

Roll No. _____

[Total No. of Pages : 2

SIIS-N- 189 B-19
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 is critical solution temperature?
- 2) State Raoult's law.
- 3) Define the term component.
- 4) What is ionic product of water?
- 5) Define degree of freedom.
- 6) What are reversible cells?
- 7) Define EMF of a cell.
- 8) What are pseudo halogens?
- 9) Give one use of Borazole.
- 10) What are aliphatic amines?
- 11) What is zwitterion?
- 12) Give an example of diazonium salt.
- 13) What are proteins?
- 14) What is peptide linkage?
- 15) Write the cyclic structure of Fructose.

SECTION - B

II. Answer any FIVE of the following questions.

(5×5=25)

- 16) State Nernst Distribution Law and give its application in solvent extraction.
- 17) Derive Clausius-Clapeyron equation.
- 18) Determine pH of a solution using quinhydrone electrode.

SIIS-N- 189 B-19/2019

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- 19) Give the preparation and properties of borazole.
- 20) How aromatic amines are prepared by
 - i) Alkyl halides
 - ii) Hofmann bromamide reaction
- 21) How do you distinguish primary, secondary and tertiary amines by nitrous acid?
- 22) Give the general properties of carbohydrates.

SECTION - C

III. Answer any FIVE of the following questions. (5×8=40)

- 23) a) Explain the phase diagram of water system. (4)
b) Write a note on salt bridge. (4)
- 24) a) Explain Hittorf's method for the experimental determination of Transference number. <https://www.karnatakastudy.com> (4)
b) Derive Gibbs phase rule. (4)
- 25) a) Explain the terms:
 - i) Equivalent conductance
 - ii) Molar conductance (4)
b) Give the qualitative treatment of potentiometric acid - base titration. (4)
- 26) a) Explain the effect of impurity on partial miscibility of liquids. (4)
b) Discuss the structure of IF_7 . (4)
- 27) a) Convert diazonium salt into
 - i) Phenol
 - ii) Dyes (4)
b) How do you determine the primary structure of peptides by Edmann degradation? (4)
- 28) a) Give any two electrophilic substitution reactions of aniline. (4)
b) Write a short note on structure of proteins (4)
- 29) a) Explain the following:
 - i) Ninhydrin test
 - ii) Reaction of amino acid with cu^{2+} ion. (4)
b) Explain Killiani - Fischer's synthesis of chain lengthening of aldoses. (4)