

EQUILIBRIUM (II)

- Q1. What are the limitations of Arrhenius Concept of Acids and Bases?
- Q2. Explain Bronsted and Laury Concept. How it is better than Arrhenius?
- Q3(a) State the formula of conjugate base of each of the following acids :- (i) H_3O^+ (ii) HSO_4^- (iii) H_3PO_4 (iv) CH_3NH_3^+
- (b) State the formula of conjugate acid of the following :- (i) OH^- (ii) CO_3^{2-} (iii) $(\text{CH}_3)_2\text{NH}$ (iv) HPO_4^{2-}
- (c) Arrange the following in increasing order of basicity: - Cl^- , Br^- , F^- , I^-
- Q4(a) Acetic acid has a dissociation constant of 1.8×10^{-5} , calculate the pH value of the decinormal solution of acetic acid.
- (b) The following can act as both Bronsted acid and Bronsted base, write the formula of Bronsted acid and Bronsted base of the following: - (i) HCO_3^- (ii) H_2PO_4^- (iii) NH_3
- Q5(a) Define solubility Product, write solubility product expression of $\text{Zr}_3(\text{PO}_4)_4$. Explain why NaCl is precipitated when HCl (g) is passed through the saturated soln. of NaCl.
- Q6. Which concept can explain the acidic character of CO_2 ?
- Q7. A solution has been prepared by dissolving 0.063g of HNO_3 in 1000ml of it. Calculate $[\text{H}^+]$ & $[\text{OH}^-]$ of solution.
- Q8. At 298K, the pH of a lemon juice is 2.32. Calculate its $[\text{H}_3\text{O}^+] + [\text{OH}^-]$.
- Q9. Justify the statement, "All Arrhenius acids are also Bronsted acids but Arrhenius bases are not Bronsted Bases?"
- Q10(i) Why H_2S gas is passed in 2nd gp in presence of HCl and H_2S is passed in fourth gp in +ve of NH_4OH ?
- (ii) Why is MnCl_2 added before the addition of NH_4OH in qualitative analysis of 3rd group?
- (iii) Which will be added to precipitate soap (RCOONa) ? NaCl or KCl and why?
- Q11. Find the pH of a solution of 0.01M acetic acid which is only 20 % ionised.
- Q12. The solubility of AgCl in water 298 K is 1.06×10^{-5} mole per litre. Calculate its solubility product at this temp.
- Q13. What is the solubility of Ag_2CrO_4 in water if the value of the solubility product (K_{sp}) = 1.3×10^{-11} (mol/L)³?
- Q14. How solubility product is different from Ionic Product?
- Q15. How are K_a and K_b related? Explain?