Gaining Apex Coaching Centre

(Where Toppers make…… Toppers)

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DPP

DAILY PRACTICE PROBLEMS

Class : XIIth **Subject : CHEMISTRY**

Date : **DPP No. : 1**

Topic :- Electro Chemistry

1. The desired amount of charge for obtaining one mole of Al from Al^{3+} is
   a) 96500 C b) 2×96500 C c) 3×96500 C d) $\frac{96500}{2}$ C

2. A certain current liberates 0.504 g of hydrogen in 2 hr. How many gram of copper can be liberated by the same current flowing for the same time in $CuSO_4$solution?
   a) 12.7 b) 16 c) 31.8 d) 63.5

3. If the E°_{cell} for a given reaction has a negative value, then which of the following gives the correct relationships for the value of ΔG° and K_{eq}?
   a) $\Delta G^{\circ} > 0;\ \ K_{eq} < 1$ b) $\Delta G^{\circ} > 0;\ K_{eq} > 1$ c) $\Delta G^{\circ} < 0;\ K_{eq} > 1$ d) $\Delta G^{\circ} < 0;\ K_{eq} < 1$

4. The Edison storage cell is represented as :
   $Fe(s) + FeO(s)|\ KOH(aq)|\ Ni_2O_3(s)|\ Ni_2O_3(s)|\ Ni(s)$
   The half reactions are $Ni_2O_3(s) + H_2O(l) + 2e^- \rightarrow 2NiO(s) + 2OH^-;\ E^{\circ} = +0.40$ V
   $FeO(s) + H_2O(l) + 2e^- \rightarrow Fe(s) + 2OH^-;\ E^{\circ} = -0.87$ V
   Choose the incorrect statement
   a) E_{anode} increases with increase in concentration of OH^-
   b) $E_{cathode}$ decreases with increase in concentration of OH^-
   c) $E^{\circ}_{cell} = 1.27$ V
   d) E_{cell} increases with increase in concentration of FeO

5. Standard reduction potentials of the half reactions are given below :
   $F_2(g) + 2e^- \longrightarrow 2F^-(aq);\quad E^{\circ} = +2.85$ V
   $Cl_2(g) + 2e^- \longrightarrow 2Cl^-(aq);\quad E^{\circ} = +1.36$ V
   $Br_2(l) + 2e^- \longrightarrow 2Br^-(aq);\quad E^{\circ} = +1.06$ V
   $I_2(s) + 2e^- \longrightarrow 2I^-(aq);\quad E^{\circ} = +0.53\ V$
   The strongest oxidising and reducing agents respectively are :
   a) F_2 and I^- b) Br_2 and Cl^- c) Cl_2 and Br^- d) Cl_2 and I_2

6. The standard reduction potential for $Fe^{2+}|Fe$ and $Sn^{2+}|Sn$ electrodes are -0.44 V and -0.14 V respectively. For the cell reaction, $Fe^{2+} + Sn \longrightarrow Fe + Sn^{2+}$, the standard e.m.f. is:
   a) $+0.30$ V b) 0.58 V c) $+0.58$ V d) -0.30 V
7. Electrolytes when dissolved in water dissociates into ions because
   a) They are unstable
   b) The water dissolves it
   c) The force of repulsion increases
   d) The force of electrostatic attraction are broken down by water

8. Which ion has exceptionally higher Λ^{∞} values?
   a) H^+ b) K^+ c) NH_2^- d) OH

9. Limiting molar ionic conductivities of a uni-univalent electrolyte are 57 and 73. The limiting molar conductivity of the solution will be :
   a) 130 S cm^2 mol^{-1} b) 65 S cm^2 mol^{-1} c) 260 S cm^2 mol^{-1} d) 187 S cm^2 mol^{-1}

10. Molten NaCl conducts electricity due to the presence of :
    a) Free electrons b) Free molecules c) Free ions d) Atoms of Na and Cl

11. The emf of the cell, ($E_{Zn^{2+}/Zn} = -0.76\ V$)
    Zn / Zn^{2+} (1 M) || Cu^{2+} (1 M) | Cu
    ($E_{Cu^{2+}/Cu} = +0.34\ V$) will be
    a) +1.10 V b) -1.10 V c) +0.42 V d) -0.42 V

12. Which represents a concentration cell?
    a) $\overset{c_1}{Pt}H_2|HCl||\overset{c_2}{HCl}|PtH_2$ b) $\overset{c_1}{Pt}H_2|HCl||Cl_2|Pt$ c) $Zn|Zn^{2+}||Cu^{2+}|Cu$ d) $Fe|Fe^{2+}||Cu^{2+}|Cu$

13. In electrolysis of aqueous copper sulphate, the gas at anode and cathode are
    a) $O_2$and H_2 b) H_2 and O_2 c) SO_2 and H_2 d) SO_3 and O_2

14. Consider the reaction, $M^{n+}(aq) + ne \longrightarrow M^0\ (s)$. The standard reduction potential values of the metals M_1, M_2 and M_3 are -0.34 V, -3.05 V and -1.66 V respectively. The order of their reducing power will be :
    a) $M_1 > M_2 > M_3$ b) $M_3 > M_2 > M_1$ c) $M_1 > M_3 > M_2$ d) $M_2 > M_3 > M_1$

15. The charge required to liberate one gram equivalent of an element is
    a) 96500 F b) 1 F c) 1 C d) None of these

16. What will be pH of aqueous solution of electrolyte in electrolytic cell during electrolysis of $CuSO_4(aq)$ between graphite electrodes?
    a) $pH = 14.0$ b) $pH > 7.0$ c) $pH < 7.0$ d) $pH = 7.0$

17. In an electrolytic cell, the anode and cathode are respectively represented as :
    a) Positive electrode, negative electrode
    b) Negative electrode, positive electrode
    c) Both positive and negative electrode
    d) None of the above

18. The cell reaction is spontaneous, when
    a) E°_{red} is negative b) E°_{red} is positive c) ΔG° is negative d) ΔG° is positive

19. The emf of the cell $Mg|\ Mg^{2+}(0.01\ M)||\ Sn^{2+}(0.1\ M)|Sn$ at 298 K is (Given, $E^{\circ}_{Mg^{2+},Mg} = -2.34\ V, -2.34\ V, E^{\circ}_{Sn^{2+},Sn} = -0.14\ V$)
    a) 2.23 V b) 1.86 V c) 1.56 V d) 3.26 V

20. When an aqueous solution of lithium chloride is electrolysed using graphite electrodes :
    a) pH of the resulting solution increases
    b) pH of the resulting solution decreases
    c) As the current flows, pH of the solution around the cathode increases
    d) None of the above