25U124S (Pages: 2) Name: .....

Reg.No: .....

FIRST SEMESTER B.Sc. DEGREE EXAMINATION, NOVEMBER 2025

(CBCSS - UG)

CC19UCHE1C01 - GENERAL CHEMISTRY

(Chemistry - Complementary Course)

(2019 to 2023 Admissions - Supplementary)

Time : 2.00 Hours Maximum : 60 Marks

Credit : 2

Part A (Short answer questions)

Answer ***all*** questions. Each question carries 2 marks.

1. Define mole. What is the relationship between the mass of a sample of a substance and the number of moles present in it?
2. Define molarity of a solution.
3. Which indicator can be used in the titration of (i) Strong acid Vs Strong base, (ii) Strong acid Vs weak base, (iii) Weak acid Vs Strong base
4. Give any two limitations of Bohr's theory.
5. If l= 2 for an electron, what are the permitted values of m?
6. What is a coordinate bond?
7. Bi-210 decays by β-emission. What is the product formed and in which group of the periodic table will it lie?
8. What are isotones? Give an example.
9. What is meant by a radioactive tracer?
10. How metal ions play an important role in the control of metabolic pathways?
11. Name a metalloporphyrin. What is the metal present in it?
12. What do you mean by dark reactions?

(Ceiling: 20 Marks)

Part B (Short essay questions - Paragraph)

Answer ***all*** questions. Each question carries 5 marks.

13. Explain the term molefraction. 120g ofurea [CON_2H_4] is dissolved in 324ml water. Calculate the molefraction of urea in the solution.

14. Discuss the thory of complexometric titrations.

15. Explain one application of Bom-Haber cycle.

16. Predict argumentatively the shapes of (i) PCI_5, and (ii) IF_7, on the basis of VSEPR theory.

17. Explain the meson field theory of nuclear forces.

18. Write a brief note on the nuclear reactors in India.

19. Give the biological function of two compounds containing cobalt and one compund containg zinc.

(Ceiling: 30 Marks)

Part C (Essay questions)

Answer any ***one*** question. The question carries 10 marks.

20. Define oxidation number. Discuss the oxidation number concept of oxidationand reduction. Explain the terms oxidant and reductant with an illustrative example for a redox reaction.

21. Explain the term hydrogen bonding. Discuss the hydrogen bonding in water and explain the consequent unique properties of water

(1 × 10 = 10 Marks)

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