

BACHELOR OF TECHNOLOGY (CBCS) (2021-COURSE)
B. Tech. Sem - I Computer Science & Engineering : WINTER : 2024
SUBJECT: ORGANIC & ELECTROCHEMISTRY

Day : Wednesday
Date : 04/12/2024

W-24020-2024

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) Use of non-programmable calculator is **allowed**.
- 4) Assume suitable data **WHEREVER** necessary.
- 5) Draw neat diagram **WHEREVER** necessary.

Q.1 With the help of Molecular Orbital Theory draw the molecular orbital energy level diagram for O₂ molecule (10)

OR

Q.1 Explain sp³d and sp³d² hybridization with suitable examples. (10)

Q.2 Define green chemistry. Give the synthetic procedure for the green synthesis of Indigo dye (10)

OR

Q.2 Write a short note on (10)
a) Atom Economy
b) Supercritical CO₂

Q.3 With a neat diagram explain the working of Ni-Cd battery and Fuel cells (10)

OR

Q.3 Explain the following terms (10)
a) Electrode potential
b) Reference electrode
c) Electrochemical series
d) Electrochemical cell

Q.4 Draw the structure and preparations of conductive polyaniline and polyacetylene (10)

OR

Q.4 Explain the anionic and cationic polymerization mechanism with suitable example (10)

Q.5 Explain the following terms (10)
a) Calcogen compounds
b) Compound semiconductors

OR

Q.5 Explain any one method for the preparation of semiconductors (10)

Q.6 Compare the three types of fuels in terms of its properties (10)

OR

Q.6 Explain the importance of proximate analysis (10)
