DPP
DAILY PRACTICE PROBLEMS

Class : XIIth **Subject : CHEMISTRY**
Date : **DPP No. : 3**

Topic :- Electro Chemistry

1. For Acell reaction involving Atwo-electron change, the standard emf of the cell is found to be 0.295 V at 25°C. The equilibrium constant of the reaction at 25 °C will be
a) 1×10^{-10} b) 29.5×10^{-2} c) 10 d) 1×10^{10}

2. The resistance of a decinormal solution of a salt occupying a volume between two platinum electrodes 1.80 cm apart and 5.4 cm^2 in area was formed to be 32 ohm. The specific and equivalent conductivity respectively in their proper units are :
a) 104.1 and 0.0104 b) 208.2 and 0.0208 c) 0.0104 and 104.0 d) None of these

3. The value of equilibrium constant for a feasible cell reaction is :
a) < 1 b) Zero c) $= 1$ d) > 1

4. At 25°C, the standard e.m.f. of cell having reactions involving a two electron change is found to be 0.295 V. The equilibrium constant of the reaction is :
a) 29.5×10^{-2} b) 10 c) 10^{10} d) 29.5×10^{10}

5. E° for $Fe^{2+} + 2e^{-} \rightarrow Fe$ is -0.44 V and E° for $Zn^{2+} + 2e^{-} \rightarrow Zn$ is -0.76 V thus
a) Zn is more electropositive than Fe b) Zn is more electronegative than Fe
c) Fe is more electropositive than Zn d) None of the above

6. 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 g b) 0.317 g c) 0.6354 g d) 3.177 g

7. $I_2(s)|\, I^-(0.1\ M)$ half-cell is connected to a $H^+(aq)|\, H_2(1\ bar)|$ Pt half-cell and emf is found to be 0.7714 V. If $E^{\circ}_{I_2/I^-} = 0.535$ V, find the pH of H^+/H_2 half-cell
a) 1 b) 2 c) 3 d) 5

8. The $E^{\circ}_{M^{3+}/M^{2+}}$ values for Cr, Mn, Fe and Co are -0.41 V, +1.57 V, +0.77 V and +1.97 V respectively. For which one of these metals the change in oxidation state from +2 to +3 is easiest?
a) Cr b) Mn c) Fe d) Co

9. In which cell, liquid function potential need to be eliminated?
a) $Pt/H_{2(P_1)}|HCl|Pt/H_2(P_2)$
b) $Pt/H_2|\underset{c_1}{HCl}|\underset{c_2}{HCl}|\, Pt/H_2$

c) Nicad cell
d) Lead storage battery

10. Which one of the following nitrates will leave behind Ametal on strong heating?
a) Ferric nitrate b) Copper nitrate c) Manganese nitrate d) Silver nitrate

11. $E^{\circ}_{Cu} = 0.34\ V$, $E^{\circ}_{Zn} = 0.76\ V$. ADaniel cell contains 0.1 M $ZnSO_4$ solution and 0.01 M $CuSO_4$ solution at its electrodes. EMF of the cell is
a) 1.10 V b) 1.04 V c) 1.16 V d) 1.07 V

12. The E° of Fe^{2+} / Fe and Sn^{2+} /Sn are -0.44 V and -0.14 V respectively. If cell reaction is
$Fe + Sn^{2+} \rightarrow Fe^{2+} + Sn$
then emf of the cell is
a) +0.30 V b) -0.58 V c) +0.58 V d) -0.30 V

13. Electrolysis rules of Faraday's states that mass deposited on electrode is proportional to
a) Q b) Q^2 c) I^2 d) None of these

14. A silver cup is plated with silver by passing 965 C of electricity. The amount of Ag deposited is
a) 107.89 g b) 9.89 g c) 1.0002 g d) 1.08 g

15. The molecular conductivity and equivalent conductivity are same for the solution of :
a) 1 M NaCl b) 1 M $Ba(NO_3)_2$ c) 1 M $La(NO_3)_3$ d) 1 M $Th(NO_3)_4$

16. Dipping iron article into a strongly alkaline solution of sodium phosphate
a) Does not affect the article b) Forms $Fe_2O_3.xH_2O$ on the surface
c) Forms iron phosphate film d) Forms ferric hydroxide

17. When an electric current is passed through an aqueous solution of sodium chloride :
a) H_2 is evolved at the anode
b) Oxygen is evolved at the cathode
c) Its pH progressively decreases
d) Its pH progressively increases

18. The cell reaction of the galvanic cell
$Cu\ (s)\ |\ Cu^{2+}\ (aq)\ ||\ Hg^{2+}\ (aq)\ |\ Hg\ (l)$ is
a) $Hg + Cu^{2+} \longrightarrow Hg^{2+} + Cu$ b) $Hg + Cu^{2+} \longrightarrow Cu^{+} + Hg^{+}$
c) $Cu + Hg \rightarrow CuHg$ d) $Cu + Hg^{2+} \longrightarrow Cu^{2+} + Hg$

19. Calculate the volume of hydrogen at NTP obtained by passing a current of 0.4 ampere through acidified water for 30 minute :
a) 0.0836 litre b) 0.1672 litre c) 0.0432 litre d) 0.836 litre

20. The standard emf of a cell involving one electron change is found to be 0.591 V and 25 °C. The equilibrium constant of the reaction is ($F = 96500\ C\ mol^{-1}$)
a) 1.0×10^{1} b) 1.0×10^{5} c) 1.0×10^{10} d) 1.0×10^{30}