ,$Zn^{+2}\ |\ Zn$ =-0.76V ,$Cu^{+2}\ |\ Cu$=+0.34V, $Fe^{+2}\ |\ Fe$=-0.41V

▶ **Watch Video Solution**

48. The reduction potential values of M, N and O are +2.46,- 1.13 and 3.13 V respectively. Which of the following order is correct regarding their reducing property?

A. $O > N > M$

B. $O > M > N$

C. $M > N > O$

D. $N > M > O$

Answer: A

▶ **Watch Video Solution**

---

49. The standard electrode potential of a hydrogen electrode is

A. 0.059V

B. 1V

C. 0.5V

D. 0.00V

50. $Zn^{2+}(aq) + 2e \rightarrow Zn(s)$ $E^{\circ}(Zn^{2+}/Zn)$ = - 0.76V,

$Ni^{2+}(aq) + 2e \rightarrow Ni(s)$ $E^{\circ}(Ni^{2+}/Ni)$ = - 0.25V, E°cell = _____

A. 0.51V

B. -0.51V

C. 1.01V

D. none

51. Electrolytes conduct electricity due to movement of-

A. atoms

B. ions

C. electrons

D. molecules

Answer: B

▶ Watch Video Solution

52. which of the following may not be present in all galvanic cell

A. electrolyte

B. anode

C. cathode

D. salt bridge

Answer: D

---

53. 1F charge will produce 1 mole of metal from the electrolyte

A. $MgCl_2$

B. KCl

C. $CuSO_4$

D. none of these

Answer: B

---

54. What amount of electricity is required to deposite 1mole copper from a solution of $CuSO_4$?

A. 2F

B. 1F

C. 3F

D. 0.5F

Answer: A

▶ Watch Video Solution

55. the metal with greater oxidation potential is

A. strongest oxidant

B. stronger reductant

C. easily reduced

D. can't be predicted

Answer: B

▶ Watch Video Solution

56. The electrolytic products of aqueous solution of NaF are

A. Na , $F2$

B. Na , O_2

C. H_2 , O_2

D. H_2, F_2

Answer: C

▶ **Watch Video Solution**

57. The exact value of emf of cell can be measured by means of

A. potentiometer

B. galvanometer

C. polarimeter

D. ammeter

Answer: A

> ▶ Watch Video Solution

58. The unit of equivalent conductance is

A. ohm

B. $ohm^{-1}cm^2 gmeq^{-1}$

C. $ohm^{-1}cm^{-2}$

D. $ohmcm^{-2}gmeq^{-1}$

Answer: B

> ▶ Watch Video Solution

59. The charge carried by one mole electron is

A. 1.6×10^{-19} coulomb

B. 6.28×10^{18} coulomb

C. 9.65×10^4 coulomb

D. 6.023×10^{28} coulomb

Answer: C

▶ **Watch Video Solution**

---

60. Which of the following solutions can be stored in copper vessel?

A. $AgNO_3$

B. $AuCl_3$

C. $ZnCl_2$

D. all of these

Answer: C

▶ **Watch Video Solution**

61. out of Cu, Ag, Zn and Mg the metal which can displace all others from their aqueous salt solution is

A. Cu

B. Zn

C. Ag

D. Mg

Answer: D

▶ Watch Video Solution

62. The number of faradays required to deposit 9gm Al from a solution of $AlCl_3$ will be

A. 1

B. 2

C. 3

D. 4

Answer: C

▶ Watch Video Solution

63. during electrolysis the reaction occurs at cathode is

A. reduction

B. oxidation

C. redox

D. hydrolysis

Answer: B

▶ Watch Video Solution

64. For a redox reaction to be spontaneous, the EMF should be

A. -ve

B. +ve

C. zero

D. any one of these

Answer: B

▶ **Watch Video Solution**

65. The electrode potential of normal hydrogen electrode is

A. 0 volt

B. 1 volt

C. 10volt

D. 0.1 volt

Answer: A

---

66. The standard reduction potentials at 25ºC of $Li^+ |Li, Ba^{2+} | Ba,$ $Na^+| Na$ and $Mg^{2+}| Mg$ are -3.05,-2.76,-2.61 and -2.37 V respectively.which is strongest reducing agent?

A. Li

B. Ba

C. Na

D. Mg

Answer: A

67. The standard reduction electrode potentials of the metals A,B and C are 0.68,-2.50 and -0.50V respectively.The order of their reducing power is:

A. $A > B > C$

B. $A > C > B$

C. $C > B > A$

D. $B > C > A$

Answer: D

▶ Watch Video Solution

68. The standard reduction potential for Fe^{2+} $|Fe|$ and Sn^(2+) | Sn $e \leq ctrodesare - 0.44V$ and $-0.14V respectively. F$ or $thecellreaction,$ Fe^(2+) + Sn to Fe + Sn(2+)`, the standard EMF is

A. 0.30V

B. 0.58V

C. 0.58V

D. -0.30V.

Answer: D

▶ Watch Video Solution

---

69. 3 Faraday of electricity is passed through molten Al_2O_3, aqueous solution of $CuSO_4$ and molten $NaCl$ taken in three different electrolytic cells . The amount of Al, Cu and Na deposited at the cathodes will be in the ratio of :

A. 1mole :2mole:3mole

B. 3mole:2mole:1mole

C. 1mole :1.5mole:3mole

D. 1.5 mole :2 mole : 3 mole

Answer: C

▶ Watch Video Solution

70. An electrolytic cell contains a solution of $ZnSO_4$ and Platinum electrodes a current is passed until 1.6 gm of O_2 has been liberated at anode.The amount of Zn deposited at cathode would be

A. 1.6g

B. 6.5g

C. 13g

D. 3.2g

Answer: C

71. unit of equivalent conductance is_____

72. molten sodium chloride conducts electricity due to the presence of_____

▶ Watch Video Solution

73. _____reacts with dilute sulphuric acid

▶ Watch Video Solution

74. non electrolytes are_____

▶ Watch Video Solution

75. The process of splitting up of electrolytes into the $+ve$ and $-ve$ ions are called_____.

▶ Watch Video Solution

76. For strong electtolytes degree of ionisation is _____.

> ▶ **Watch Video Solution**

77. for weak electrolytes degree of ionisation is_____

> ▶ **Watch Video Solution**

78. Ostwald's dilution law is applicable for____

> ▶ **Watch Video Solution**

79. I coulonmb=_____x 1 second.

> ▶ **Watch Video Solution**

80. electrical energy = _____× quantity of charge

81. electrometallurgy is application of_____

82. current efficiency= _____× 100%

83. the reciprocal of specific resistance is known as_____

84. Units of specific conductivity are _____.

85. molar conductivity = _____ × Vm

86. Structure of glucose ,urea and ethyl alcohol all are

87. electro chemical cell is also known as_____

88. Relation between standard e.m.f. of a cell and equilibrium constant is

_____.

89. in an electrochemical cell reduction takes place at_____

90. Charge on CO_3 ion is_____

A. -1

B. +2

C. -2

D. -3

Answer: 3.2×10^(-19) C

91. electrolytes are _____compounds

92. acids, bases and salts are examples of_____

    A. strong electrolytes

    B. weak electrolytes

    C. non electrolytes

    D. electrolytes

Answer: electrolytes

▶ **Watch Video Solution**

---

93. Daniel cell is an example of_____

▶ **Watch Video Solution**

---

94. Electroplated silver spoon acts as _____in a cell.

▶ **Watch Video Solution**

95. electrolytes having low electrical conductance are known as_____

 ▶ **Watch Video Solution**

96. electrolytes having high electrical conductance are known as_____

 ▶ **Watch Video Solution**

97. the potential of standard hydrogen electrode is_____

 ▶ **Watch Video Solution**

98. 1 mole of electrons have charge_____

 ▶ **Watch Video Solution**

99. dry cells like Leclanche cell, Mercury cells are _____cells

▶ Watch Video Solution

100. hydrogen-oxygen cell is a_____ cell

▶ Watch Video Solution

101. ΔG is related to_____ of the cell

▶ Watch Video Solution

102. In electrochemical cell oxidation takes place at_____

▶ Watch Video Solution

103. The best electronic conductor is _____.

104. EMF of the cell when the cell reaction attains equilibrium is____

105. _____is the tendency of electrode to loose or gain

106. galvanic cell is an ____

107. Galvanic cell converts _____ into_____.

108. determination of degree of dissociation of weak electrolyte is application of____ law

▶ Watch Video Solution

109. specific conductance = _____ x _____

▶ Watch Video Solution

110. unit of cell constant is____

▶ Watch Video Solution

111. Molar conductance for weak electrolyte on dilution_____.

▶ Watch Video Solution

112. Equivalent conductance for weak electrolyte on dilution _____.

▶ **Watch Video Solution**

113. charge on one mole of electron is_____

▶ **Watch Video Solution**

114. Calculation of EMF of a cell and prediction of reactivity of metals are applications of_____

▶ **Watch Video Solution**

115. acetic acid is_____ electrolyte

▶ **Watch Video Solution**

116. 1 coulomb is about_____ electrons

▶ Watch Video Solution

117. Copper sulphate solution _____ stored in an iron vessel.

▶ Watch Video Solution

118. I mole of electrons _____coulomb.

▶ Watch Video Solution

119. Reduction takes place at_____ during electrolysis.

▶ Watch Video Solution

120. Oxidation takes place at_____ druing electrolyses.

121. Electrolysis of molten sodium hydride liberates . . . . gas

at the . . . .

122. Equivalent conductance for strong electrolyte on dilution _____.

123. Equivalent conductance for weak electrolyte on dilution _____.

124. Specific conductance for strong electrolyte on dilution _____

125. The conducting power of all the ions produced by 1 gm Molar law of electrolyte in solution is called_____

▶ Watch Video Solution

126. equivalent conductance = _____ × volume of the solution

▶ Watch Video Solution

127. unit of specific conductance is_____

▶ Watch Video Solution

128. Fill in the blanks: atomic weight=_____×equivalent weight

▶ Watch Video Solution

129. Chemical equivalent = ____ × electrochemical equivalent

130. Fill in the blanks: Platinum is an _____electrode.

131. pH value of aqueous solution of Nacl after electrolysis is _____

132. Fill in the blanks: _____substance do not allow the electric current to pass through their aqueous solution in molten state

133. unit of electrochemical equivalent is_____

▶ **Watch Video Solution**

134. 96500 Coulomb will deposite . . . . of metal.

▶ **Watch Video Solution**

135. Equivalent conductance _____ with dilution.

▶ **Watch Video Solution**

136. Fill in the blanks: specific conductance _____with dilution

▶ **Watch Video Solution**

137. Fill in the blanks: unit of molar conductance is_____

138. Fill in the blanks: chemical equivalent=96500×_____

139. charge carried by one mole of electron is_____

140. 1 Faraday = _____ × 1 coulomb

141. Fill in the blanks: units of conductance_____

142. Statement true or false: Specific conductance increases with dilution.

▶ **Watch Video Solution**

143. Statement True or False: A cell reaction is feasible if E° is zero

▶ **Watch Video Solution**

144. Conductance of a I cm^3 solution is its equivalent conductance.

True / False

▶ **Watch Video Solution**

145. for Daniel cell, E° = +1.5V. True / False

▶ **Watch Video Solution**

146. Statement true or false: Unit of electrochemical equivalent is kg/faraday

147. Equivalent conductance for strong electrolyte on dilution decreases rapidly. Is it true or false?

148. Statement true or false: in an electrochemical cell reduction takes place at anode

149. Molar conductance for weak electrolyte on dilution decreases slowly. Is it true or false?

150. Correct the statement: molten sodium chloride conducts electricity due to the presence of electrons

151. write unit of equivalent conductance.

152. write unit of specific conductance.

153. What is unit of molar conductivity or molar conductance ?

154. write the unit of cell constant

155. If a spoon to be electroplated with silver , would it be made as cathode or anode in the cell?

156. what is a normal hydrogen electrode (NHE)?

157. give example of fuel cells.

158. An electrolyte conducts electricity due to movements of ions(true/false).

▶ Watch Video Solution

159. why $NaCl$ solution conducts electricity?

▶ Watch Video Solution

160. in an electrolyte cell oxidation occurs at anode and reduction at cathode. (true/false)

▶ Watch Video Solution

161. Give examples of weak electrolytes.

▶ Watch Video Solution

162. Give examples of weak electrolytes.

▶ Watch Video Solution

163. how many electrons are present in 1C of electricity?

▶ Watch Video Solution

164. How conductivity of semiconductor varies with temperature?

▶ Watch Video Solution

165. What is the charge carried by one mole electron ?

▶ Watch Video Solution

166. How electrochemiacl equivalent is related to chemical equivalent ?

▶ Watch Video Solution

167. what will be formed at cathode when aqueous solution of $NaCl$ is electrolysed?

▶ **Watch Video Solution**

168. what is the electrolyte used in lead storage battery?

▶ **Watch Video Solution**

169. What is the value of one faraday ?

▶ **Watch Video Solution**

170. what is the voltage of standard state reduction of h^+ at 25º C?

▶ **Watch Video Solution**

171. Name the chemical substances used for silver plating.

▶ Watch Video Solution

172. For the copper electrode the standard oxidation potential is -0.34V. then find its reduction potential.

▶ Watch Video Solution

173. What is the charge carried by 1 mole nitride ion?

▶ Watch Video Solution

174. What is the ECE of Ag ?

▶ Watch Video Solution

175. How many moles of H_2 will be liberated when 2 faradays of electricity is passed through 0.1M `H_2SO_4 solution?

▶ **Watch Video Solution**

176. Statement true or false: one Faraday of electricity is 96500 coulomb

▶ **Watch Video Solution**

177. At which electrode H_2 gas is liberated during electrolysis of molten calcium hydride?

▶ **Watch Video Solution**

178. give one example of primary cell

▶ **Watch Video Solution**

179. Suggest a metal that can be used for cathodic protection of iron against rusting.

▶ **Watch Video Solution**

180. storage cells are which type of cell?

▶ **Watch Video Solution**

181. State Kohlrausch's law.

▶ **Watch Video Solution**

182. Give two applications of Kohlrausch Law.

▶ **Watch Video Solution**

183. Write the Nernst equation for a half cell reaction.

▶ **Watch Video Solution**

184. What is galvanization ?

▶ **Watch Video Solution**

185. What is electromotive force?

▶ **Watch Video Solution**

186. What is cell constant?

▶ **Watch Video Solution**

187. Write the Nernst equation for single electrode potential.

188. Write the relationship between cell potential and equilibrium constant.

189. Define a strong electrolyte in the light of degree of ionisation.

190. What are the electrolytic products of aqueous NaCl?

191. What is preferential discharge theory?

192. Which substance is used for Cu-plating?

▶ **Watch Video Solution**

193. How does specific conductance vary with dilution?

▶ **Watch Video Solution**

194. Define molar conductance.

▶ **Watch Video Solution**

195. How is the density of H2SO4 affected in lead storage battery during its use?

▶ **Watch Video Solution**

196. List the advantages of using $H_2 - O_2$ fuel cell over ordinary cell.

197. State the factors that influence the value of cell potential of the following cell: $Mg(s)|Mg^+2(aq)||Ag^+(aq)|Ag(s)$

198. Predict the products of electrolysis in an aqueous solution of AgNO3 with silver electrodes.

199. How much electricity is required for the oxidation of coulomb 1 mole of H_2O to O_2

200. On electrolysis of dilute sulphuric acid using platinum electrodes, the product obtained at the anode will be:

▶ Watch Video Solution

201. How would you determine the standard electrode potential of the system Mg^{2+} / Mg ?

▶ Watch Video Solution

202. Give examples of some metals that are extracted electrolytically.

▶ Watch Video Solution

203. Write two applications of electrolysis.

▶ Watch Video Solution

204. Calculate the quantity of electricity required to deposit $0.108gm.$ of silver from $AgNO_3$ soln.

(At. Mass of Ag=108).

▶ Watch Video Solution

205. The specific conductance of a solution is 0.356 ohm^{-1} cm^{-1}. The conductance of this solution in a cell was 0.0268 ohm^{-1}. Calculate the cell constant.

▶ Watch Video Solution

206. If a current strength of 1 amp. is passed for 10 minutes in AgNO3 solution 4 gm Ag metal is deposited find the ECE of Ag.

▶ Watch Video Solution

207. Explain standard hydrogen electrode (SHE).

▶ **Watch Video Solution**

208. Define Kohlrausch's law: Write its one application.

▶ **Watch Video Solution**

209. Express the relation among the conductivity of a solution in the cell, the cell constant and resistance of solution in the cell.

▶ **Watch Video Solution**

210. Fill in the blanks : On decreasing the concentration of a solution the molar conductivity .... Of a weak electrolyte.

▶ **Watch Video Solution**

211. What is a primary cell? Given one example.

Watch Video Solution

212. why is it not possible to determine the potential of a single electrode?

Watch Video Solution

213. write the overall cell reaction for lead storage battery.

Watch Video Solution

214. How is the cell potential related to the free energy change? state meaning of each term used.

Watch Video Solution

215. why does the conductivity of a solution decrease with dilution?

216. The molar conductance at infinite dilution for sodium acetate ,hydrochloric acid and sodium chloride are 91.0,425.9 and 126.4 $Scm^2 mol^{-1}$ respectively at 298 k calculate the molar conductance of acetic acid at infinite dilution.

217. The conductivity of 0.20 M solution of KCl at 298 K is 0.248S cm^{-1}. Calculate its molar conductivity.

218. Under what condition,

$E_{cell} = 0$ or $\Delta G = 0$?

219. A galvanic cell has electrical potential of 1.1 V. If an opposing potential of 1.1 V is applied to this cell what will happen to the cell reaction and current flowing through the cell?

220. Blocks of magnesium metal are often strapped to the steel hulls of ocean going ships in order to :

221. what are electrolytes?

222. State and explain Faraday's 1st law of electrolysis.

▶ Watch Video Solution

223. Explain Faraday's second law of electrolysis.

▶ Watch Video Solution

224. Define electrochemical equivalent.

▶ Watch Video Solution

225. Define degree of dissociation.

▶ Watch Video Solution

226. What is anodic protection ?

227. Which factors affect the conductivity of electrolytic solution?

228. How does molar conductivity vary with dilution of the solution?

229. why ordinary dry cells are not rechargeable?

230. Define emf of a cell or cell potential .

231. What is the function of a salt bridge?

232. Write two applications of electrochemical series.

233. What is electrochemical series ?

234. Define cell potential.

235. How electrode potential increases of an electrode ?

236. Name the factors which influence the numerical value of electrode potential.

237. What is standard electrode potential ?

238. What is the electrode potential?

239. What is fuel cell?

240. Define Galvanic-cell or Voltaic-cell.

▶ Watch Video Solution

241. 20 ampere current is flowing through $CuSO_4$ solution for 60 minutes. Find the amonut of cupper deposited. (At .wt. of Cu = 63.5)

▶ Watch Video Solution

242. Calculate the value of Molar conductivity of $MgCl_2$ at infinite dilution if $\lambda_{Mg^{2+}} = 107.12 ohm^{-1} cm^2 mol^{-1}$ and $\lambda_{Cl^{-1}} = 76.34 ohm^{-1} cm^2 mol^{-1}$

▶ Watch Video Solution

243. Calculate the normality of KCl solution having resistance 2000 ohm. The cell constant is $5.53cm^{-1}$ and the equivalent conductance is $138.25 ohm^{-1}cm^2 eq^{-1}$.

▶ Watch Video Solution

244. 0.2 amp current flowing for 15 minutes deposits copper of 0.1978gm. Find the electro chemical equivalent of copper

▶ Watch Video Solution

245. How much time is required to pass 18000 coulombs of electricity through an electrolyte if the current strenght is 10 amperes ?

▶ Watch Video Solution

246. I coulomb of charge contains how many number of electrons ?

247. Calculate the electrochemical equivalent of oxygen.

248. The conductivity of 0.20 M solution of KCl at 298 K is 0.248S cm^{-1} .

Calculate its molar conductivity.

249. In an electrolytic cell 10 gm of chlorine is liberated from NaCl

solution in 30 minutes. Find the amount of current passed.

250. How many coulombs of electricity are required for reduction of 1 mol of Cu^{2+} to Cu ?

251. How many coulombs of electricity are required for oxidation of 1 mol of H_2O to O_2?

252. How many moles of electrons are given by 45 coulombs ?
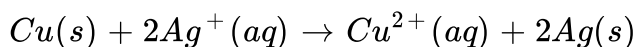
253. How many moles of electrons are required to produce 10 gm of Al from molten Al_2O_3?

254. Calculate the electrode potential given that E^o $(Zn^{2+}/Zn)=$ $-0.76V$, when a zinc rod is dipped in 0.1 M solution of $ZnSO_4$.The salt is 95% dissociated at this solution at 298K.

255. Calculate the value of equilibrium constant for the reaction at 298 k.

$$Cu(s) + 2Ag^+(aq) \rightarrow Cu^{2+}(aq) + 2Ag(s)$$

E° (Ag2+/Ag) $= 0.80V$

and E° (Cu2+/Cu) $= 0.34V$

256. The ΔG° for the Danielle cell has been found to be - 212.3 kJ at 25°C. Calculate the equilibrium constant for the cell reaction.

257. Define conductivity and molar conductivity for the solution of an electrolyte . Discuss their variation with concentration.

▶ Watch Video Solution

258. Calculate the EMF of following cell at 298K

$Fe(s)|Fe^{2+}(0.1M)||Ag^+(0.1M)|Ag(s)$

$Fe^{2+}|Fe$ = - 0.41V, $Ag^+|Ag$ = +0.80V
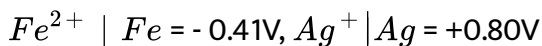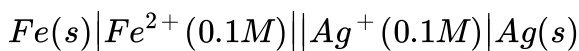
▶ Watch Video Solution

259. What are fuel cells ? Write the electrode reaction of a fuel cell which uses the reaction of hydrogen with oxygen.

▶ Watch Video Solution

260. The specific conductance of a 0.12N solution of an electrolyte is $2.4 \times 10^{-2} \ ohm^{-1} cm^{-1}$ Calculate its equivalent conductance.

▶ Watch Video Solution

261. what is corrosion? Describe the role of zinc in cathodic protection of iron can we use tin in place of zinc ?Explain.

▶ Watch Video Solution

262. How many grams of silver could be plated out on a shield by electrolysis of a solution containing Ag^+ ions for a period of 4 hours at a current strength of 8.5 amperes? [Molar mass of Ag=107.8g]

▶ Watch Video Solution

263. How much copper is deposited on the cathode if a current of 5 A is passed throgh a solution of $CuSO_4$ for 45 minutes ?

> ▶ Watch Video Solution

264. Explain why electrolysis of aqueous solution of $NaCl$ gives H_2 at cathode and Cl_2 at anode.

> ▶ Watch Video Solution

265. calculate the minimum P.D. to reduce Al_2O_3 500°C. [Given ΔG=+960 kj,1F=96,500C mol^{-1}]

> ▶ Watch Video Solution

266. molar conductance of 1.5 M solution of an electrolyte is 138.9 $Scm^2 Mol^{-1}$. Find the specific conductance.

267. write two differences between primary cells and secondary cells.

268. Write the cell reaction which occur in lead storage battery:(1) when the battery is in uses (2)and when the battery is on charging.

269. Iron does not rust when coating is broken in a galvanised iron pipe but rusting occurs if coating of tin over iron is broken. Explain.

270. State two advantages of $H_2 - O_2$ fuel cell over ordinary cell.

271. Predict the products of electrolysis in each of the following ?

A dilute solution of H_2SO_4 with platinum electrodes.

272. State and explain Faraday's laws of electrolysis.

273. State and explain Faraday's laws of electrolysis. How many grams of chlorine will be produced by the electrolysis of molten sodium chloride with a current of 5.5 A for 25 min?

274. Define and explain electrochemical equivalent.How is it related with chemical equivalent of the substance ?

▶ **Watch Video Solution**

275. Define electrochemical equivalent and chemical equivalent. How are they related with each other ? A current of 5 amperes is passed through an electrolyte for 15 minutes when 3 gms of the metal was deposited. Calculate the electrochemical equivalent of the metal.

▶ **Watch Video Solution**

276. Define 'specific conductance' and 'equivalent conductance'. How are they related with each other? Discuss the effect of dilution on the conductance of an electrolyte.

▶ **Watch Video Solution**

277. A $0.1N$ solution of $NaCl$ has a specific conductance of $0.00112 ohm^{-1} cm^{-1}$. Calculate the equivalent conductance of the solution.

▶ Watch Video Solution

278. State and explain Kohlrausch's law of independeat migration of ions.

▶ Watch Video Solution

279. State and explain Kohlrausch's law. How can this law be used to find equivalent conductance of acetic acid at infinite dilution?

▶ Watch Video Solution

280. write a short note on : (a) kohlrausch's law

▶ Watch Video Solution

281. (b) Galvanic cell

282. Define electrode potential and Nernst equation.

283. Write notes on

(i) Electroplating

(ii) Electrorefining

(iii) Galvanic cell

(iv) Electrotyping

(v) Electrochemical series.

284. How does molar conductivity vary with concentration for weak and strong electrolyte ?
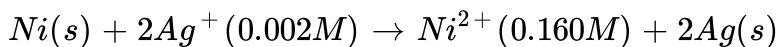
> ▶ Watch Video Solution

285. The resistance of a conductivity cell containing 0.001 M KCl solution at 298 K is 1500 Ω. What is the cell constant if the conductivity of 0.001 M KCl solution at 298 K is $0.146 \times 10^{-3} Scm^{-1}$?

> ▶ Watch Video Solution

286. How does molar conductivity vary with concentration for weak and strong electrolyte ?

> ▶ Watch Video Solution

287. Calculate the emf of the cell in which the following reaction takes place,

$$Ni(s) + 2Ag^+ (0.002M) \rightarrow Ni^{2+} (0.160M) + 2Ag(s)$$

Given that $E^\circ_{\text{cell}} = 1.05V$

▶ **Watch Video Solution**

288. State and explain Kohlrausch's law. How can this law be used to find equivalent conductance of acetic acid at infinite dilution?

▶ **Watch Video Solution**

289. Three electrolytic cells A,B and C containing solutions of zinc sulphate, silver nitrate and copper sulphate, respectively are connected in series.

A steady current of 1.5 A was passed through them until 1.45g of silver deposited at the cathode of cell B. How long did the current flow? What

mass of copper and zinc were deposited in the concerned cells? (Atomic mass of Ag= 108, Zn = 65.4, Cu = 63.5)

290. Resistance of a conductivity cell filled with 0.1 M KCl solution is 100 ohms. If the resistance of the same cell when filled with 0.02 M KCl solution is 520 ohms, calculate the conductivity and molar conductivity of 0.02 M KCl solution. (The conductivity of 0.1 M KCl solution is 1.29 Sm^{-1}).

291. The electrical resistance of a column of 0.05 M NaOH solution of diameter 1 cm and length 50 cm is 5.55 $\times 10^3 \Omega$. Calculate its resistivity, conductivity and molar conductivity.

292. State and exlain Kohlarausch.s law of independent migration of ions .

The equivalent conductance of infinite dilution (A_0) for sodium acetate , sodium chloride and hydrochloric acid are 78, 109 and 384 $ohm^{-1}cm^2$ g.

Calculate the A_0 of acetic acid .