

## **Unit: ACID Base Equilibrium Applications**

1. Define the term electrolyte (strong and weak) and give examples.
2. Distinguish between strong and concentrated, weak and dilute solutions.
3. Define the terms dissociation and ionization.
4. Describe operational definitions for acids and bases.
5. Describe conceptual definitions for Arrhenius and Bronsted-Lowry
6. For Bronsted-Lowry acid-base reactions, complete the reaction and show the conjugate acid-base pairs.
7. Define Polyprotic and amphoteric.
8. Describe the relative strength of conjugate acids and their conjugate bases.
9. Write the  $K_w$  equation for water and explain the significance of autoionization of water
10. Define pH and solve problems involving pH and  $H_3O^+$
11. Describe the relationship between pH and pOH
12. Write the  $K_a$  equations for weak acids and solve problems involving these values. Write the  $K_b$  equations for weak bases and solve problems involving these values.
13. Experimentally determine  $K_a$  value for a weak acid
14. Determine the effect of changes in  $H_3O^+$  and  $OH^-$  on an equilibrium system.
15. Define neutralization and explain the use of acid-base indicators
16. Use titration techniques to determine the concentrations of unknown acids and bases
17. Interpret various titration curves
18. Explain the hydrolysis of salts and predict the effect of a given salt solution on an indicator.
19. Recognize that acid-base systems are simply special cases of equilibrium.