

**BACHELOR OF TECHNOLOGY (C.B.C.S.) (2021-COURSE)**  
**B. Tech. Sem - I Computer Science & Engineering : WINTER- 2022**  
**SUBJECT : ORGANIC & ELECTROCHEMISTRY**

Day : Friday

Time : 10:00 AM-01:00 PM

Date : 13-01-2023

W-24020-2022

Max. Marks : 60

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**N.B.**

- 1) All questions are **COMPULSORY**.
  - 2) Figures to the **RIGHT** indicate **FULL** marks.
  - 3) Assume suitable data **WHEREVER** necessary.
  - 4) Draw neat diagram **WHEREVER** necessary.
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**Q.1** Write the main postulates of Molecular Orbital Theory (MOT) and draw the molecular orbital energy level diagram for O<sub>2</sub> molecule and calculate the bond order. (10)

**OR**

**Q.1** Explain Bioinorganic compounds and Organometallic compounds with suitable examples. (10)

**Q.2** Explain the twelve principles of green chemistry. (10)

**OR**

**Q.2** Explain the green method of synthesis of Adipic acid and indigo dye. (10)

**Q.3** What are electrochemical cells? Explain the working of galvanic cell with proper diagram. (10)

**OR**

**Q.3** What are reference electrodes? Explain the working of standard hydrogen electrode and calomel electrode. (10)

**Q.4** What are conducting polymers? Explain the preparation and applications of polyaniline and polyacetylene. (10)

**OR**

**Q.4** Explain the conducting mechanism of conducting polymers by taking two polyheterocyclic compounds as examples. (10)

**Q.5** What are Chalcogen photoconductors? Explain the photocopying process. (10)

**OR**

**Q.5** What are Superconductors? Explain the properties and applications of Superconductors. (10)

**Q.6** What is calorific value of a fuel? Explain the different types of calorific value of a fuel. (10)

**OR**

**Q.6** What are lubricants? Explain the mechanism of lubrication and applications of lubricating oils. (10)

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