QP Code: D132571	**Total Pages:1**	**Name:**
		Register No.

FIRST SEMESTER UG DEGREE EXAMINATION, NOVEMBER 2025

(CUFYUGP)

CHE1MN 103 BASIC INORGANIC AND GREEN CHEMISTRY

2024 Admission onwards

Maximum Time :2 Hours | **Maximum Marks :70**

Section A

All Questions can be answered. Each Question carries 3 marks (Ceiling : 24 Marks)

1	Define ionization enthalpy. Why does it generally increase across a period?
2	What is the significance of Mendeleev's law of octaves in the history of the periodic table?
3	Comment briefly on the metallic and non-metallic character trend in the long form of the periodic table.
4	Briefly explain the green chemistry principle 'atom economy'.
5	Why is water considered a "green solvent" for some organic reactions?
6	What does the principle 'design for energy efficiency' relate ?
7	What are supercritical fluids? Give one example of their use as a green solvent.
8	How does the principle 'inherently safer chemistry for accident prevention' help in minimizing hazards?
9	Explain the application of ultrasonic energy in green chemistry.
10	State the importance of green chemistry.

Section B

All Questions can be answered. Each Question carries 6 marks (Ceiling : 36 Marks)

11	Write the Schrödinger wave equation and briefly mention the terms in it. Explain the concept of an orbital and compare it with an orbit.
12	Differentiate between an Intermolecular and an Intramolecular hydrogen bond, giving one example for each.
13	Explain why the bond angles of water and ammonia deviate from the ideal tetrahedral angle.
14	Explain the hybridization and structure of acetylene and ethylene
15	Calculate the molarity of a solution containing 6 g of glucose ($C_6H_{12}O_6$) in 500mL of the solution.
16	Explain the terms accuracy and precision in analytical chemistry. What are the advantages of microanalysis?
17	Briefly explain the principles behind redox and complexometric titrations. Name the specific type of indicator used for each.
18	Explain the mole concept and molar volume. Calculate the number of moles in 11g of CO_2.

Section C

Answer any ONE .Each Question carries 10 marks (1x10=10 Marks)

19	Write an essay on quantum numbers.
20	Explain the different methods of expressing concentration. Give the mathematical expression for each.