

**BACHELOR OF TECHNOLOGY (CBCS - 2023)**  
**B. Tech. Sem-II Computer Science & Engineering AI & ML : SUMMER : 2025**  
**SUBJECT: ORGANIC & ELECTRO CHEMISTRY**

Day : Monday  
Date : 26/05/2025

**S-27701-2025**

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** Define the terms bonding and antibonding molecular orbitals. Draw the molecular orbital energy level diagram for N<sub>2</sub> molecule and calculate the bond order. (10)

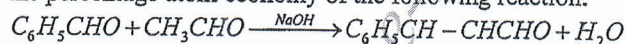
**OR**

**Q.1** What is coordination chemistry? What are the different types of coordination complexes? Explain with suitable examples. (10)

**Q.2** Write note on Green chemistry. Give four applications of Green chemistry. (10)

**OR**

**Q.2** Explain in detail the concept of atom economy in green chemistry. Calculate the percentage atom economy of the following reaction. (10)



**Q.3** Give the classification of cells with examples. Explain the construction and working of dry cell with redox chemical reactions. (10)

**OR**

**Q.3** Define fuel cell. Explain the construction and working of H<sub>2</sub>-O<sub>2</sub> fuel cell. Give the applications of fuel cell. (10)

**Q.4** What is monomer? Define functionality of monomer. Explain linear chain polymer and branched chain polymer with suitable example. (10)

**OR**

**Q.4** What are plastics? Differentiate between thermoplastics and thermosetting plastics. (10)

**Q.5** What are the chalcogen photoconductors? Explain the principle of photocopying process by using selenium as a photo conductor. (10)

**OR**

**Q.5** Define semiconductor. Differentiate between n-type and p-type semiconductors. (10)

**Q.6** Define a chemical fuel. Give complete classification of fuels with examples. What are the characteristics of a good fuel? (10)

**OR**

**Q.6** Define calorific value. Calculate the gross and net calorific value of a coal having the following composition: (10)

C= 70 %, H= 8 %, O= 15 %, S= 1 %, N= 2 %, ash= 4 %. Latent heat of steam = 587 cal/g.

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