

# DPP

DAILY PRACTICE PROBLEMS

Class : XII<sup>th</sup>  
Date :

Subject : CHEMISTRY  
DPP No. : 1

## Topic :- Electro Chemistry

- The desired amount of charge for obtaining one mole of Al from  $\text{Al}^{3+}$  is  
a) 96500 C                      b)  $2 \times 96500$  C                      c)  $3 \times 96500$  C                      d)  $\frac{96500}{2}$  C
- 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  $\text{CuSO}_4$  solution?  
a) 12.7                      b) 16                      c) 31.8                      d) 63.5
- If the  $E^\circ_{\text{cell}}$  for a given reaction has a negative value, then which of the following gives the correct relationships for the value of  $\Delta G^\circ$  and  $K_{\text{eq}}$ ?  
a)  $\Delta G^\circ > 0$ ;  $K_{\text{eq}} < 1$       b)  $\Delta G^\circ > 0$ ;  $K_{\text{eq}} > 1$       c)  $\Delta G^\circ < 0$ ;  $K_{\text{eq}} > 1$       d)  $\Delta G^\circ < 0$ ;  $K_{\text{eq}} < 1$
- The Edison storage cell is represented as :  
 $\text{Fe}(s) + \text{FeO}(s) | \text{KOH}(aq) | \text{Ni}_2\text{O}_3(s) | \text{Ni}_2\text{O}_3(s) | \text{Ni}(s)$   
The half reactions are  $\text{Ni}_2\text{O}_3(s) + \text{H}_2\text{O}(l) + 2e^- \rightarrow 2\text{NiO}(s) + 2\text{OH}^-$ ;  $E^\circ = +0.40$  V  
 $\text{FeO}(s) + \text{H}_2\text{O}(l) + 2e^- \rightarrow \text{Fe}(s) + 2\text{OH}^-$ ;  $E^\circ = -0.87$  V  
Choose the incorrect statement  
a)  $E_{\text{anode}}$  increases with increase in concentration of  $\text{OH}^-$   
b)  $E_{\text{cathode}}$  decreases with increase in concentration of  $\text{OH}^-$   
c)  $E^\circ_{\text{cell}} = 1.27$  V  
d)  $E_{\text{cell}}$  increases with increase in concentration of FeO
- Standard reduction potentials of the half reactions are given below :  
 $\text{F}_2(g) + 2e^- \rightarrow 2\text{F}^-(aq)$ ;                       $E^\circ = +2.85$  V  
 $\text{Cl}_2(g) + 2e^- \rightarrow 2\text{Cl}^-(aq)$ ;                       $E^\circ = +1.36$  V  
 $\text{Br}_2(l) + 2e^- \rightarrow 2\text{Br}^-(aq)$ ;                       $E^\circ = +1.06$  V  
 $\text{I}_2(s) + 2e^- \rightarrow 2\text{I}^-(aq)$ ;                       $E^\circ = +0.53$  V  
The strongest oxidising and reducing agents respectively are :  
a)  $\text{F}_2$  and  $\text{I}^-$                       b)  $\text{Br}_2$  and  $\text{Cl}^-$                       c)  $\text{Cl}_2$  and  $\text{Br}^-$                       d)  $\text{Cl}_2$  and  $\text{I}_2$
- The standard reduction potential for  $\text{Fe}^{2+}|\text{Fe}$  and  $\text{Sn}^{2+}|\text{Sn}$  electrodes are  $-0.44$  V and  $-0.14$  V respectively. For the cell reaction,  $\text{Fe}^{2+} + \text{Sn} \rightarrow \text{Fe} + \text{Sn}^{2+}$ , 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  $\Lambda^\infty$  values?  
 a)  $H^+$                       b)  $K^+$                       c)  $NH_4^+$                       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)  $PtH_2|HCl||HCl|PtH_2$       b)  $PtH_2|HCl||Cl_2|Pt$   
      $c_1$        $c_2$                        $c_1$                       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,  $M^{n+}(aq) + ne \rightarrow M^0(s)$ . 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  $CuS O_4(aq)$  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)  $E_{\text{red}}^{\circ}$  is negative
  - b)  $E_{\text{red}}^{\circ}$  is positive
  - c)  $\Delta G^{\circ}$  is negative
  - d)  $\Delta G^{\circ}$  is positive
19. The emf of the cell  $\text{Mg} | \text{Mg}^{2+} (0.01 \text{ M}) || \text{Sn}^{2+} (0.1 \text{ M}) | \text{Sn}$  at 298 K is (Given,  $E_{\text{Mg}^{2+}, \text{Mg}}^{\circ} = -2.34 \text{ V}$ ,  $E_{\text{Sn}^{2+}, \text{Sn}}^{\circ} = -0.14 \text{ V}$ )
- 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

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