BACHELOR OF TECHNOLOGY (CBCS) (2021-COURSE)
Computer Science & Engineering-AI&ML
B. Tech. Sem - II :SUMMER : 2023
SUBJECT : ORGANIC & ELECTROCHEMISTRY

Day : Friday
Time : 10:00 AM-01:00 PM
Date : 26-05-2023
S-23931-2023
Max. Marks : 60

**N.B.**

1) All questions are **COMPULSORY.**
2) Figures to the right indicate **FULL** marks.
3) Draw neat and labelled diagrams wherever necessary.
4) Assume suitable data if necessary.
5) Use of non-programmable **CALCULATOR** is allowed.

**Q.1** What do you understand by the term bonding and antibonding orbitals? Give the conditions for the combination of atomic orbitals to form molecular orbitals. **(10)**

**OR**

**Q.1** Define molecular orbital. Explain the diamagnetic behaviour of hydrogen molecule on the basis of molecular orbital theory.

**Q.2** Define green chemistry. Explain "Prevention of waste" principle in green chemistry. **(10)**

**OR**

**Q.2** What do you mean by atom economy? Calculate the percentage atom economy for the following reaction **(10)**

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

**Q.3** Define electrochemical cell. Explain the construction and working of a Daniel cell. **(10)**

**OR**

**Q.3** Define fuel cell. Explain the construction and working of $H_2 - O_2$ fuel cell. Mention the advantages and limitations of fuel cell. **(10)**

**Q.4** Define polymer. What do you mean by degree of polymerization? Explain the addition polymerization with suitable example. **(10)**

**OR**

**Q.4** What are conducting polymers? Explain the different types of conducting polymers with examples. **(10)**

**Q.5** What are intrinsic semiconductors? Explain the conductivity in n-type and p-type semiconductor. **(10)**

**OR**

**Q.5** What are chalcogen photoconductors? Explain the principle of photocopying process by using selenium photoconductor. **(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 lubricants. Discuss the classification of lubricants with suitable example. **(10)**

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