

312334

24225

3 Hours / 70 Marks

Seat No.

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- Instructions :**
- (1) All Questions are *compulsory*.
 - (2) Illustrate your answers with neat sketches wherever necessary.
 - (3) Figures to the right indicate full marks.
 - (4) Assume suitable data, if necessary.
 - (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**

- (a) Define polar co-valent bond with examples.
- (b) Define functional group.
- (c) Define chiral carbon atom with an example.
- (d) Draw the structure of 2, 2 Dimethyl Butane.
- (e) Give one example each of monofunctional and bifunctional monomer.
- (f) Identify functional group of the following organic compounds :
 - (i) $\text{CH}_3 - \text{CONH}_2$
 - (ii) $\text{CH}_3 - \text{NH}_2$
- (g) State Carother's limiting equation.



2. Attempt any THREE of the following : 12

- (a) Draw and explain the classification of organic compounds based on structure.
- (b) Describe the Nitration of Benzene with chemical reaction.
- (c) Define Hydrogen Bond. Explain intermolecular and intra-molecular hydrogen bond with example.
- (d) With suitable example describe hydrogenation and oxidation reaction of Alkene.

3. Attempt any THREE of the following : 12

- (a) State the Huckel Rule and explain its application in determining the Aromaticity of Benzene with suitable example.
- (b) Compare the solubility behaviour of low molecular weight compound (NaCl) and polymer (Poly-Vinyl Alcohol).
- (c) Write the general formula and give one example for each of the following functional groups :
 - (i) Ketone
 - (ii) Amine
 - (iii) Alcohol
 - (iv) Ester
- (d) Distinguish between Aliphatic and Aromatic Compound.

4. Attempt any THREE of the following : 12

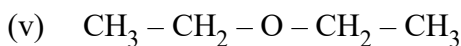
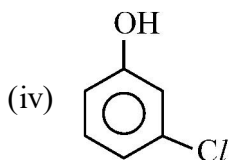
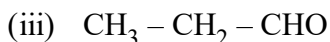
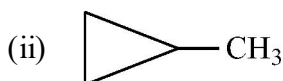
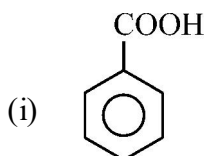
- (a) Draw and explain the Resonance Structure of Benzene.
- (b) Explain the IUPAC rules for naming carboxylic acids with an example.
- (c) Explain Bromination of benzene with mechanism.
- (d) Describe the purification process of monomer and its importance (any four).

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

- (a) A compound contains 40% Carbon, 6.67% Hydrogen and 53.33% of Oxygen. Its molecular weight is 180 g/mole. Calculate Empirical and Molecular formula.
- (b) Draw structural formula of Lactic Acid. Explain optical isomerism of Lactic Acid.
- (c) Draw correct structural formula of following organic compounds (any three) :
- (i) 3, 3 Dimethyl Pentanoic acid
 - (ii) 4-Bromo, 2-Methyl Propanol
 - (iii) 1-Butanal
 - (iv) 3-Chloro, 3-Methyl 2-Pentanone
 - (v) Cyclobutane

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

- (a) Explain the mechanism of Friedel-Craft's Acylation of Benzene.
- (b) Write correct IUPAC name of the following organic compounds (any three) :



- (c) Define Isomerism. Draw and explain cis and trans isomers of 2-Butene.
- (d) Write the chemical name of Tartaric Acid. Explain optical isomerism of Tartaric Acid.
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