

Chemical Equilibrium and hydrogen.

1. Which of the following is an irreversible reaction ?

- a. Neutralisation of strong acid Vs strong base.
- b. Neutralisation of weak acid Vs strong base
- c. Neutralisation of strong acid Vs weak base
- d. Neutralisation of weak acid Vs weak base.

2. For the reaction $A + 2B \rightleftharpoons 3C$, the equilibrium constant K_c is given by

- a. $\frac{[A][B]^2}{[C]^3}$ b. $\frac{[C]^3}{[A][B]^2}$ c. $\frac{3[C]^3}{[A]^2[B]^2}$ d. $\frac{[C]^3}{[A] + [B]^2}$

3. For the dissociation of HI, the equilibrium constant is found to be 0.25. What would be the equilibrium constant for the formation of HI ?

- a. 4 b. 3 c. 2 d. 1.

4. For an exothermic reaction,

- a. K is independent of temperature.
- b. K increases as temperature increases.
- c. K decreases as temperature increases.
- d. K varies with addition of reactants.

5. For the reaction $N_2 + 3H_2 \rightleftharpoons 2NH_3$, the value of K_c depends upon.

- a. Initial Conc. of reactants
b. Pressure c. temperature d. all of these

6. For an endothermic reaction @ equilibrium the formation of product can be increased by

- a. Increasing temperature b. Lowering temperature
c. Keeping temperature constant
d. decreasing the Conc. of reactant.

7. For the reaction, $nA + mB \rightarrow$ products, in accordance to Law of Mass Action.

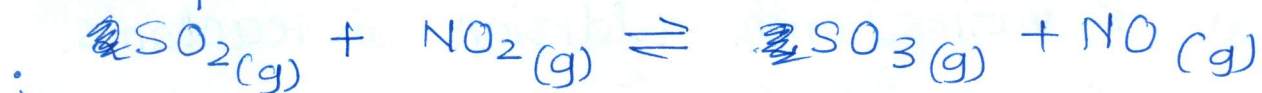
- a. Rate = $k[A]^n + [B]^m$
b. Rate = $k[A+B]^{n+m}$
c. Rate = $k + \{[A]^n[B]^m\}$
d. Rate = $k[A]^n[B]^m$.

8. The relation between K_p and K_c for



- a. $K_p = K_c$ b. $K_p = K_c(RT)$
c. $K_p = K_c(RT)^{-2}$ d. $K_p = K_c(RT)^{-1}$

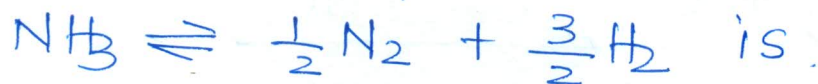
9. The equilibrium constant for the reaction



is 16. What will be the equilibrium constant for the reaction

- $$2SO_2 + 2NO_2 \rightleftharpoons 2SO_3 + 2NO$$
- a. 16 b. 32 c. 256 d. 4

10. The equilibrium constant for the reaction $N_2 + 3H_2 \rightleftharpoons 2NH_3$ is K , then the eq. const for the equilibrium,



- a. $\frac{1}{K}$ b. $\frac{1}{K^2}$ c. \sqrt{K} d. $\frac{1}{\sqrt{K}}$

11. The conc. of X , Y and X_2Y are 4, 2 and 2 moles respectively. The value of K_c for the equilibrium



- a. 0.625 b. 0.0625 c. 6.25 d. 0.00625

12. To which of the following, Ostwald's dilution law is applicable.

- a. CH_3COOH b. HCl c. HNO_3 d. H_2SO_4

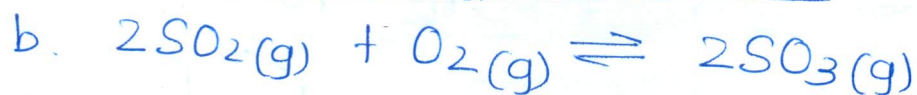
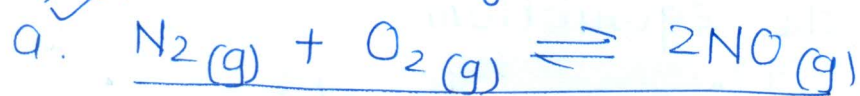
13. The values of dissociation constant of acids @ $25^\circ C$ are given below. Identify the strongest acid in aq. media?

- a. 1.4×10^{-2} b. 1.6×10^{-4}
c. 4.4×10^{-10} d. 4.3×10^{-7}

14. The degree of Ionisation of a substance

- a. decreases with dilution.
b. increases with dilution
c. may increase/decrease with dilution
d. is not affected with dilution.

15. The equilibrium which remains unaffected by pressure change is *



16. pH value of $\frac{N}{10}$ NaOH solution is

a. 10

b. 11

c. 12

d. 13

17. A solution of CH_3COOH in water contains

a. CH_3COOH and CH_3COO^-

b. CH_3COOH , CH_3COO^- , H_3O^+

c. CH_3COOH , CH_3COO^- , H_3O^+ , OH^-

d. None.

18. What is the conjugate base of OH^- ?

a. O_2

b. H_2O

c. O^-

d. O^{2-}

19. If Ionic product of water is $10^{-14} (mol/L)^2$ what is hydrogen ion conc. of 0.1M NaOH soln?

a. $10^{-13}M$

b. $10^{-14}M$

c. $14M$

d. $13M$

20. The Solubility of A_2B_3 is 'S' mol/L, its Solubility product is,

a. $6S^4$

b. $64S^4$

c. $36S^5$

d. $108S^5$