Electrical conductors, Arrhenius theory and Ostwald's dilution law

21. Vant hoff factor of $BaCl_2$ of conc. $0.01M$ is 1.98. Percentage dissociation of $BaCl_2$ on this conc. Will be
(a) 49 (b) 69
(c) 89 (d) 98
(e) 100

22. In which of the following solutions, ions are present
(a) Sucrose in water
(b) Sulphur in CS_2
(c) Caesium nitrate in water
(d) Ethanol in water

23. The following equilibrium exists inaqueous solution, $CH_3COOH \rightleftarrows CH_3COO^- + H^+$ if dil *HCl* is added, without change in temperature, the
(a) Concentration of CH_3COO^- will increase
(b) Concentration of CH_3COO^- will decrease
(c) The equilibrium constant will increase
(d) The equilibrium constant will decrease

24. Which will not affect the degree of ionisation
(a) Temperature
(b) Concentration
(c) Type of solvent
(d) Current

25. The addition of a polar solvent to a solid electrolyte results in
(a) Polarization
(b) Association
(c) Ionization
(d) Electron transfer

26. The degree of dissociation of $0.1MHCN$ solution is 0.01%. Its ionisation constant would be
(a) 10^{-3} (b) 10^{-5}
(c) 10^{-7} (d) 10^{-9}

27. The hydrogen ion concentration in weak acid of dissociation constant K_a and concentration c is nearly equal to
(a) $\sqrt{K_a/c}$ (b) c/K_a
(c) $K_a c$ (d) $\sqrt{K_a c}$

28. Degree of dissociation of $0.1NCH_3COOH$ is
(Dissociation constant $= 1 \times 10^{-5}$)
(a) 10^{-5} (b) 10^{-4}
(c) 10^{-3} (d) 10^{-2}

29. Which of the following substance is an electrolyte
(a) Chloroform
(b) Benzene
(c) Toluene
(d) Magnesium chloride

30. In weak electrolytic solution, degree of ionization
(a) Will be proportional to dilution
(b) Will be proportional to concentration of electrolyte
(c) Will be proportional to the square root of dilution
(d) Will be reciprocal to the dilution

31. 0.2 molar solution of formic acid is ionized 3.2%. Its ionization constant is
(a) 1×10^{-12} (b) 2.1×10^{-4}
(c) 1.25×10^{-6} (d) 1×10^{-14}

32. The best conductor of electricity is a 1.0 *M* solution of
(a) Boric acid
(b) Acetic acid
(c) Sulphuric acid
(d) Phosphoric acid

33. The colour of an electrolyte solution depends on
(a) The nature of the anion
(b) The nature of the cation
(c) The nature of both the ions
(d) The nature of the solvent

34. Ionisation depends upon
(a) Pressure
(b) Volume
(c) Dilution
(d) None of these

35. The values of dissociation constants of some acids (at 25^oC) are as follows. Indicate which is the strongest acid in water
(a) 1.4×10^{-2} (b) 1.6×10^{-4}
(c) 4.4×10^{-10} (d) 4.3×10^{-7}

36. Concentration CN^- in $0.1MHCN$ is $[K_a = 4 \times 10^{-10}]$
(a) $2.5 \times 10^{-6}M$
(b) $4.5 \times 10^{-6}M$
(c) $6.3 \times 10^{-6}M$
(d) $9.2 \times 10^{-6}M$