

22229

21819

3 Hours / 70 Marks

Seat No.

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- Instructions* – (1) All Questions are *Compulsory*.
(2) Answer each next main Question on a new page.
(3) Illustrate your answers with neat sketches wherever necessary.
(4) Figures to the right indicate full marks.
(5) Mobile Phone, Pager and any other Electronic Communication devices are not permissible in Examination Hall.

Marks

1. **Attempt any FIVE of the following:** **10**
- Define a compound with two suitable examples.
 - Write any two general characteristics of organic compound.
 - Describe the concept of functional groups.
 - Describe isomerism and state its types.
 - Define monomer.
 - Identify the following monomers.
 - $\text{H}_2\text{C} = \text{CHCl}$
 - $\text{CH}_2 = \text{CH}-\text{CH}_3$
 - Define aliphatic and aromatic compounds with one example from each category.

P.T.O.

- 2. Attempt any THREE of the following:** **12**
- a) Explain the coordinate bond with suitable example.
 - b) Calculate the empirical and molecular formula of a compound containing 5.9265% H and 94.0735% of oxygen. This compound has a molar mass of 34.01468 g/m.
 - c) Distinguish between sulphonation and nitration with suitable examples.
 - d) Distinguish between geometrical and optical isomerism.
- 3. Attempt any THREE of the following:** **12**
- a) Explain the graph of bond energy as a function of distance between the atoms.
 - b) Explain Friedel craft alkylation with suitable example.
 - c) Explain addition and oxidation reaction with examples of both.
 - d) Explain the process of purification of monomer.
- 4. Attempt any THREE of the following:** **12**
- a) Give one example of each of the following compound in general formula
 - (i) Esters
 - (ii) Ethers
 - (iii) Amines
 - (iv) Amides
 - b) Explain any four rules of IUPAC nomenclature of organic compounds.
 - c) Compare the behavior on solubility of sodium chloride and polyvinyl alcohol.
 - d) Explain the effect of functionality on structure of a compound with suitable example.
 - e) Describe addition reactions of benzene with hydrogen and chlorine.

5. Attempt any TWO of the following:**12**

- a) Distinguish between aromatic and aliphatic compounds on the bases of their general characteristics
- b) Explain the concept of optical isomerism with an example.
- c) Explain the structure and functionality of polypropylene.

6. Attempt any TWO of the following:**12**

- a) Explain the following:
 - (i) Electronegativity
 - (ii) Dipole moment
 - (iii) Bond polarity
 - (iv) Bond energy
 - b) Distinguish between substitution and halogenations reaction
 - c) Identify the functionality of the following
 - (i) C_2H_5-OH
 - (ii) C_2H_2
 - (iii) $C_6H_{12}O_6$
 - (iv) $CH_2OH - C - CH_2OH$
 $\quad \quad \quad ||$
 $\quad \quad \quad O$
 - (v) $\begin{array}{c} CH_2 \\ | \\ H_3N - CH = O \\ || \\ O \end{array}$
 - (vi) $C_8H_{16}O_2$
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