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_2 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)**

$$C_6H_5CHO + CH_3CHO \xrightarrow{NaOH} C_6H_5CH - CHCHO + H_2O$$

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_2-O_2 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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