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**SIDDHARTH INSTITUTE OF ENGINEERING & TECHNOLOGY:: PUTTUR**  
(AUTONOMOUS)

**B.Tech I Year II Semester Regular & Supplementary Examinations October-2022**  
**APPLIED CHEMISTRY**

(Common to CSE, CSIT, CSM, CIC, CAD & CCC)

Time: 3 hours

Max. Marks: 60

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

**UNIT-I**

- 1 Define Electrode Potential. Derive the Nernst equation for a single electrode potential and write its applications. L1 12M

OR

- 2 a What is secondary Battery? Explain the Construction and working of Lead acid battery. L3 6M  
b What is a Fuel cell? Describe the Construction and Working of Methanol – Oxygen Fuel cell. L3 6M

**UNIT-II**

- 3 a Write De-Broglie's equation. L1 6M  
b Explain Heisenberg Uncertainty principle. L2 6M

OR

- 4 What is Crystal field theory? Explain the crystal field splitting in octahedral and tetrahedral Complexes. L3 12M

**UNIT-III**

- 5 What are conducting polymers? How are they classified? Write the synthesis and engineering applications of poly acetylene and polyaniline polymers. L3 12M

OR

- 6 a Distinguish between Thermoplastics and Thermosetting plastics. L4 6M  
b Describe the preparation, properties and uses of Nylon-6,6. L3 6M

**UNIT-IV**

- 7 Explain the working principle of Atomic Absorption Spectrometer (AAS) and How will you determine the nickel using by AAS? 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 What is meant by Nanomaterials? How are Nanomaterials Classified. L3 4M  
b Write a note on Carbon Nano Tubes and Fullerenes. L1 8M

OR

- 10 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

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