



ADITYA UNIVERSITY

B.Tech – I Semester End Examinations Supplementary – Mar 2026

APPLIED CHEMISTRY (Common to CSE & AIML)

Time: 3 hours**Max. Marks: 100****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 Write the difference between Chain growth and Step growth polymerization with examples? L1 CO1 [10M]
b Illustrate the preparation, properties and applications of Bakelite? L2 CO1 [10M]

(OR)

- 2 a What is Conducting polymer? Explain Mechanism of conduction with polyacetylene? L2 CO1 [10M]
b Explain biodegradable polymer with Polyglycolic acid and write its applications? L2 CO1 [10M]

UNIT-II

- 3 a Explain about Galvanic cell with neat diagram and equations? Calculate the EMF of a cell at 25°C Given that $E^0(\text{Zn}/\text{Zn}^{+2}) = -0.76\text{V}$ and $E_0(\text{Cu}^{+2}/\text{Cu}) = +0.34\text{V}$ L3 CO2 [10M]
b Write the principle, working and application of Potentiometric sensors? L1 CO2 [10M]

(OR)

- 4 a Show the working of H₂-O₂ fuel cell with equations and write its applications? L2 CO2 [10M]
b Illustrate Amperometric sensors with example (Glucose Electrochemical sensor)? L2 CO2 [10M]

UNIT-III

- 5 a How to Predict the molecular properties using computational chemistry? L1 CO3 [10M]
b What is conformational sampling? Discuss techniques used for conformational samples? L2 CO3 [10M]

(OR)

- 6 a What is Computational Chemistry and classify its applications? L1 CO3 [10M]
b Explain about on molecular modelling? L2 CO3 [10M]

UNIT-IV

- 7 a Compare Top down and Bottom up approach method? Write any 5 general applications of nano material? L2 CO4 [10M]
b What are Smart materials? Explain Shape memory materials with Poly L-Lactic acid and applications? L2 CO4 [10M]

(P.T.O)

(OR)

- 8 a Write the Characterization of nano materials by SEM and TEM (only L1 CO4 [10M]
Principle)?
- b What is CNT? Discuss the uses of Graphene in water treatment and L2 CO4 [10M]
drug delivery.

UNIT-V

- 9 a Explain process of Desalination of water by reverse osmosis and L2 CO5 [10M]
Electrodialysis methods?
- b What are the Toxic materials used in manufacturing of electronic and L1 CO5 [10M]
electrical products, their causes?

(OR)

- 10 a Explain Zeolite process with neat diagram? L2 CO5 [10M]
- b Explain Extraction process of copper from E-waste.? L2 CO5 [10M]
