CHEMISTRY

AAKASH INSTITUTE ENGLISH

TEST 1

Example

1. In ZnS (sphalerite) structure, the coordination number of Zn^{2+} and S^{2-} are respectively

A. 6 and 6

B. 8 and 8

C. 4 and 4

D. 8 and 4

Answer:

2. The incorrect statement regarding defects in crystalline solids is

A. Schottky defect is a vacancy defect

B. In Frenkel defect, density of the crystal decreases

C. AgBr shows both Frenkel as well as Schottky defect

D. Schottky defect does not disturb stoichiometry of the solid

Answer:

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3. If molar conductivities $\left(\Lambda_m^0\right)$ at infinite dilution of KBr, HBr and $CH_3COOKare151.6, 427.7$ and $114.4Scm^2mol^{-1}$respectively then $\left(\Lambda_m^0\right)f$ or CH_3COOH will be

A. $469.9Scm^2mol^{-1}$

B. $313.3Scm^2mol^{-1}$

C. $350.2Scm^2mol^{-1}$

D. $390.5Scm^2mol^{-1}$

Answer:

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4. For a cell to work spontaneously which of the following options should be correct?

A. $\Delta G > 0, E_{cell} > 0$

B. $\Delta G < 0, E_{cell} > 0$

C. $\Delta G < 0, E_{cell} < 0$

D. $\Delta G > 0, E_{cell} < 0$

Answer:

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5. Electrolyte used in lead storage battery is

A. Paste of KOH

B. $38\ \%\ H_2SO_4$

C. Aqueous NH_4Cl

D. Brine Solution

Answer:

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6. Van't Hoff factor of 0.1 m aqueous solution of $Al_2(SO_4)_3$ which undergoes 80% dissociation is

A. 3.6

B. 3.2

C. 4.2

D. 4.8

Answer:

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7. A solution has $1:4$ mole ratio of pentane to hexane . The vapour pressure of pure hydrocarbons at $20^{\circ}C$ are 440 mm Hg for

pentane and 120mm Hg for hexane .The mole fraction of pentane in the vapour phase is

A. 0.44

B. 0.55

C. 0.35

D. 0.72

Answer:

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8. The vapour pressure of acetone at a certain temperature is 480 mm of Hg. A non- volatile, non- electrolyte solid weighing 0.2 g when added to 5.8 g of acetone, the vapour pressure of the solution becomes 470 mm of Hg. The molar mass of the solute is

A. 170 g/mol

B. 94 g/mol

C. 188 g/mol

D. 72 g/mol

Answer:

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9. Which colligative property is the best method for the determination of molar masses of macromolecules?

A. Elevation in boiling point

B. Depression in freezing point

C. Relative lowering in vapour pressure

D. Osmotic pressure

Answer:

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10. Which among the following solutions has highest freezing point?

A. NaCl (0.1 m)

B. 2K_2SO_4 (0.1 m)`

C. Urea (0.1 m)

D. $MgCl_2(0.1m)$

Answer:

11. Mass of Nickel deposuited at cathode by passing 9.65 ampere of current for a period of 100 inute through molten $NiCl_2$ is (Atomic mass of Ni = 58.7 u)

A. 35.22 g

B. 17.61 g

C. 8.81 g

D. 22.51 g

Answer:

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12. A hydrogen gas electrode is made at $25^\circ C$ by dipping platinum wire in aqueous HCl solution of pH = 4 and by passing hydrogen gas at one atmosphere. The reduction potential of the electrode at $25^\circ C$ will be

A. $(+0.118V)$

B. $(-0.236V)$

C. $(+0.059V)$

D. $(-0.118V)$

Answer:

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13. Half life period of a first order reaction is 693 seconds. The specific rate constant of the reaction is

A. 2 xx 10^(-2) s ^(-1)`

B. $1 \times 10^{-3} s^{-1}$

C. $2.5 \times 10^{-4} s^{-1}$

D. $1 \times 10^{-4} s^{-1}$

Answer:

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14. If initial concentration is doubled, the time for half reaction is also doubled, The order of reaction is

A. First

B. Zero

C. Second

D. Third

Answer:

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15. What is the primary valence of iron in the coordination entity of compound $Fe_4\left[Fe(CN)_6\right]_3$?

A. Zero

B. +1

C. +2

D. +3

Answer:

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16. Which of the following solutions shows positive deviation from Raoult's law ?

A. $CHCl_3 + C_6H_6$

B. $C_6H_5NH_2 + CH_3COCH_3$

C. $CH_3OH + H_2O$

D. $HNO_3 + H_{20}$

Answer:

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17. Vapour pressure of methyl alcohol and dichloromethane at $27^\circ Care100$ mm HG and 350 mm Hg respectively. Vapour pressure of the solution obtained by mixing 1.5 mole of methyl alcohol and 0.5 mole of dichloromethane at $27^\circ C$ is

A. 450 mm Hg

B. 250 mm Hg

C. 162.5 mm Hg

D. 112.5 mm Hg

Answer:

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18. The fraction of volume occupied by atoms in a body centered cubic unit cell is:

A. $\frac{\pi}{6}$

B. $\frac{\pi}{3\sqrt{3}}$

C. $\frac{\sqrt{3}}{8}\pi$

D. $\frac{\pi}{3\sqrt{2}}$

Answer:

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19. If the iconic radii of X^+ and Y^- ions are 120 pm and 360 pm respectively then coordination number of each ion is compound XY is

A. 3

B. 4

C. 6

D. 8

Answer:

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20. Number of octahedral void(s) occupied by carbon atoms in the unit cell of diamond is

A. 2

B. Zero

C. 4

D. 8

Answer:

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21. For the Arrhenius equation, the slope for the plot ln k vs 1/T is

A. $\left(\frac{R}{E_a}\right)$

B. $\ln A$

C. $-\left(\frac{E_a}{R}\right)$

D. $-\ln A$

Answer:

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22. aqueous solution of which species shows highest molar conductivity?

A. Na^+

B. K^+

C. Mg^{2+}

D. Ca^{2+}

Answer:

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23. The standard Gibbs free energy change (in joule) for the given cell reaction is $Mg(s) + Ni^{2+} \rightarrow Mg^{2+}(aq) + Ni(s)$ (Given: $E^{\circ}_{\frac{(mg)^{2+}}{mg}} = -2.36\,\text{V}$, $E^{\circ}_{\frac{(NI)^{2+}}{NI}} = -0.25\text{V}$,

A. $-5.22F$

B. $-6.11F$

C. $-2.11F$

D. $-4.22F$

Answer:

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24. Which is not the correct statement for a catalyst?

A. It catalyses the forward as well as the backward reactions

B. It does not alter Gibbs energy of the reaction

C. It catalyses both spontaneous and non-spontaneous reaction

D. It does not change equilibrium constant of the reaction

Answer:

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25. For the reaction 2A + 3B to 4C, rate of appearance of C is equal to

A. $-\left(\frac{2}{3}\right)\left(\frac{dA}{dt}\right)$

B. $-\left(\frac{4}{3}\right)\left(\frac{dB}{dt}\right)$

C. $-\left(\frac{1}{4}\right)\left(\frac{dA}{dt}\right)$

D. $-\left(\frac{3}{2}\right)\left(\frac{dB}{dt}\right)$

Answer:

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26. What will be the activation energy in joule for a reaction if its rate doubles when the temperature is raised from 27 degC to 37 degC.

A. $9300R\ln 2$

B. $\left(\frac{1}{9300R}\right)\ln 2$

C. $930R\ln 2$

D. $\frac{930R}{\ln 2}$

Answer:

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27. If the equivalent conductance of (M/20) solution of a weak monobasic acid is $25.0Scm^2eq^{-1}$ and at infinite dilution is

$500 Scm^2 eq^{-1}$, then the dissociation constant of the acid is

A. 1.25×10^{-3}

B. 5.55×10^{-4}

C. 1.25×10^{-4}

D. 5.55×10^{-5}

Answer:

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28. Standard reduction potential of the half cell reactions are given below

$Co^{3+}(aq) + e^{1-} \rightarrow Co^{2+}(aq), E^0 = +1.81V$

$Au^{3+}(aq) + 3e^{1-} \rightarrow Au(s), E^0 = +1.40V$

$I_2(s) + 2e^{1-} \rightarrow 2I^-(aq), E^0 = +0.54V$

$Cu^{2+}(aq) + 2e^{1-} \rightarrow Cu(s), E^0 = +0.34V$

The strongest oxidizing and reducing agents respectively are:

A. Au^{3+} and Cu

B. I_2 and Au

C. Co^{3+} and Cu

D. Co^{2+} and Cu^{2+}

Answer:

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29. For negative deviation from Raoult's law, which of the following thermodynamic relation is incorrect?

A. $(\Delta G)_{mix} < 0$

B. $(\Delta S)_{mix} > 0$

C. $(\Delta V)_{mix} > 0$

D. $(\Delta H)_{mix} < 0$

Answer:

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30. Standard electrode potential of $\frac{Ni^{2+}}{Ni}$ couple is - 0.25 V and that of $\frac{Ag^{+}}{Ag}$ is 0.80` V. These couples in their standard state are connected to make a cell. The cell potential will be

A. $+0.55V$

B. $+0.80V$

C. $+1.05V$

D. $+1.85V$

Answer:

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31. A solution containing 18 g/dm3 of glucose is isotonic with 5% (w/v) solution of a nonvolatile, nonelectrolytic solute. The molar mass of the solute is

A. $250 gmol^{-1}$

B. $150 gmol^{-1}$

C. $400 gmol^{-1}$,

D. $500 gmol^{-1}$

Answer:

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32. Which of the following concentration terms is temperature independent?

I. Molarity II. Molarity III. Normally IV. Mole fraction

A. Molarity

B. $\left(\frac{W}{W}\right)\%$

C. $\left(\frac{W}{V}\right)\%$

D. Normality

Answer:

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33. Concentrated aqueous sulphuric acid is 98% H_2SO_4 by mass. How many grams of concentrated sulphuric acid solution should be used to prepare 250 ml of 2.0 M H_2SO_4?

A. 98 g

B. 50 g

C. 110 g

D. 100 g

Answer:

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34. A compound formed by elements A and B crystallises as FCC lattice. If A is present at the lattice points of unit cell and B occupy half of tetrahedral voids as well as one fourth of octahedral voids then the formula of the compound will be

A. A_2B_5

B. A_3B_2

C. A_4B_5

D. A_2B_3

Answer:

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35. 'n'mol of $N_2$and 0.05 mol of Ar are enclosed in a vessel of capacity 6 L at 1atm and $27oC$.The value of ' n ' is (R=0.0821 atm $mol^{-1}K^{-1}$) `

A. 0.25

B. 0.20

C. 0.05

D. 0.4

Answer:

36. Which of the following when added as an impurity into silicon produces n-type semicondutor ?

A. B

B. Ga

C. Al

D. P

Answer:

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37. Which among the following is an incorrect statement?

A. Order of a reaction is an experimental quantity

B. Order can be zero but cannot be fractional

C. Order is applicable to elementary as well as complex reactions

D. For complex reaction, order is given by the slowest step of the reaction

Answer:

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38. If the rate constant for a second order reaction is $2.303 \times 10^{-3} s^{-1}$ then the time required for the completion of 70% of the reaction is $(\log 3 = 0.48)$

A. 5.25 minute

B. 12.31 minute

C. 7.25 minute

D. 8.67 minute

Answer:

39. The unit of rate constant for a second order reaction is

A. $molL^{-1}s^{-1}$

B. $mol^{-2}L^{2}s^{-1}$

C. $mol^{-1}Ls^{-1}$

D. s^{-1}

Answer:

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40. The quantity of electricity required to reduce 0.5 mole of $(MnO_4)^{1-} \rightarrow Mn^{2+}$ is

A. 1.5×10^5

B. 2.4×10^5

C. 3.4×10^5

D. 5.1×10^5

Answer:

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41. If conductivity of $0.1mo\frac{l}{d}m^3$ solution of KCl is $1.3 \cdot 10^{-2}Scm^{-1}$ at 298 K then its molar conductivity will be

A. $130S\frac{cm^2}{m}ol$

B. $250S\frac{cm^2}{m}ol$

C. $75S\frac{cm^2}{m}ol$

D. $182S\frac{cm^2}{m}ol$

Answer:

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42. If 0.2 molal aqueous solution of a weak acid (HA) is 40% ionised then the freezing point of the solution will be (K_f for water = 1.86degC/m

A. $-1.52degC$

B. $-0.52degC$

C. $-1.0degC$

D. $-2.22 deg C$

Answer:

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43. What is the mole fraction of urea in a 4.45 m aqueous solution?

A. 0.01

B. 0.1

C. 0.07

D. 0.03

Answer:

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44. A metal crystallises with a body-centred cubic lattice. The edge length of the unit cell is 360 pm. Radius of the metal atom is

A. 155.9 pm

B. 127.3 pm

C. 254.5 pm

D. 311.8 pm

Answer:

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45. The vacant space in FCC unit cell is

A. 0.58

B. 0.26

C. 0.32

D. 0.48

Answer:

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46. The number of carbon atoms present at lattice points voids per unit cell of diamond respectively are

A. 4,4

B. 4,2

C. 1,3

D. 2,4

Answer:

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47. or an aqueous solution of $K_4[Fe(CN)_6]$ (strong electrolyle) the vant Hof factor (i) will be

A. 4

B. 1

C. 3

D. 5

Answer:

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48. Which among the following is a best conductor of ectricity?

A. $0.1Maq.\ NH_4OH$

B. 0.1 M aq. urea

C. $0.1Maq.\ CH_3COOH$

D. $0.1Maq.\ NaCl$

Answer:

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49. The slope of line plotted between In k versus (1/T) Arrhenius equation is given by

A. $\left(-\frac{E_a}{2.303}R \right)$

B. (-E_a/R)

C. $\left(-E_a \frac{2.303}{R} \right)$

D. $\left(-\frac{R}{E_a} \right)$

Answer:

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50. Smoke is a colloidal solution of

A. Solid in solid

B. Solid in gas

C. Solid in gas

D. Gas in gas

Answer:

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51. Select the correct statement regarding enzyme analysis

A. Enzymes are least reactive at optimum temperature

B. The optimum pH range for enzyme catalytic activity is 7-10

C. Enzymes are simple nitrogenous compounds having low molecular mass

D. Enzymes form colloidal solution in water

Answer:

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52. The incorrect statement regarding defects in crystalline solid is

A. Schottky defect decreases the density of ionic solid

B. Frenkel defect does not affect the stability of ionic solid

C. Schottky defect increases electrical conductivity of ionic solid.

D. Frenkel defect is a dislocation defect.

Answer:

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53. Upon mixing of acetone and ethanol, which of the following is not observed?

A. $\partial H_m ix > 0$

B. $\partial S_m ix > 0$

C. $\partial G_m ix > 0$

D. $\partial V_m ix > 0$

Answer:

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54. An aqueous solution is 1.00 molalin KI. Which change will cause the vapour pressure of the solution to increase ?

A. $Add \in gHgl_2$

B. Adding one molal aq. Kl

C. $Add \in gI_2$

D. Adding NaI

Answer:

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55. In pure water at 298 K, the electrode potential of H-electrode will be (Given $P_{H\_2} = 10^{-14} atm$)

A. 0 volt

B. 0.0591 volt

C. $(-0.0591vo <)$

D. (-0.1182 volt)

Answer:

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56. Calculate the equivalent conductivity of 1M H_2SO_4 whose specific conductivity is $26 \times 10^{-2} ohm^{-1} cm^{-1}$

A.

$\hat{} \ eq(CH_3COONa) +^{e} q(Nacl) -^{e} q(HCI)$

B.

$\hat{} \ eq(NaCl) +^{e} q(HC_1) -^{e} q(CH_3COONa)$

C. 2^eq(CH_3COONa) + ^eq[HCl) - ^eq(NaCl)`

D.

$$\hat{}\ eq(CH_3COONa) +^{e} q(Hcl) +^{e} q(NaCl)$$

Answer:

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57. For Langmuir adsorption isotherm, which is correct?

A. The adsorption sites are equivalent in their ability to adsorb the particles

B. It is unimolecular layer in nature

C. It involves two OppoSite processes condensation of gas molecules and evaporation of these molecules

D. The rate of condensation of a gas is independent to the unoccupied surface of adsorbent

Answer:

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58. which property of colloidal solution is independent of charge on the colloidal particles ?

A. Coagulation

B. Electrophoresis

C. Electro-osmosis

D. All of these

Answer:

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59. The specific rate (in mol L^(-1) S^(-1)) of a first order reaction having half life of 6.93 seconds is

A. 0.1

B. 1

C. 0.693

D. 6.93

Answer:

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60. The half-life of a reaction is halved as the initial concentration of the reactant is doubled. The order of reaction is :

A. zero

B. 2

C. 1

D. 1.5

Answer:

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61. Dimerisation of NO_2, is an exothermic reaction. If enthalpy of reaction is /_\H, then the minimum value of activation energy for forward reaction (E_a) will be

A. $Equal \rightarrow \triangle H$

B. Equal to zero

C. Greater than /_\H

D. Greater than threshold energy

Answer:

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62. Which of the following forms anionic micelles above a certain concentration?

A. Sodium dodecyl sulphate

B. Cetyltrimethyl ammonium bromide

C. Dodecyltrimethyl ammonium chloride

D. Pyridinium chloride

Answer:

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63. The correct order of coagulation values (in $molL^{-1}$) of given electrolytes for the coagulation of As_2S_3sol is

A. $NaCI > MgCl_2 > AlCl_3$

B. $NaCl < Na_2SO_4 < Na_3PO_4$

C. $Al_2(SO_4)3 > MgSO_4 > NaCl$

D. $AICl_3 > MgCl_2 > NaCl$

Answer:

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64. The simplest formula of a compound whose cubic unit cell contains A atoms on all corners, B atoms on alternate face centre andC atoms on one third of edge centre, is

A. ABC_2

B. ABC_3

C. ABC

D. $A_4B_4C_3$

Answer:

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65. If the density of a unit cell of a salt AB (rock salt type structure) is 4 g/cm3, then the distance of closest approach between A^+ and B^- will be (Molar mass of $AB = 75gmol^{-1}$ and $N_A = 6 \times 10^{23}$

A. $1.82A^\circ$

B. $3.7A^\circ$

C. $2.5A^\circ$

D. 4.8 A

Answer:

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66. Identify the incorrect match wr.t. coordination number of cation and anion in the given ionic solids.

A. ionic solid Nacl, Coordination no of cation 6, coordination no of anion6

B. ionic solid CaF_2, Coordination no of cation 4, coordination no of anion8

C. ionic solid Cscl, Coordination no of cation 8, coordination no of anion8

D. ionic solid ZnS, Coordination no of cation 4

, coordination no of anion 4

Answer:

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67. The lowering in freezing point of 0.75 molal aqueous solution NaCI (80% dissociated) is [Given, K_f, for water $1.86 K kg mol^{-1}$]

A. 2.51 K

B. (-3.35K)

C. 3.35K

D. (-2.51 K)

Answer:

68. The mole fraction of urea in its 2 molal aqueous

A. 0.0177

B. 0.0215

C. 0.0347

D. 0.0415

Answer:

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69. Which of the following expression represents the correct rate of given reaction?

$A + 2B + 3C \rightarrow 4D + 5E$

A. $\left(\frac{1}{2}\right)\left(\frac{d[A]}{dt}\right)$

B. $\left(-\frac{1}{4}\right)\left(\frac{d[D]}{dt}\right)$

C. $\left(-\frac{1}{3}\right)\left(\frac{d[B]}{dt}\right)$

D. $\left(\frac{1}{5}\right)\left(\frac{d[E]}{dt}\right)$

Answer:

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70. One litre of 1M aqueous NaCl solution is electrolysed by using 20 amp current (50%efficiency) for 96.5 seconds.The pH of solution after the electrolysis will be

A. 12

B. 14

C. 13.5

D. 7

Answer:

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71. The value of $E^o_{\frac{A^{3+}}{A^{2+}}}$ (in volt) will be [Given, $E^o_{\frac{A^{3+}}{A}} = xV$ and $E^o_{\frac{A^{2+}}{A}} = -yV$]

A. $-3x, -3y$

B. $3x + 2y$

C. $-3x+2y$

D. $3x-2y$

Answer:

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72. The equilibrium constant for the cell $Cu(s)+2Ag^{+}(aq)\rightarrow Cu^{2+}(aq)+2Ag(s)$,at 298K is [Given,$E^{o}_{\frac{(Ag)^{+}}{Ag}}=0.8V$ and $E^{o}_{\frac{(Cu)^{2+}}{Cu}}=0.34V$]

A. $10^{38.57}$

B. $10^{15.57}$

C. $10^{20.25}$

D. $10^{41.23}$

Answer:

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73. If two liquids A(boiling point=$t_1{}^\circ C$)and B(boiling point=$t_2{}^\circ C$) on mixing forms azeotropic solution which shows positive

deviation from Raoult's law, then boiling point of azeotropic solution will be [Given,t1>t2]

A. $> t_1$

B. $> (t_1 + t_2)$

C. $= t_1$

D. $< t_2$

Answer:

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74. A solution of $18\%\left(mas\frac{s}{v}ol\right)glu\cos e$ is isotonic with $x\%\left(mas\frac{s}{v}ol\right)$ KCl solution.If KCl is 90% dissociated,then value of x is (Mol .mass of KCl=74.5gmol^(-1))

A. 2.67

B. 4.35

C. 3.92

D. 3.12

Answer:

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75. Let gas (A) present in air is dissolved in 20 moles of water at 298K and 20 atm pressure. The mole fraction of gas (A) in air is 0.2 and the Henry's law constant for solubility of gas (A) in water at 298K is 1×10^5atm.The number of mole of gas (A) dissolved in water will be

A. 8×10^{-5}

B. 4×10^{-4}

C. 8×10^{-4}

D. 6×10^{-5}

Answer:

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76. The decay constant (λ) for radioactive decay is independent of

A. amount of radioactive substance

B. temperature

C. pressure

D. all of these

Answer:

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77. Which of the following is not an application of adsorption?

A. removal of moisture using anhydrous $CaCl_2$

B. use of gas mask to purify the air for breathing

C. concentration of low grade sulphide ores using pine oil and frothing agent

D. chromatographic technique is used in purification of organic compounds

Answer:

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78. Select the incorrect statement among the following.

A. Metals having conductivities in the order of $10^7 \Omega^{-1} m^{-1}$ are good conductors

B. Solids having conductivities range 10^{-6} to $10^{4}\Omega^{-1}m^{-1}$ are termed as semiconductors

C. Solids having conductivities range 10^{-10} to $10^{-20}\Omega^{-1}m^{-1}$ are termed as insulators

D. Conductivity of TiO_3 is independent of temperature

Answer:

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79. Among the seven crystal systems,how many systems have body-centred unit cell as a possible variation?

A. 3

B. 4

C. 5

D. 6

Answer:

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80. When temperature of a reaction is raised from 17°C to 27°C,the rate of reaction becomes double,then energy of activation of the reaction will be approximately

A. $18kcalmol^{-1}$

B. $50kJmol^{-1}$

C. $42kcalmol^{-1}$

D. $38kJmol^{-1}$

Answer:

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81. Identify the process in which heterogeneous catalysis is involved

A. formation of SO_3 in lead chamber process

B. Hydrolysis of methyl acetate in acidic medium

C. Formation of NO is Ostwald's process

D. Hydrolysis of sucrose in acidic medium

Answer:

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82. During the electrolysis of water,if 11.2 litre H2 is obtained at S.T.P at cathode,then mass of O_2 obtained at anode is

A. 8g

B. 16g

C. 32g

D. 4g

Answer:

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83. On diluting aqueous solution of weak electrolyte to 100 times

A. specific conductance increases but equivalent conductance decreases

B. molar conductance decreases but equivalent conductance increases

C. specific conductance increases but molar conductance decreases

D. specific conductance decreases but molar conductance increases

Answer:

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84. Which among the following has the highest melting point?

A. SiC

B. NaCl

C. Dry ice

D. Copper

Answer:

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85. Identify the correct naming for $K_2[PdCl_4]$.

A. Potassium tetrachlorinepalladium(II)

B. Potassium tetrachlorinepalladate(II)

C. Potassium tetrachloridopalladium(II)

D. Potassium tetrachloridopalladate(II)

Answer:

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86. If ΔG° value of fuel cell using C_4H_{10} and O_2 is -2.6×10^6J,then E° value of cell is

A. 2.05V

B. 1.04V

C. 1.85V

D. 2.68V

Answer:

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87. Select the incorrect statement among the following

A. For hygroscopic substance, vapour pressure of water in their solution state is lower than vapour pressure of water in air

B. Efflorescent crystal release water vapour

C. Hygroscopic and deliquescent salt absorbs moisture

D. Moist air is heavier than dry air

Answer:

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88. The resistance and specific conductance of 0.1M solution of an electrolyte is 40 Omega and $0.014 Scm^{-1}$ respectively. For the 0.2M solution of same electrolyte if resistance is 210 Omega,then the molar conductivity $\left(\in Scm^2 mol^{-1} \right)$ will be

A. 13.33

B. 5.55

C. 6.28

D. 15.35

Answer:

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89. Among the given properties of solution,how many are colligative properties? [Osmotic pressure,Relative lowering in vapour pressure, Boiling point, Elevation in boiling point,Vapour pressure]

A. 3

B. 4

C. 1

D. 2

Answer:

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90. The most alkaline hyroxide among the following is

A. $Ce(OH)_3$

B. $Sm(OH)_3$

C. $Lu(OH)_3$

D. $Gd(OH)_3$

Answer:

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91. Copper matte contains

A. Cu_2O and FeO

B. Cu_2S and FeS

C. Cu_2S and FeO

D. Cu and Cu_2S

Answer:

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92. Copper sol is most easily precipitated by

A. PO_4^{3-}

B. Ba^{2+}

C. Al^{3+}

D. $\left[Fe(CN)_6\right]^{4-}$

Answer:

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93. For the galvanic cell $Mg(s)\left|Mg^{2+}(aq)\right|\left|Zn^{2+}(aq)\right|Zn(s)$,the standard free energy change is ($Given: E^{\circ}_{\frac{mg^{2+}}{mg}} =$ -2.36V, $E^{\circ}_{\frac{Zn^{2+}}{Zn}} =$ -0.76V)

A. -1.6F

B. -3.2F

C. -4.8F

D. — F

Answer:

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94. For the following redox reaction the coefficients of the reactants for balanced reaction are

$$Cr_2O_7^{2-} + SO_3^{2-} + H^+ \rightarrow Cr^{3+} + SO_4^{2-} + H_2O$$

A. $Cr_2O_7^{2-}(1)SO_3^{2-}(2)H^+(7)$

B. $Cr_2O_7^{2-}(1)SO_3^{2-}(3)H^+(8)$

C. $Cr_2O_7^{2-}(1)SO_3^{2-}(4)H^+(7)$

D. $Cr_2O_7^{2-}(1)SO_3^{2-}(5)H^+(14)$

Answer:

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95. Total number of monochloro derivatives obtained by monochlorination of 2-methylepentane is

A. 4

B. 6

C. 8

D. 5

Answer:

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96. Which is the counter ion in $\left[Pd(NH_3)_4\right]^{2+}2Cl^-$?

A. Pd^{+2}

B. $\left[Pd(NH_3)_4\right]^{2+}$

C. Cl^-

D. no counter ion

Answer:

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97. What is the coordination number of chromium in $K_3\left[Cr(C_2O_4)_3\right]$

A. 1

B. 2

C. 6

D. 3

Answer:

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98. Identify the coordination sphere in the compound $K_4\left[Fe(CN)_6\right]$.

A. K^+

B. Fe^+2

C. $\left[Fe(CN)_6\right]^{-4}$

D. CN^-

Answer:

99. Molality of aqueous solution of urea is 3.The mass percentage of urea in the solution is

A. 10.5%

B. 25.25%

C. 12.25%

D. 15.25%

Answer:

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100. If 0.1 m aqueous solution of calcium phosphate is 80% dissociated then the freezing point of the solution will be (K_f of water = $1.86 K kg mol^{-1}$)

A. $-0.78^{\circ}C$

B. $-1.25^{\circ}C$

C. $-1.75^{\circ}C$

D. $-2.5^{\circ}C$

Answer:

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101. A metal crystallizes in a body-centred cubic lattice with the unit cell length 320 pm. The radius of the metal atom (in pm) will be

A. 113.12

B. 72.25

C. 138.56

D. 175.51

Answer:

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102. Number of radial and angular nodes present in 4d orbitals respectively are

A. 2 and 2

B. 2 and 1

C. 1 and 2

D. 3 and 2

Answer:

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103. If the radius of the second orbit of hydrogen atom is a Å then radius of the first orbit of Li^{2+} ion (in Å) will be

A. $8a$

B. $\frac{a}{12}$

C. $\frac{a}{4}$

D. $\frac{a}{8}$

Answer:

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104. The alkyl halide which will react fastest in aquesous alkaline medium by S_N1 path is

A. 

B. 

C. 

D. 

Answer:

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105. Which among the following is an intensive property?

A. Enthalpy

B. Entropy

C. Volume

D. Pressure

Answer:

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106. The correct way of naming Co in $\left[CoCl_2(en)_2\right]^+$ is __

A. cobalt(III)

B. cobalt(II)

C. cobaltate(III)

D. cobaltate(II)

Answer:

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107. The most acidic compound among the following is

A. 

B. 

C. 

D. 

Answer:

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108. If the complex ion is cationic, the name of the metal ends with suffix -ate.

A. True

B. False

C.

D.

Answer:

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109. Which of the following is strongly hydrated in aqueous solution ?

A. Ca^{2+}

B. Mg^{2+}

C. Be^{2+}

D. Ba^{2+}

Answer:

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110. Correct decreasing order of electron affinity of the given elements is

A. $F > Cl > S > O$

B. O > Cl > F > S

C. Cl > F > S > O

D. $Cl > F > O > S$

Answer:

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111. The product which is not formed by the reaction of aqueous $AgNO_3$ with hypophosphorus acid is

A. NO_2

B. Ag

C. HNO_3

D. H_3PO_3

Answer:

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112. Incorrect statement among the following is

A. H_3PO_2 contains one P-OH bond and two P-H bonds

B. H_3PO_3 contains two $P-OH$ bonds and one P-H bond

C. $H_4P_2O_6$ contains three $P-OH$ bonds and one P-H bond

D. $H_4P_2O_5$ contains two P-OH bonds and two P-H bonds

Answer:

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113. Solubility of AgCl in 0.1 M CaCl_2 solution will be (K_(sp) of AgCl=$1.8 \times (10)^{-10}$)

A. 1.8×10^{-10}

B. 9×10^{-10}

C. 1.8×10^{-11}

D. 9×10^{-11}

Answer:

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114. Which among the following is not a a conjugate acid base pair?

A. H_2O and OH^-

B. SO_4^{2-} and H_2SO_4

C. H_3PO_4 and $H_2PO_4^-$

D. H_2CO_3 and HCO_3^-`

Answer:

115. 100 ml of 0.2 M CH3COOH is titrated with 0.2 M NaOH solution. The pH of of the solution at equivalent point will be (pKa of CH3COOH=4.76)

A. 5.12

B. 8.9

C. 10.2

D. 9.7

Answer:

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116. Identify the correct formula for hexaaquamanganese(II) ion.

A. $\left[Mn(H_2O)_6\right]^{2+}$

B. $\left[Mn(H_2O)_6\right]^{2-}$

C. $\left[Mn_2(H_2O)_6\right]^{+}$

D.

Answer:

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117. If the equilibrium constant of a reaction is 2×10^3 at 25°C then the standard Gibbs free energy change for the reaction will be

A. $-2.5R \times 298$

B. $-7.6R \times 298$

C. -7.6R

D. $-5.1R \times 298$

Answer:

118. Most unstable metal carbonyl among the following is

A. $Ni(CO)_4$

B. $V(CO)_6$

C. $Fe(CO)_5$

D. $Cr(CO)_6$

Answer:

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119. The species which is See-Saw in shape is

A. $SiCl_4$

B. PCl_4^+

C. SF_4

D. NH_4^+

Answer:

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120. Which among the following is most soluble in water?

A. acetone

B. ethyl bromide

C. carbon tetrachloride

D. Dichloromethane

Answer:

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121. The compound which is an an antidepressant is

A. salvarsan

B. chloramphenicol

C. equanil

D. alitame

Answer:

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122. The monomer of acrilon is

A. 

B. 

C. 

D. 

Answer:

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123. The compound which will not give positive Tollen's test is

A. HCHO, CH_3CHO, CH_3COCH_3, C_6H_5CHO, HCOOH, CH_3COOH, $C_6H_5COCH_3$

B.

C.

D.

Answer:

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124. Identify the correct naming for $\left[Zn(OH)_4\right]^{2-}$.

A. Zinc tetrahydroxide

B. Tetrahydroxozincate(II)

C. Tetrahydroxidozincate(II)

D. Tetrahydroxylzincate(II)

Answer:

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125. The correct decreasing order of covalent character for the given halides is

A. $LiCI > NaCI > KCl > RbCl$

B. $RbCI > KCl > NaCI > LiCl$

C. $NaCl > KCl > RbCl > LiCl$

D. $LiCl > KCl > NaCl > RbCl$

Answer:

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126. Correct order of solubility of given compounds in water is

A. $CaSO_4 > MgSO_4 > BaSO_4 > SrSO_4$

B. $MgSO_4 > CaSO_4 > SrSO_4 > BaSO_4$

C. $MgSO_4 > CaSO_4 > BaSO_4 > SrSO_4$

D. $BaSO_4 > SrSO_4 > CaSO_4 > MgSO_4$

Answer:

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127. Spin only magnetic moment of $[PtCl_4]^{2-}$ is

A. $2\sqrt{2}BM$

B. $\sqrt{3}$ BM

C. Zero

D. $\sqrt{15}BM$

Answer:

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128. For the reaction `PCl_5

A. $\Delta U + 3RT$

B. ΔU+RT

C. $\Delta U + 2RT$

D. $\Delta U - 2RT$

Answer:

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129. The gas which can be compressed most easily among the following is

A. CO_2

B. N_2

C. H_2

D. O_2

Answer:

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130. Identify the correct formula for potassium tetracyanonickelate(II).

A. $K\left[Ni(CN)_4\right]$

B. $K\left[Ni(CN)_4\right]_2$

C. $K_2\left[Ni(CN)_4\right]$

D. $K_2\left[Ni(CN)_4\right]_2$

Answer:

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131. Which of the following representation of the complex ion is correct according to IUPAC?

A. $[PtBrCl(NH_3)(NO_2)]^-$

B. $[PtBrCl(NO_2)(NH_3)]^-$

C. $[Pt(NH_3)BrCl(NO_2)]^-$

D. $[Pt(NO_2)BrCl(NH_3)]^-$

Answer:

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132. Which among the following is a diamagnetic species?

A. N_2^+

B. NO

C. O_2^-

D. CN^-

Answer:

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133. The orbital angular momentum of $3p$ electron is :

A. $2\pi h$

B. $\sqrt{2}h$

C. h

D. $3\frac{h}{2\pi}$

Answer:

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134. If the mass ratio of O_2 and N_2 is $4:7$, then the ratio of their moles is

A. $4:7$

B. $1:2$

C. $3:5$

D. $4:5$

Answer: