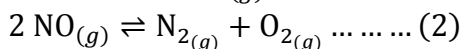
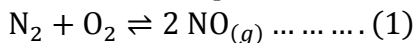


Chemical Equilibrium

- 1) The factor affecting the numerical value of equilibrium constant for any chemical change
- (A) Concentration of product
 - (B) Catalyst
 - (C) Concentration of reactant
 - (D) Temperature

- 2) K_1 and K_2 are equilibrium constant for reaction (1) and (2)



Therefore

(A) $K_1 = \left(\frac{1}{K_2}\right)^2$

(B) $K_1 = K_2^2$

(C) $K_1 = \frac{1}{K_2}$

(D) $K_1 = \left(\frac{2}{K_2}\right)$

- 3) The equilibrium constant K_c for the reaction $\text{H}_2 + \text{I}_2 \rightleftharpoons 2\text{HI}$ at 700K is 49. What is equilibrium constant for the reaction of $\text{HI} \rightleftharpoons \frac{1}{2}\text{H}_2 + \frac{1}{2}\text{I}_2$ at the same temp

(A) 0.02

(B) 49

(C) 0.143

(D) 1.43

- 4) At certain temperature $2\text{HI} \rightleftharpoons \text{H}_2 + \text{I}_2$ only 50% HI is dissociated at equilibrium. The equilibrium constant is

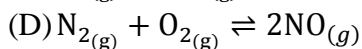
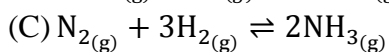
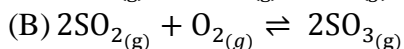
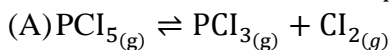
(A) 0.5

(B) 0.25

(C) 1

(D) 3

- 5) For which of the following $K_p = K_c$



- 6) The gaseous reaction
 $A_{(g)} + B_{(g)} \rightleftharpoons 2C_{(g)} + D_{(g)}$ $4H = -QKJ$ is most favoured at
(A) High temp and low pressure
(B) Low temp and low pressure
(C) Low temp and high pressure
(D) High temp and high pressure
- 7) 56g of N_2 and 8g of H_2 gas are heated in closed vessel. At equilibrium 34gm of ammonia are present. The equilibrium number of moles of N_2 , H_2 and NH_3 are respectively
(A) 2,2,1
(B) 1,2,2
(C) 2,1,2
(D) 1,1,2
- 8) Conjugate base of $H_2PO_4^-$ is
(A) HPO_4^-
(B) HPO_4^{2-}
(C) H_2PO_4
(D) PO_4^{3-}
- 9) At $100^\circ C$ the K_w water is 55 times the value at $25^\circ C$. What will be the p^H of neutral solution? ($\log 55 = 1.74$)
(A) 7
(B) 7.87
(C) 5.13
(D) 6.13
- 10) The P^{OH} of 0.0005M H_2SO_4 is
(A) 5
(B) 3
(C) 11
(D) 12
- 11) p^H of the solution is 4.7. Its hydrogen ion concentration is
(A) 7×10^{-4}
(B) 2×10^{-4}
(C) 2×10^{-3}
(D) 2×10^{-5}

- 12) The dissociation constant of weak base is 1×10^{-5} at 25°C . The pH of its 0.1M solution at the same temperature will be
- (A) 11
 - (B) 3
 - (C) 6
 - (D) 13
- 13) Which of the following mixtures can be used to prepare a buffer solution
- (A) $\text{CH}_3\text{COOH} + \text{CH}_3\text{COONa}$
 - (B) $\text{CH}_3\text{COOK} + \text{CH}_3\text{COONa}$
 - (C) $\text{CH}_3\text{COOH} + \text{NH}_4\text{Cl}$
 - (D) $\text{NaOH} + \text{HCl}$
- 14) The dissociation constant of weak acid is 1×10^{-4} . In order to prepare a buffer solution with $\text{pH} = 5$, the $\frac{[\text{salt}]}{[\text{acid}]}$ ratio should be
- (A) 4:5
 - (B) 10:1
 - (C) 5:4
 - (D) 1:10
- 15) If solubility of electrolyte is S , then what is the solubility product of the electrolyte of the type A_3B_2 ?
- (A) 65^3
 - (B) $27S^5$
 - (C) $108 S^5$
 - (D) $36S^5$
- 16) Aqueous solution of CH_3COONa is
- (A) Acidic
 - (B) Basic
 - (C) Neutral
 - (D) Cannot be predicted
- 17) A precipitate of AgCl is formed when equal volumes of following are mixed (K_{sp} for $\text{AgCl} = 10^{-10}$)
- (A) 10^{-4}M AgNO_3 and 10^{-7}M HCl
 - (B) 10^{-5}M AgNO_3 and 10^{-6}M HCl
 - (C) 10^{-5}M AgNO_3 and 10^{-4}M HCl
 - (D) 10^{-6}M AgNO_3 and 10^{-6}M HCl

18) The four acids A_1 , A_2 , A_3 and A_4 have the pka values of 3.75, 4.75, 4.20 and 5.72 respectively.

(A) A_1

(B) A_2

(C) A_3

(D) A_4