

Practical MCQ

1. When basic solution is titrated against HCl in the burette with Methyl orange indicator, the end point is the color change from
 - a. Yellow to Violet
 - b. Orange to Yellow
 - c. Appearance of Pink color
 - d. Yellow to Orange**
2. When mixture of sodium carbonate and sodium hydroxide solution is titrated against HCl solution, the Phenolphthalein end point correspond to
 - a. Neutralization of OH⁻ ions and CO₃²⁻ ions
 - b. Neutralization of OH⁻ ions only
 - c. Neutralization of CO₃²⁻ ions only
 - d. Neutralization of OH⁻ ions and half of CO₃²⁻ ions**
3. In determination of mixture of bases by titration method, the amount of Sodium Hydroxide is calculated as---.
 - a. $N \times \text{Equivalent mass of Sodium Carbonate} / 10$
 - b. $N [\text{OH and CO}_3^{2-} \text{ portion}] \times \text{Equivalent mass of Sodium Hydroxide and Sodium carbonate} / 10$
 - c. $N [\text{OH portion}] \times \text{Equivalent mass of Sodium Hydroxide} / 10$**
 - d. $N [\text{CO}_3^{2-} \text{ portion}] \times \text{Equivalent mass of Sodium carbonate} / 10$
4. What is the indicator used for estimation of hardness of water?
 - a) Phenolphthalein
 - b) Methyl orange
 - c) Eriochrome Black – T**
 - d) Potassium dichromate
5. Hardness of water is conventionally expressed in terms of equivalent amount of _____.
 - a) H₂CO₃
 - b) MgCO₃
 - c) CaCO₃**
 - d) Na₂CO₃
6. Which of the following does not cause the permanent hardness in water?
 - a) Nitrates
 - b) Sulphates
 - c) Chlorides
 - d) Bicarbonates**

7. In EDTA method, the purpose of adding buffer is _____.
- a) to maintain the pH of 6-8 range
 - b) to maintain the pH of 8-10 range**
 - c) to maintain the pH of 4-6 range
 - d) to maintain the conc. of the reagent
8. When sodium hydroxide is added to HCl, the H^+ ions are replaced by
- a) slow moving Na^+ ions**
 - b) fast moving Na^+ ions
 - c) slow moving OH^- ions
 - d) fast moving OH^- ions
9. When a strong base is added to a strong acid after the neutralization point
- a) conductance decreases
 - b) conductance increases**
 - c) conductance remains constant
 - d) conductance decreases initially and then increases gradually
10. The end point in the conductometric titration of strong acid Vs strong base can be determined by plotting
- a) Conductance Vs Volume of acid
 - b) Conductance Vs Volume of base**
 - c) pH Vs volume of acid
 - d) pH Vs volume of base
11. In the experiment, "Estimation of Fe(II) ions by potentiometry", $K_2Cr_2O_7$ acts as ---.
- a. Reducing agent
 - b. Oxidizing agent**
 - c. Indicator
 - d. Catalyst
12. Which of the following represents the equivalence point in the graph of EMF vs volume of titrant?
- a. Point at the highest EMF
 - b. Point at the lowest EMF
 - c. Point at the greatest magnitude of the slope of the curve**

d. Point at the least magnitude of the slope of the curve

13. The significance of first derivative and second derivative plot in potentiometric titration is -.

- a. To get additional information about the redox reaction
- b. To get the voltage of reference electrode
- c. To get the value of standard electrode potential
- d. To get more accurate equivalence point in case of colored and dilute solutions**

14. If the ion size decreases in solutions, then

- a. conductance decreases
- b. conductance increases**
- c. does not affect the conductance
- d. first decreases and then increases

15. Conductivity cell is made up of...

- a. Two silver rods
- b. Two parallel sheets of platinum**
- c. Glass membrane of Ag/AgCl
- d. Sb-Sb₂O₃

16. Which of the following is the formula for pH calculation?

- a) $\log_{10}[\text{H}^+]$
- b) $-\log_{10}[\text{H}^+]$**
- c) $\log_2[\text{H}^+]$
- d) $-\log_2[\text{H}^+]$

17. The pH meter is a

- a) Ammeter
- b) Voltmeter**
- c) Potentiostat
- d) Spectrophotometer

18. The pH of a liquid solution is a measure of

- a) dissolved salt content
- b) **hydrogen ion activity**
- c) hydroxyl ion molarity
- d) electrical conductivity

19. The electrolyte solution within the glass electrode (reference) of the pH meter is

- a) **saturated KCl**
- b) concentrated HCl
- c) dilute HCl
- d) dilute NaCl

20. A buffer solution comprises which of the following?

- a) a weak acid in solution
- b) a strong acid in solution
- c) a weak base in solution
- d) **a weak acid and its conjugate base in solution**

21. In Mohr's method the solution needs to be near neutral, because

- a. Silver chloride forms at high pH,
- b. Silver precipitates at low pH
- c. **Chromate forms H_2CrO_4 at low pH, which delays the formation of the precipitate.**
- d. Potassium chromate dissolves at high pH.

22. Measurement of solution viscosity offers a simple and convenient method for molecular weight determination if

- a) Polymer is insoluble in solvent
- b) Polymer is soluble in solvent**
- c) Polymer is sparingly soluble in solvent
- d) Polymer is used as neat

23. The Staudinger – Mark-Houwink equation is

- a) $\eta_i = K (M)^a$**
- b) $l = \eta / p$
- c) $E = mc^2$
- d) $E = \eta u$

24. What is the SI unit of viscosity?

- a) Candela
- b) Poiseuille**
- c) Newton/m
- d) No units

25. Which one of the following equations is used to calculate the relative viscosity?

- a) $\eta / \eta_0 = t / t_0$**
- b) $\eta_{sp} = \eta / \eta_0 - 1$
- c) $\eta_{red} = \eta_{sp} / C \times 100$
- d) $\eta_i = K (M)^a$

26. On increasing the temperature, the viscosity of the fluid _____

- a) Decreases**
- b) Increases
- c) Initially decreases then increases
- d) Neither decrease nor increase

27. A plot of η_{sp} / C (reduced viscosity) vs C is a for dilute polymer solutions

- a) “S” shape curve
- b) Triangle
- c) Straight line**
- d) “V” shape curve

28. Which indicator is used in Mohr’s method?

- a. Potassium Chromate**
- b. Silver Nitrate
- c. Potassium dichromate
- d. Silver Chromate