# SIDDHARTH INSTITUTE OF ENGINEERING & TECHNOLOGY:: PUTTUR
## (AUTONOMOUS)
### B.Tech I Year I Semester Supplementary Examinations February-2024
### APPLIED CHEMISTRY
(Common to ECE & EEE)

**Time: 3 Hours**　　　　　　　　　　　　　　　　　　　　　　**Max. Marks: 60**

(Answer all Five Units $5 \times 12 = 60$ Marks)

| | UNIT-I | | | |
|---|---|---|---|---|
| 1 | a | Define Electrode Potential. | CO1 | L1 | 2M |
| | b | Derive the Nernst equation for a single electrode potential and write its applications. | CO1 | L2 | 10M |

**OR**

| | | | | | |
|---|---|---|---|---|---|
| 2 | a | Explain the construction and working of lead-acid battery. | CO1 | L2 | 6M |
| | b | Describe the working and uses of hydrogen-oxygen fuel cell. | CO1 | L2 | 6M |

## UNIT-II

| | | | | |
|---|---|---|---|---|
| 3 | Derive Schrodinger wave equation. | CO2 | L3 | 12M |

**OR**

| | | | | | |
|---|---|---|---|---|---|
| 4 | a | Explain π-molecular orbital of benzene with a neat sketch. | CO2 | L2 | 6M |
| | b | Differentiate bonding and anti-bonding molecular orbitals. | CO2 | L2 | 6M |

## UNIT-III

| | | | | | |
|---|---|---|---|---|---|
| 5 | a | Explain the mechanism of free radical addition polymerization. | CO3 | L2 | 8M |
| | b | What is functionality of monomer? | CO3 | L1 | 4M |

**OR**

| | | | | | |
|---|---|---|---|---|---|
| 6 | a | What are conducting polymers? How are they classified? | CO4 | L1 | 4M |
| | b | Discuss the synthesis and applications of any one conducting polymer. | CO4 | L2 | 8M |

## UNIT-IV

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|---|---|---|---|---|
| 7 | Describe the principle, instrumentation and applications of UV-visible spectroscopy with neat block diagram. | CO5 | L2 | 12M |

**OR**

| | | | | |
|---|---|---|---|---|
| 8 | Explain the principle, working and applications of Thin Layer Chromatography. | CO5 | L2 | 12M |

## UNIT-V

| | | | | | |
|---|---|---|---|---|---|
| 9 | a | Explain the principle and applications of semiconductors. | CO6 | L2 | 6M |
| | b | Classify the semiconductors with examples. | CO6 | L2 | 6M |

**OR**

| | | | | | |
|---|---|---|---|---|---|
| 10 | a | Discuss the applications of supra-molecules in Catalysis and medical fields. | CO6 | L2 | 8M |
| | b | What is meant nanomaterial? How the nanomaterials classified? | CO6 | L1 | 4M |

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