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**SIDDHARTH INSTITUTE OF ENGINEERING & TECHNOLOGY:: PUTTUR**  
(AUTONOMOUS)**B.Tech I Year I Semester Supplementary Examinations November-2022****APPLIED CHEMISTRY**

(Common to EEE &amp; ECE)

Time: 3 hours

Max. Marks: 60

(Answer all Five Units 5 x 12 = 60 Marks)

**UNIT-I**

- 1 Define Conductometric titrations. Discuss all types of Acid-Base Conductometric titrations and explain the nature of the graphs between conductance and volume of titrant used. L2 12M

**OR**

- 2 a What is a Fuel cell? Describe the Construction and Working of Methanol Oxygen Fuel cell. L3 6M  
b What is primary Battery? Write a brief note on Zinc-Air battery L2 6M

**UNIT-II**

- 3 a Write the postulates of molecular orbital theory. L1 6M  
b Draw the shapes of various d – orbitals and explain why they are splitted into two groups in an octahedral ligand field. L3 6M

**OR**

- 4 Derive Schrodinger wave equation? Explain the significance of the  $\Psi$  and  $\Psi^2$  L3 12M

**UNIT-III**

- 5 a Explain the mechanism involved in Ziegler-Natta polymerization. L3 6M  
b Describe the preparation, properties and uses of Bakelite. L3 6M

**OR**

- 6 a Write a note on Thermoplastic and Thermosetting resin. L2 6M  
b Write a note on nomenclature of polymers. L1 6M

**UNIT-IV**

- 7 Explain principle & instrumentation of UV-visible spectroscopy with neat diagram. L2 12M

**OR**

- 8 a Explain the main components of gas chromatography. L2 4M  
b Explain the separating methods of Gaseous Mixtures. L2 8M

**UNIT-V**

- 9 a Define Dielectrics? What are the characteristics of Electrical Insulators? L2 6M  
b What is doping? Explain the role of doping on band structure. L2 6M

**OR**

- 10 a Write a note on Fullerenes. L1 6M  
b Explain the applications of supramolecules in Sensors, Gas storage, Molecular switches. L2 6M

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