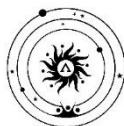


H.T.No: 

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Course Code: **241CH002**



# ADITYA UNIVERSITY

B.Tech – I Semester End Examinations Supplementary – APR 2025

## APPLIED CHEMISTRY (Common to CSE &AIML)

Time: 3 hours

Max. Marks: 50

Answer ONE question from each unit

All Questions Carry Equal Marks

All parts of the questions must be answered at one place only

### UNIT-I

- 1 a Explain Coordination Polymerization with suitable example? L2 CO1 [5M]  
b Write the differences between Thermoplastic and Thermosetting Plastics? L2 CO1 [5M]

(OR)

- 2 a Define Conducting Polymer? Describe the conduction mechanism in terms of doped conducting polymers. L2 CO1 [5M]  
b What are Biodegradable Polymers? Write the Preparation and applications of Polyglycolic acid? L3 CO1 [5M]

### UNIT-II

- 3 a Derive the Nernst Equation and write its applications L3 CO2 [6M]  
b Describe the working principle of Zn-air battery with neat sketch? L2 CO2 [4M]

(OR)

- 4 a Outline the construction and working principle of Li-ion battery L2 CO2 [5M]  
b Explain Potentiometric sensor with example? L2 CO2 [5M]

### UNIT-III

- 5 a Mention the applications of Computational Quantum Chemistry L2 CO3 [5M]  
b What are the main techniques is used to predicting molecular properties in computational chemistry? L2 CO3 [5M]

(OR)

- 6 a Discuss what are the tools used in molecular modeling for detection of molecular behavior? L2 CO3 [5M]  
b Explain the Monte-Carlo method in detail? L2 CO3 [5M]

### UNIT-IV

- 7 a Briefly mention the applications of Nanomaterials in various fields? L1 CO4 [3M]  
b How Scanning Electron Microscopy used for the characterization of Nanomaterials L2 CO4 [7M]

(OR)

- 8 a What are Smart materials? Give examples L1 CO4 [2M]  
b What are shape memory materials? Discuss Poly L-Lactic Acid (PLLA) as an example, including its preparation, properties, and applications. L3 CO4 [8M]

(P.T.O)

**UNIT-V**

- 9 a Write a short note on the disadvantages of hard water? L2 CO5 [3M]  
b Describe the process of deionization of water using ion-exchange resins. L2 CO5 [7M]  
Include the role of cation and anion exchangers.

**(OR)**

- 10 a Why is effective e-waste management essential for environmental L3 CO5 [5M]  
protection and sustainable development?  
b What are the methods used to extract copper (Cu) from e-waste? L2 CO5 [5M]

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