BACHELOR OF TECHNOLOGY (CBCS) (2021-COURSE)

B. Tech. Sem - II COMPUTER SCIENCE & ENGINEERING-A&M : SUMMER : 2024

SUBJECT: ORGANIC & ELECTROCHEMISTRY

Day : Tuesday
Date : 28/05/2024

S-23931-2024

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) Draw neat labelled diagrams **WHEREVER** necessary.
4) Use of non-programmable **CALCULATOR** is allowed.
5) Assume suitable data if necessary.

Q.1 Explain in detail the LCAO (Linear combination of atomic orbitals) method to form molecular orbitals. **(10)**

OR

Q.1 Draw the molecular orbital energy level diagram for O_2 molecule. What is the magnetic property of O_2 molecule? **(10)**

Q.2 What is the alternative solvent? Give the importance of alternative solvents in green chemistry. Name two green solvents. **(10)**

OR

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

$$C_6H_6 + CH_3Cl \xrightarrow{AlCl_3} C_6H_5CH_3 + HCl$$

Q.3 How cells are classified? Explain the working of galvanic cell with diagram and redox chemical reactions. **(10)**

OR

Q.3 What is primary cell? Explain the construction and working of Dry cell with redox chemical reactions. **(10)**

Q.4 Define polymer with example. Write a note on Addition polymerization. **(10)**

OR

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

Q.5 What are semiconductors? Differentiate between n-type and p-type semiconductors. **(10)**

OR

Q.5 Explain the role of semiconductors in the following devices: **(10)**
i) Rectifiers ii) Photovoltaic cells

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

OR

Q.6 Define lubrication. Explain the mechanism of fluid-film and boundary lubrication. **(10)**

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