BACHELOR OF TECHNOLOGY (CBCS) (2021-COURSE)
B. Tech. Sem - II Computer Science & Engineering AI & ML : SUMMER : 2025
SUBJECT: ORGANIC & ELECTROCHEMISTRY

Day : Wednesday
Date : 28/05/2025

S-23931-2025

Time : 10:00 AM-01:00 PM
Max. Marks : 60

N.B.:

1) All questions are **COMPULSORY.**
2) Figures to the right indicate **FULL** marks.
3) Draw neat labelled diagrams **WHEREVER** necessary.
4) Use of non-programmable **CALCULATOR** is allowed.
5) Assume suitable data if necessary.

Q.1 Write the main postulates of molecular orbital theory. Explain the magnetic property of O_2 molecule on the basis of molecular orbital theory. **(10)**

OR

Q.1 Explain the following terms with examples: **(10)**
i) Central metal atom and ligands
ii) Coordination number and coordination sphere

Q.2 Write 12 principles of Green chemistry. Explain any one of them with example. **(10)**

OR

Q.2 Explain the green route of synthesis of Adipic acid. Highlight the green principle involved in the synthesis. **(10)**

Q.3 Define galvanic cell. Explain the construction and working of Daniel cell with diagram and redox chemical reactions. **(10)**

OR

Q.3 What is secondary cell? Explain in detail the Lead-acid storage battery. **(10)**

Q.4 Define polymer. Explain condensation polymerization with example. **(10)**

OR

Q.4 What are conducting polymers? Explain different types of conducting polymers with examples. **(10)**

Q.5 Explain in detail the electrical conductivity of solids bases on a band gap theory. **(10)**

OR

Q.5 Define semiconductor. Explain in detail n-type and p-type semiconductors. **(10)**

Q.6 What is proximate analysis of coal? Explain the determination of moisture and ash content in coal sample. Give their significance. **(10)**

OR

Q.6 Define gross calorific value and net calorific value. Calculate the GCV and NCV of coal sample having composition. **(10)**
C= 61 %, O =32 %, H = 6 %, S=0.5 %, N=0.2 %, ash= 0.3 %.

* * * *