

23ASH9901T

B.Tech. DEGREE EXAMINATION, NOVEMBER/DECEMBER 2024.

First Semester

Computer Science and Engineering

CHEMISTRY

(RU23 Regulations)

Time : 3 Hours

Max. Marks : 70

## PART — A

(Compulsory Question)

(10 × 2 = 20 Marks)

Answer the following.

1. (a) Define bonding in homonuclear diatomic molecules.
- (b) What is significance of  $\Psi$  and  $\Psi^2$ ?
- (c) What are Super conductors?
- (d) Discuss about nanoparticles.
- (e) What is Electrochemical cell?
- (f) What are Primary cells?
- (g) Explain the Thermosetting plastics.
- (h) What are the carbon fibres?
- (i) What is Beer-Lambert's law?
- (j) What is Spectroscopy?

## PART — B

(Answer ONE full question from each Unit; All questions carry equal marks)

(5 × 10 = 50 Marks)

## UNIT I

2. Discuss in detailed about Fundamentals of Quantum mechanics, Schrodinger Wave equation.
- Or
3. Explain the  $\pi$  - molecular orbitals of butadiene and benzene, calculation of bond order of any molecule.

Turn Over



## UNIT II

4. Discuss the Basic Concept and Applications of Semiconductors.

Or

5. Describe the classification, properties and applications of carbon nano tubes.

## UNIT III

6. Explain the concept of potentiometry and potentiometric titrations of any application.

Or

7. Discuss in detailed about Zinc-air battery and Secondary cells lithium-ion batteries.

## UNIT IV

8. Preparation, properties and applications of Bakelite, Nylon-6,6.

Or

9. Discuss in detailed about Bio Degradable polymers - Poly Glycolic Acid.

## UNIT V

10. Define Chromatography and explain the instrumentation of HPLC.

Or

11. Draw the schematic diagram for UV Visible spectroscopy Explain its principle and applications UV Visible spectroscopy.
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