DPP
DAILY PRACTICE PROBLEMS

Class : XIth **Subject : CHEMISTRY**
Date : **DPP No. : 1**

Topic :- Equilibrium

1. If the concentration of OH^- ions is the reaction $Fe(OH)_3(s) \rightleftharpoons Fe^{3+}(aq) + 3OH^-(aq)$, is decreased by $\frac{1}{4}$ times, then equilibrium concentration of Fe^{3+} will increase by :
   a) 16 times b) 64 times c) 4 times d) 8 times
2. $A(g) + 3B(g) \rightleftharpoons 4C(g)$.
   Initially concentration of A is equal to that of B. The equilibrium concentrations of A and C are equal. K_c is
   a) 0.08 b) 0.08 c) 8 d) 80
3. 18 mL of mixture of acetic acid and sodium acetate required 6 mL of 0.1 M NaOH for neutralization of the acid and 12 mL of 0.1 M HCl for reaction with salt, separately. If pK_a of the acid is 4.75, what is the pH of the mixture?
   a) 5.05 b) 4.75 c) 4.5 d) 4.6
4. 50 mL of 0.1 M HCl and 50 mL of 0.2 M NaOH are mixed. The pH of the resulting solution is
   a) 1.30 b) 4.2 c) 12.70 d) 11.70
5. K_c for the reaction : $[Ag(CN)_2]^- \rightleftharpoons Ag^+ + 2CN^-$, the equilibrium constant at 25°C is 4.0×10^{-19}, then the silver ion concentration in a solution which was originally 0.1 molar in KCN and 0.03 molar in $AgNO_3$ is :
   a) 7.5×10^{18} b) 7.5×10^{-18} c) 7.5×10^{19} d) 7.5×10^{-19}
6. The pK_a for acid A is greater than pK_a for acid B. The strong acid is:
   a) Acid A b) Acid B c) Are equally strong d) None of these
7. When 100 mL of 1 M NaOH solution is mixed with 10 mL of 10 M H_2SO_4, the resulting mixture will be
   a) Acidic b) Alkaline c) $HClO_3$ d) H_3PO_3
8. The $[H_3O^+]$ in the rain water of pH = 4.35 is:
   a) 4.5×10^{-5} M b) 6.5×10^{-5} M c) 9.5×10^{-5} M d) 12.5×10^{-5} M
9. For which salt the pH of its solution does not change with dilution?
   a) NH_4Cl b) CH_3COONH_4 c) CH_3COONa d) None of these
10. When hydrogen molecules decomposed into it's atoms which conditions gives maximum yield of H atom?
    a) High temperature and low pressure b) Low temperature and high pressure
    c) High temperature and high pressure d) Low temperature and low pressure
11. Which is not and acid salt?
    a) NaH_2PO_2 b) NaH_2PO_3 c) NaH_2PO_4 d) $NaHSO_3$
12. Which is a Lewis base?
    a) B_2H_6 b) $LiAlH_4$ c) AlH_3 d) NH_3
13. Final pressure is higher than initial pressure of a container filled with an ideal gas at constant temperature. What will be the value of equilibrium constant?
    a) $K = 1.0$ b) $K = 10.0$ c) $K > 1.0$ d) $K < 1.0$
14. In which of the following cases, does not reaction go farthest to completion?
    a) $K = 10^3$ b) $K = 10^{-2}$ c) $K = 10$ d) $K = 1$

15. For the reaction, $H_2(g) + I_2(g) \longrightarrow 2HI(g)$, the equilibrium constant K_p changes with
    a) Total pressure
    b) Catalyst
    c) The amount H_2 and I_2
    d) Temperature
16. The equilibrium constant for the reaction,
    $$N_2(g) + O_2(g) \rightleftharpoons 2NO(g)$$
    At temperature T is 4×10^{-4}. The value of K_c for the reaction
    $$NO(g) \rightleftharpoons \frac{1}{2}N_2(g) + \frac{1}{2}O_2(g)$$
    at the same temperature is
    a) 2.5×10^2
    b) 50
    c) 4×10^{-4}
    d) 0.02
17. The reaction, $2A_{(g)} + B_{(g)} \rightleftharpoons 3C_{(g)} + D_{(g)}$ is begun with the concentration of A and B both at an initial value of 1.00 M. When equilibrium is reached, the concentration of D is measured and found to be 0.25 M. The value for the equilibrium constant for this reaction is given by the expression :
    a) $[(0.75)^3\ (0.25)] \div [(1.00)^2(1.00)]$
    b) $[(0.75)^3\ (0.25)] \div [(0.50)^2(0.75)]$
    c) $[(0.75)^3\ (0.25)] \div [(0.50)^2(0.25)]$
    d) $[(0.75)^3\ (0.25)] \div [(0.75)^2(0.25)]$
18. In $HS^-, I^-, R-NH_2, NH_3$ order of proton accepting tendency will be:
    a) $I^- > NH_3 > RNH_2 > HS^-$
    b) $NH_3 > RNH_2 > HS^- > I^-$
    c) $RNH_2 > NH_3 > HS^- > I^-$
    d) $HS^- > RNH_2 > NH_3 > I^-$
19. Strong electrolytes are those which:
    a) Dissolve readily in non-polar solvent
    b) Conduct electricity in aqueous solution
    c) Dissociate into ions at high concentration
    d) None of the above
20. The pH of 0.1 N HCl solution is:
    a) 1.0
    b) 7.0
    c) 14.0
    d) 4.0