



Class 11 Chemistry | Equilibrium

MCQ WORKSHEET • 15 questions • Choose one correct option • Suggested time: 25 minutes

1. For $\text{H}_2 + \text{I}_2 \rightleftharpoons 2\text{HI}$, the equilibrium expression K_c is:

- A. $[\text{H}_2][\text{I}_2]/[\text{HI}]^2$ B. $[\text{HI}]^2/[\text{H}_2]$
C. $[\text{HI}]^2/([\text{H}_2][\text{I}_2])$ D. $[\text{HI}]/([\text{H}_2][\text{I}_2])$

2. At equilibrium, forward and reverse reaction rates are:

- A. Equal and nonzero B. Both zero always
C. Reverse greater D. Forward greater

3. For $\text{N}_2 + 3\text{H}_2 \rightleftharpoons 2\text{NH}_3$, higher pressure favours:

- A. Reactants B. No shift
C. Only N_2 removal D. NH_3 formation

4. For an exothermic forward reaction, raising temperature:

- A. Decreases K B. Makes K zero
C. Increases K D. Leaves K unchanged

5. A catalyst added to an equilibrium mixture:

- A. Raises K
B. Lowers K
C. Leaves K unchanged
D. Stops reverse reaction

6. If K_c for $\text{A} \rightleftharpoons \text{B}$ is 4, K_c for $\text{B} \rightleftharpoons \text{A}$ is:

- A. 0.25 B. 4 C. -4 D. 16

7. For a reaction with $\Delta n_g = 0$, K_p is:

- A. K_c B. $K_c RT$ C. K_c^2 D. K_c/RT

8. At 25°C , pH of 0.001 M HCl is approximately:

- A. 7 B. 1 C. 11 D. 3

9. At 25°C , pH of 0.010 M NaOH is approximately:

- A. 12 B. 2 C. 7 D. 10

10. The conjugate base of H_2PO_4^- is:

- A. H_3O^+ B. H_3PO_4 C. HPO_4^{2-} D. PO_4^{3-}

11. Which pair forms an acidic buffer?

- A. $\text{HNO}_3/\text{KNO}_3$
B. $\text{CH}_3\text{COOH}/\text{CH}_3\text{COONa}$
C. NaOH/NaCl
D. HCl/NaCl

12. For weak acid HA with $C=0.10$ M and $K_a=10^{-5}$, $[\text{H}^+]$ is approximately:

- A. 10^{-5} M B. 10^{-6} M C. 10^{-2} M D. 10^{-3} M

13. If solubility of AgCl is s mol L^{-1} in pure water, K_{sp} is:

- A. s^2 B. $4s^3$ C. s D. $2s^2$

14. Adding NaCl to saturated AgCl solution generally:

- A. Increases AgCl solubility
B. Reduces AgCl solubility
C. Leaves solubility unchanged
D. Makes K_{sp} zero

15. Which species acts as a Lewis acid?

- A. Cl^- B. NH_3 C. BF_3 D. OH^-

ANSWER KEY — check after completing all 15 questions

1.C 2.A 3.D 4.A 5.C 6.A 7.A 8.D 9.A 10.C 11.B 12.D 13.A 14.B 15.C