



CHEMISTRY

BOOKS - SHARAM PUBLICATION

ELECTROCHEMISTRY

Exercise

1. The quantity of electricity needed to be deposit 127.08gm. Of copper is

A. $1F$

B. 4 coulombs

C. $4F$

D. 1 ampers

Answer:



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2. When 9.65 coulomb of electricity is passed through a solution of $AgNO_3$ (at.wt. 108.0) the amount of silver deposited is :

A. $16.2mg$

B. $21.2mg$

C. $10.8mg$

D. $6.4mg$

Answer:

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3. In galvanic cell

A. anode to cathode through the solution

B. cathode to anode through the solution

C. anode to cathode through the external circuit

D. cathode to anode through the external circuit

Answer:

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4. The amount of silver deposited by passing one Faraday of current through silver nitrate solution is (At mass of $Ag = 108$)

A. $1.08gm$

B. $10.8gm$

C. $108gm$

D. $2 \times 108gm$

Answer:

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5. Find the number of coulombs required for conversion of one mole of MnO_4^- to one mole of Mn^{2+} .

- A. 96500
- B. 96500×3
- C. 96500×5
- D. 96500×7

Answer:



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6. The reduction electrode potential E of $0.1M$ solution of M^+ ions ($E^o(rp) = -2.36V$) is :

- A. -2.41
- B. $+2.41$
- C. -4.82

D. none

Answer:

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7. The cell $Zn|Zn^{2+} + (1M)||\frac{Cu^{2+}}{1M} + |Cu(E^\circ = 1.10v)$ was allowed to be completely discharged at $298k$. The relative concentration of Zn^{2+} to Cu^{2+} $\frac{Zn^{2+}}{Cu^{2+}}$ is

A. $10^{37.3}$

B. 9.65×10^4

C. Antilog (24.08)

D. 37.3

Answer:

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8. Consider the following E° values, $E^\circ \text{Fe}^{3+}|\text{Fe}^{2+} = 0.77\text{V}$, $E^\circ \text{Sn}^{2+}|\text{Sn} = -0.142$ under standard conditions the potentials for the reaction $\text{Sn}(s) + 2\text{Fe}^{3+} \rightarrow 2\text{Fe}^{2+} + \text{Sn}^{2+}$ is

A. 1.68V

B. 1.40V

C. 0.91V

D. 0.63V

Answer:

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9. For the redox reaction : $\text{Zn}(s) + \text{Cu}^{2+} + (0.14) \rightarrow \text{Zn}^{2+} + (1\text{m}) + \text{Cu}(s)$ taking place in a cell $E^\circ_{\text{cell}} = 1.10\text{V}$, E for the cell will be $(2.303 \text{ RT} / \text{F}) 0.0591$

A. 2.14V

B. $1.80v$

C. $1.07v$

D. $0.82v$

Answer:

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10. Emf of a cell in terms of reduction potential of its left and right hand electrodes is

A. $E = E_{Left} - E_{right}$

B. $E_{Left} + E_{right}$

C. $E = E_{right} - E_{Left}$

D. $E = - (E_{right} + E_{Left})$

Answer:

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11. Two electrochemical cells are $Zn|Zn^{2+} || Cu^{2+} | Cu$ and $Fe|Fe^{2+} || Cu^{2+} | Cu$ are connected in series. What will be the emf of the cell at $25^{\circ}C$. Given

$$E^{\circ} Zn^{2+} | Zn = -0.76V \quad E^{\circ} Cu^{2+} | Cu = +0.34V \quad \text{and} \quad E^{\circ} Fe^{2+} | Fe = -0.44V$$

- A. $1.85V$
- B. $-1.85V$
- C. $+0.83$
- D. -0.83

Answer:

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12. Which of the following is correct ?

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

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

$$C. \Delta G^\circ = - RT2.303nFE^\circ_{cell}$$

$$D. \Delta G^\circ = - nF \log E^\circ_{cell} K_C^\circ$$

Answer:

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13. The equivalent conductances of two strong electrolytes at infinite dilutions in H_2O (where ions move freely through a solution) at $25^\circ C$ are given below. $\Lambda^\circ CH_3COONa = 91.05 cm^2 | gm \equiv$
 $\Lambda^\circ HCl = 426.25 \frac{cm^2}{o} f \equiv$. What additional information / quantity one needs to calculate Λ° of an aqueous solution of acetic acid ?

A. limiting equivalent conductance of H^+ ($\lambda^\circ_{H^+}$)

B. Λ° of chloro acetic acid ($ClCH_2COOH$)

C. Λ° of $NaCl$

D. Λ° of CH_3COOK .

Answer:



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14. $\lambda_{CH_3COONa} = 224 \text{ ohm}^{-1} \text{c} \frac{\text{m}^2}{\text{g}} \text{m}$ equiv.,
 $\lambda_{NaCl} = 38.2 \text{ ohm}^{-1} \text{c} \frac{\text{m}^2}{\text{g}} \text{m}$ equiv. $\lambda_{HCl} = 203 \text{ ohm}^{-1} \text{c} \frac{\text{m}^2}{\text{g}} \text{m} \equiv .$

What is the value of λ_{CH_3COOH} ?

- A. 288.5
- B. 289.5
- C. 388.5
- D. 59.5

Answer:



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15. For a spontaneous reaction of a cell, which is the correct ?

A. $\Delta G = 0, \Delta E = 0$

B. $\Delta G = -ve, \Delta E = 0$

C. $\Delta G = +ve, \Delta E = +ve$

D. $\Delta G = -ve, \Delta E = +ve$

Answer:

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16. The standard emf of the cell reaction $2Cu^+(aq) \rightarrow Cu(s) + Cu^{+2}(aq)$ is 0.36 volt at 298k. The equilibrium constant for the reaction is :

A. 5×10^6

B. 1.4×10^6

C. 1.4×10^2

D. 1.29

Answer:



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17. The specific conductivity of $0.1N\text{KCl}$ solution is $0.0129\text{ohm}^{-1}\text{cm}^{-1}$.

The resistance of the solution in the cell is 100ohm . The cell constant of the cell is

A. 1.29×10^{-3}

B. 1.29×10^{-4}

C. 0.0129

D. 1.29

Answer:



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18. The standard emf of the cell $Zn|Zn^{2+} || Fe^{2+} | Fe$ if electrode potentials for $Zn|Zn^{2+}$ and $Fe^{2+} | Fe$ are 0.763 and -0.44 respectively is

A. +0.323

B. -1.203

C. 1.203

D. -0.323v

Answer:



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19. The number of electrons required to deposit 1 gram atom of aluminium (at wt = 27) from a solution of $AlCl_3$ will be ?

A. 10N

B. 5N

C. $3N$

D. $6N$

Answer:

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20. The equilibrium constant for the reaction

$Cu_s + 2Ag^+_{(aq)} \rightarrow Cu^{2+}_{(aq)} + 2Ag$ at 298 K is Given

$E^\circ_{cell} = 0.46V$

A. 2.0×10^{10}

B. 4×10^{10}

C. 4×10^{15}

D. 2.4×10^{10}

Answer:

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21. The unit of specific conductivity is

A. *ohm*

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

C. coulomb

D. *Faraday*

Answer:



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22. Equivalent conductances of NaCl , HCl and C_2H_5COONa at infinite dilution are 126.45, 426.16 and $91 ohm^{-1}cm^2(gram\ equi)^{-1}$ respectively.

The equivalent conductance of C_2H_5COOH is

A. 201.28

B. 390.71

C. 698.28

D. 540.48

Answer:



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23. The standard reduction potentials of Cu^{2+}/Cu and Cu^{2+}/Cu^+ are 0.337 and 0.153 V respectively. The standard electrode potential of Cu^+/Cu half cell is :

A. 0.184v

B. 0.827v

C. 0.521v

D. 0.490v

Answer:



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24. $E^\circ Fe/Fe^{2+} = 0.44$ whereas $E^\circ Cu/Cu^{2+} = -0.32v$ Then

A. Cu oxidises Fe^{2+} ion

B. Cu^{2+} oxidises Fe

C. Cu reduces Fe^{2+}

D. Cu^{2+} reduces Fe

Answer:



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25. The charge required for the reduction of 1 mol MnO_4^- to MnO_2 is

A. $1F$

B. $3F$

C. $5F$

D. $6F$

Answer:



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26. Which one of the following is not the function of a salt bridge ?

- A. To allow the flow of cations from one solution to the other
- B. To allow the flow of anions from one solution to the other
- C. To allow the flow of electrons from one solution to the other.
- D. To maintain electrical neutrality of the two solutions.

Answer:



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27. The equivalent conductance of $M/32$ solution of a weak monobasic acid is 8.0mhoscm^2 and at infinite dilution is 400mhoscm^2 . The dissociation constant of the acid is

A. 1.25×10^{-6}

B. 6.25×10^{-4}

C. 1.25×10^{-4}

D. 1.25×10^{-5}

Answer:



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28. Which of the following electrolytic solutions has the least specific conductance ?

A. $0.02N$

B. $0.2N$

C. $2N$

D. $0.002N$

Answer:

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29. Which one of the following solutions will have highest conductivity ?

A. $0.1MCH_3COOH$

B. $0.1MNaCl$

C. $0.1MKNO_3$

D. $0.1MHCl$

Answer:

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30. The limiting molar conductivities \wedge° for $NaCl$, KBr and KCl are 126, 152 and $150 Scm^2mol^{-1}$ respectively. The for $NaBr$ is

A. $128Scm^2mol^{-1}$

B. $176Scm^2mol^{-1}$

C. $278 \text{Scm}^2 \text{mol}^{-1}$

D. $302 \text{Scm}^2 \text{mol}^{-1}$

Answer:

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31. $9.65C$ of electric current is passed through fused anhydrous MgCl_2 . The magnesium metal thus obtained is completely converted into a Grignard reagent. The number of moles of Grignard reagent obtained is

A. 5×10^{-4}

B. 1×10^{-4}

C. 5×10^{-5}

D. 1×10^{-5}

Answer:

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32. What will be the pH of aqueous solution of electrolyte in the electrolytic cell during electrolysis of $CuSO_4$ solution between graphite electrodes ?

A. $pH = 14.0$

B. $pH > 7.0$

C. $pH < 7.0$

D. $pH = 7.0$

Answer:

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33. A silver cup is plated with silver by passing $965C$ of electricity. The amount of Ag deposited is

A. $1007.89g$

B. 9.589g

C. 1.1002g

D. 1.08g

Answer:



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34. During the electrolysis of molten $NaCl$ solution, 230 g of sodium metal is deposited on the cathode, than how many moles of chloride will be obtained at anode ?

A. 10.0

B. 5.0

C. 35.5

D. 17.0

Answer:



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35. In the electrolysis of acidulated water, it is desired to obtain 1.12 CC of hydrogen per second STP condition. The current to be passed is

- A. 1.93A
- B. 9.65A
- C. 19.3A
- D. 0.965A

Answer:



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36. Electrolysis of dilute aqueous NaCl solution was carried out by passing 10mA current. The time required to liberate 0.01 mole of H_2 gas at the cathode is ($1F = 96500 \text{ C mol}^{-1}$)

A. $9.65 \times 10^4 s$

B. $19.3 \times 10^4 s$

C. $28.95 \times 10^4 s$

D. $38.6 \times 10^4 s$

Answer:

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37. The charge for the reduction of 1 mole of $Cr_2O_7^{2-}$ ions to Cr^{3+} is :

A. $96500C$

B. $2 \times 96500C$

C. $3 \times 96500C$

D. $6 \times 96500C$

Answer:

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38. The standard e.m.f of a cell involving one electron change is found to be 0.591V at 25°C . The equilibrium constant of the reaction is

- A. 1.0×10^1
- B. 1.0×10^5
- C. 1.0×10^{10}
- D. 1.0×10^{30}

Answer:



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39. 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. Zn will reduce Fe^+ +

B. Zn will reduce Mg^{+} +

C. Mg oxidises Fe

D. Zn oxidises Fe .

Answer:

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40. $E^{\circ} Fe^{3+} / Fe = -0.036V$, $E^{\circ} Fe^{2+} / Fe = -0.439V$. The value of standard electrode potential for the charge $Fe_{aq}^{3+} + e \rightarrow Fe_{aq}^{2+}$ will be

A. $-0.072V$

B. $0.385V$

C. $0.770V$

D. $-0.270V$

Answer:



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41. What flows in the internal circuit of a galvanic cell ?

- A. ions
- B. electrons
- C. electricity
- D. atoms

Answer:



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42. Cu^+ / Cu^{2+} , (0.15), Fe^{2+} / Fe^{3+} , (- 0.77),
 Hg^+ / Hg^{2+} (- 0.92), $2Br^- // Br_2$ (- 1.07). The oxidation potentials
are given above, which is the best reducing agent ?



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43. How degree of dissociation is related with eqconductacne of week electro-lytes ?

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44. What is the EMF of the cell when the cell reaction attains equilibrium ?

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45. What is the change in free energy for

Galvanic cell

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46. What is the change in free energy for

electrolytic cell



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47. How many Faraday will be required for the oxidation of 1 mole of water ?

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48. Calculate the total charge in a mole of electron.

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49. What is the charge in Coulombs on CO_3^{2-} ion?

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50. State Kohlrausch's law.

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51. How does equivalent conductance change with temperature ?

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52. What is the basis on which anode or cathode is identified in a chemical cell?

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53. What is the potential of a standard hydrogen electrode ?

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54. What is the unit of molar conductance ?

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55. Between Zn and Cu which liberates hydrogen from dil. H_2SO_4 ?

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56. Write Nernst equation.

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57. What is cell constant and write its unit.

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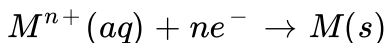
58. Give the relationship between chemical equivalent and electrochemical equivalent of an element?

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59. Copper sulphate solution can be stored in a zinc vessel.

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60. Write the Nernst equation for electrode reaction.



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61. In an electrochemical cell, reduction taken place at
.....

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62. In a cell $Zn|Zn^{+} + (aq)||Cu^{+2}(aq)|Cu$ the standard electrode potentials are : $Cu^{+} + + 2e \rightarrow Cu, E^{\circ} = 0.34V$, $Zn^{+} + + 2e \rightarrow Zn, E^{\circ} = - 0.76V$. What is the emf of the cell ?

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63. What is the unit of equivalent conductance ? How does the equivalent conductance vary with dilution?

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64. How many moles of aluminium can be produced by the electrolysis of molten alumina with current of three Faraday ?

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65. What is the charge in Coulombs on CO_3^{2-} ion?

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66. What is the relation between standard emf of a cell and equilibrium constant?

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

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68. Write the equation that give the equivalent conductance at infinite dilution.

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69. How many moles of hydrogen will be liberated if 1.5 Faraday of electricity is passed through dil H_2SO_4 .



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70. What product is obtained at the cathode during electrolysis of fused sodium hydride ?

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71. What happens to conductance of an electrolyte on dilution ?

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

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73. What do you meant by strong electrolyte?

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74. Why fused electrolytes do conduct electricity ?

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75. What is the function of a salt bridge?

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76. Fill in the blanks : The standard reduction potentials of Cu and Zn are $0.34V$ and $-0.76V$ respectively. The emf of the cell formed by combining the two electrodes will be

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77. Fill in the blanks : Zinc displaces silver from silver nitrate solution because its standard oxidation potential is Positive than that of

silver.

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78. Fill in the blanks : In a galvanic cell electrons flows from To

While current flows fromto

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79. Fill in the blanks : If emf of a cell is positive than the cell reaction is

..... .

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80. The best electronic conductor is _____.

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81. Fill in the blanks : Two solutions are connected in series, when same amount of electricity is passed through the solutions, the masses of the substance liberated at the electrodes are proportional to their

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82. Fill in the blanks : What is the amount of the substance deposited when one ampere for one second is passed through an electrolytic cell ?

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83. Find the number of electrons present in 1 coulomb charge?

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84. Fill in the blanks : At infinite dilution the equivalent conductances of the cations and the anions are Of each other.





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85. Electrochemical equivalents of two metals are in the ratio of their



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86. Fill in the blanks : The electrode potential of a standard hydrogen electrode is



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87. The more the standard reduction potential, the is the ability to displace hydrogen from acids.



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88. Fill in the blanks : In a cell containing zinc electrode and normal hydrogen electrode, zinc electrode acts as

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89. Molten sodium chloride conducts electricity due to the presence of

- A. free from molecule
- B. free from electrons
- C. free ions
- D. sodium and chloride atoms.

Answer:

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90. Fill in the blanks : In the galvanic cell $Zn|Zn^{2+} || Cu^{2+} | Cu$, Zinc electrode acts as while copper electrode acts as

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91. Fill in the blanks : The electric charge for the deposition of 1 gm equivalent of a substance is

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92. 96500 Coulomb will deposit of metal.

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93. How does specific conductance vary with dilution?

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94. Fill in the blanks : ΔG° is related to the emf of the cell as

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95. Fill in the blanks : In an electrolyte current is carried by

- A. atom
- B. ion
- C. electron
- D. molecule

Answer:

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96. Fill in the blanks : The laws of electrolysis were enunciated by

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97. Fill in the blanks : Degree of dissociation on dilution.

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98. In electrochemical cell energy is converted to energy.

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99. Fill in the blanks : Solid $NaCl$ is Conductor of electricity.

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100. Fill in the blanks : Specific conductance = conductance xx

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101. Fill in the blanks : Molar conductance = specific conductance xx
.....

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102. Fill in the blanks : The current is carried through metallic conductor
by

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

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104. Is it safe to stir $1M AgNO_3$ solution with a copper spoon ? Given

$$E^\circ_{Ag^+ / Ag} = 0.89v, E^\circ_{Cu^{2+} / Cu} = 0.34v.$$

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105. Calculate the standard reduction potential of $\frac{Ag^+}{Ag}$ electrode when the cell potential for the cell $Cu|Cu^{2+} + (1M)||Ag^+ (1M)|Ag$ is $0.46V$.

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106. Why blue colour of $CuSO_4$ solution fades when an iron rod is dipped into it ?

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107. Calculate the molar conductance of $MgCl_2$ at infinite dilution. Given

$$\lambda_{Mg^{2+}}^{\infty} = 106.1 \text{ ohm}^{-1} \text{ cm}^2 \text{ mol}^{-1}, \lambda_{Cl^-}^{\infty} = 76.3 \text{ ohm}^{-1} \text{ cm}^2 \text{ mol}^{-1}.$$

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108. Write the electrolysed products of molten $NaCl$ and aqueous $NaCl$ solution.

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109. Calculate the standard electrode potential of $Cu^{+} + | Cu$, if the electrode potential at $25^{\circ}C$ is $0.296V$ when the $[Cu^{+}] = 0.015M$.

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110. Why is not possible to determine Λ_{∞} for weak electrolyte by the method of extrapolation ?

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111. Write Nernst equation.

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112. What is the effect of temperature on the molar conductivity ?

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113. For strong electrolytes, the values of molar conductivity at infinite dilution are given below $BaCl_2$, $NaCl$ and $NaOH$ 280×10^{-4} , 126.5×10^{-4} , 248×10^{-4} respectively. Calculate $\Lambda_{Ba(OH)_2}^0$.

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114. If the standard half cell and reduction potentials are $0.522V$ for $Cu^+ | Cu$ and $0.3402V$ for $Cu^{2+} | Cu$. Find the standard half cell potential for $Cu^{2+} | Cu + .$

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115. Calculate the equivalent conductivity of $1M H_2SO_4$ solution if its specific conductivity is $26 \times 10^{-2} \text{ ohm}^{-1} \text{ cm}^{-1}$.

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116. Give two applications of Kohlrausch Law.

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117. How many grams of aluminium can be produced by electrolysis of molten alumina with a current of 3 amperes for 10 minutes ?

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118. Define a Galvanic cell. Give the diagrammatic representation of a typical galvanic cell with cell reaction.

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119. How many moles of aluminium can be prepared by the electrolysis of molten alumina with a current of six Faradays.

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120. Equivalent mass of sodium is 23. Calculate the electrochemical equivalent.

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121. Define molar conductance.

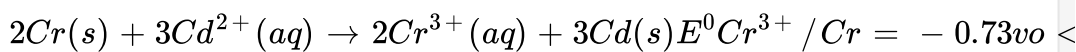
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122. Three faradays of electricity are passed through molten Al_2O_3 , aqueous solution of $CuSO_4$ and molten NaCl taken in different

electrolytic cells. Calculate the molar ratio of Al, Cu and Na deposit at the cathodes .

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123. Represent the cell and calculate the Standard e.m.f. of the cell having following cell reaction:



and $E^0 Cd^{2+} / Cd = -0.40 \text{ volt}$

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124. What is galvanic cell? Give an example.

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125. How many grams of aluminium can be produced by electrolysis of molten alumina with a current of 3 amperes for 10 minutes ?

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126. When a current of strength 3 amperes is passed through silver nitrate solution for 20 minutes 4 gms of silver metal is deposited. What is the ECE of silver ?

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127. How many grams of chlorine can be produced by the electrolysis of molten $NaCl$ with 10 amperes of current flowing for 10 minutes (mol wt of $Cl_2 = 71$)

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128. How many moles of copper will be deposited at the cathode by passing 1.5 faraday of electricity through a sol^n of $CuSO_4$? (At. Mass of Cu =63.5).

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129. Why copper sulphate solution cannot be stirred by a nickel spatula ?

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130. Why copper sulphate solution can not be stored in an alluminium vessel ?

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131. Distinguish between electrolyte and electrochemical cells.

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132. Derive Nernst equation for calculating emf of Galvanic cell.

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133. What are Electrochemical cells ? What would happen if no salt bridge were used in electrochemical cell like Zn - Cu cell ? Write the Nernst equation to calculate the emf of this cell.

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134. Discuss Daniel cell with cell reaction. Write the cell reaction. Write the cell reaction and find the emf of the cell. $Mg|Mg^{2+} || Cu^{2+} |Cu$ at 25°

Given $E^\circ Mg^{2+} | Mg = -2.37V$ ($0.001M$) $0.0001M$ and

$E^\circ Cu^{2+} | Cu = 0.34V$.

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135. What is electrochemical series ? Write three of its applications.

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136. 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.

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137. State and explain Faraday's laws of electrolysis. 0.2015g of copper were deposited by a current of 0.25 A in 45 min. What is the ECE of the copper?

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138. What amount of aluminium will be deposited by the electrolysis of molten alumina with a current of 5 amperes passing for 12 minutes.

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

0.101gm of copper was deposited by a current of 0.25 amperes in 20 minutes.What is the electrochemical equivalent of copper.



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

How many grams of aluminium will be deposited by the electrolysis of molten alumina with a current of 6amperes for 10 minutes ? (At mass of $Al = 27$)



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

A current of 6 amperes is passed through a solution of $AgNO_3$ for 20 minutes. 8 gm of silver is deposited. Find out the electrochemical equivalent of silver.



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

How many grams of silver will be deposited by the electrolysis of silver nitrate solution with a current of 5 amperes for 10 minutes.

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

When a current of 6 ampere strength is passed through $AgNO_3$ solution for 10 minutes, 4 gms of silver is deposited. Find out the electrochemical equivalent of silver.

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

A current of 5 amperes is passed through an electrolyte for 15 minutes when 4 gms of the metal was deposited. Calculate the ECE of the metal.

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

A current of 20 amperes is passed through $CuSO_4$ solution for 1 hr. How many grams of copper will be deposited ?

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146. How many grams of aluminium can be produced by electrolysis of molten alumina with a current of 3 amperes for 10 minutes ?

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147. 20 ampere current is flowing through $CuSO_4$ solution for 60 minutes. Find the amount of copper deposited. (At .wt. of Cu = 63.5)

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148. State and explain Faraday's law of electrolysis. 0.2964g of copper was deposited on passing a current of 0.5 ampere for 30 minutes through copper sulphate solution. What is the atomic mass of copper ?

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149. State and explain Faradays laws of electrolysis ?

A solution of $Ni(NO_3)_2$ is electrolysed between platinum electrodes using a current of 5,0 ampere for 30 minutes . Calculate the mass of nickel produced at the cathode at mass of $Ni = 58.7$)

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150. State and explain Faraday 's laws of electricity. What current strength in amperes will be required to liberate 10 gm of iodine from KI solution in one hour. (equivalent mass of iodine = 127)

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151. Define specific conductance and equivalent conductance. Establish a relation between them.

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152. State and explain Faraday laws of electrolysis. What is electrochemical series. How much of electricity in ampere is required to liberate oxygen gas at the rate of 1 ml per second.

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153. 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?

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154. Define equivalent and molar conductance. Give their relationship with specific conductance. How does equivalent conductance vary with increase in temperature?

How many atoms of calcium will be deposited from fused $CaCl_2$ by a current of 25 mA passes for 60 sec?

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

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156. The specific conductance of solution of $0.12N$ is $0.024mho^{-1}cm^{-1}$. Determine its equivalent conductance.

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157. A 0.1N solution of $NaCl$ has a specific conductance of $0.0001119 \text{ ohm}^{-1} \cdot \text{cm}^{-1}$. Find its equivalent conductance.

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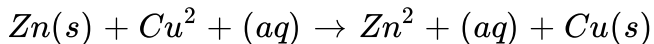
158. State and explain Kohlrausch's law. How can this law be used to find equivalent conductance of acetic acid at infinite dilution?

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159. Equivalent conductance at infinite dilution of NH_4Cl , $NaOH$ and $NaCl$ are 129.8, 217.4 and 108.45 $\text{mho cm}^2 \text{ gm equivalent}^{-1}$ respectively. Calculate the equivalent conductance of HN_4OH at infinite dilution.

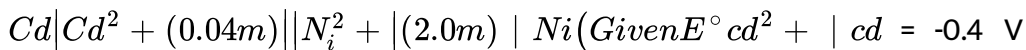
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160. Derive Nerst equation for EMF of the following cell.

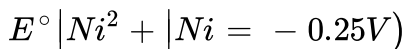


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161. Calculate the EMF of the following cell.



and



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