

Roll No

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**SIIS-N-189 A-21**  
**B.Sc. III Semester (CBCS) Degree Examination**  
**CHEMISTRY**  
**Paper : 3.1**  
**(New)**

**Time : 3 Hours**

**Maximum Marks : 80**

**Instructions to Candidates:** Answer **All** the **Three** sections

**SECTION - A**

**I. Answer All the following questions** **(15×1=15)**

1. What are Ideal solutions?
2. What is critical solution temperature?
3. Define the term phase
4. What is ionic mobility?
5. Define hydrolysis constant of a salt.
6. What are irreversible cells?
7. Write nemst equation for **Single electrode potential**.
8. Define standard electrode potential.
9. What are interhalogens?
10. What are amines?
11. Write the general formula of diazonium salt.
12. **What is isoelectric point of amino acid?**
13. **What is Electrophoresis?**
14. Write the ring structure of  $\alpha$ -D-Glucose.
15. What is Mutarotation?

**SECTION - B**

**II. Answer any Five of the following questions.** **(5×5=25)**

16. Explain phase diagram of two component system taking Lead- silver as an example.
17. Determine pH of a solution using hydrogen electrode.

18. Derive Gibbs phase rule thermodynamically.
19. Give the preparation, properties and uses of interhalogen of the type AB<sub>3</sub>.
20. How are aliphatic amines prepared from:
  - i) alkyl halides
  - ii) Hoffman's bromamide reaction?
21. What are proteins? Discuss the secondary structure of proteins.
22. Discuss the classification of carbohydrates with examples.

### SECTION - C

- III. Answer any Five of the following questions. (5×8=40)**
23. a) Draw the vapour pressure-composition and boiling point-composition curves. (4)
  - b) State the following:
    - i) Raoult's Law
    - ii) Lever rule (4)
  24. a) Explain Moving boundary method for the experimental determination of Transference number. (4)
  - b) Explain conductometric titration of a strong acid with a strong base. (4)
  25. a) Explain the terms: <https://www.karnatakastudy.com>
    - i) EMF of a cell
    - ii) Electrochemical series (4)
  - b) Write a note on Salt bridge (4)
  26. a) Write a short note on Kohlrausch law of independent migration of ions (4)
  - b) Discuss the structure of diborane (4)
  27. a) How do you distinguish primary, secondary and tertiary amines by benzene sulphonyl chloride? (4)
  - b) How will you convert diazonium into
    - i) Phenol
    - ii) Benzene (4)
  28. a) What are peptides? Give the synthesis of dipeptide. (4)
  - b) Explain the following:
    - i) Strecker synthesis
    - ii) Gabriel phthalimide synthesis of amino acids (4)
  29. a) Explain Ruff's degradation method for chain shortening of aldoses. (4)
  - b) Write the Haworth's structure for the following:
    - i) Maltose
    - ii) Sucrose (4)