

**UKA TARSADIA UNIVERSITY**  
B.Pharm. (2nd Semester)  
030020202 - Organic Chemistry I

**Duration: 3 Hours**

**Max. Marks: 70.**

**Instructions:**

1. Attempt all questions.
2. Write each section in a separate answer book.
3. Make suitable assumptions wherever necessary.
4. Figures to the right indicate full marks.
5. Draw diagrams/figures whenever necessary.

**Section-1**

**Q-1 (A) Do as directed:**

**[07]**

- I) What do you mean by Melting Point
- II) Define  $sp^2$  structure
- III) Define hybridization
- IV) Write the structures of following 1. Methane, Ethane, and Butane
- V) Define hydrogen bonding
- VI) Write the structure of isopropyl alcohol
- VII) What do you mean by HOMO and LUMO

**Q-1 (B) Answer the following in brief: (Any 4)**

**[08]**

- I) Explain electro negativity with suitable examples
- II) Write a note on Molecular orbital theory
- III) Write a note on types of chemical bonding
- IV) Write a note on free radicals
- V) Explain in detail about carbenes
- VI) Define Hyper conjugation and Resonance

**Q-2 Answer the following:**

**[10]**

- A) What are reaction intermediates explain the stability of carbocations with suitable examples

OR

- A) What do you mean by Chemical bonding explain in detail Intermolecular and Intermolecular forces

B) Explain in detail following terms 1. Inductive Effect, 2. Electromeric effect, 3. Tautomerism

OR

B) Explain the Properties and Reactions of Alkanes and Alkenes

**Q-3 Answer the following in detail. (Any 2)** [10]

- A) Explain in detail factors affecting Electron availability
- B) What do you mean by racemic mixture, explain racemic modification
- C) Principle and Applications of Microwave assisted Synthesis

**Section-2**

**Q-4 (A) Do as directed:** [07]

- I) One example of green chemistry
- II) Write structure of any one diene
- III) Write a structure of enantiomer
- IV) Write stereochemical structure of tartaric acid
- V) Give structure and example of alkyl halide
- VI) Example for epoxide
- VII) Structure of cycloalkane

**Q-4 (B) Answer the following in brief: (Any 4)** [08]

- I) Write a note on E and Z Nomenclature
- II) Write note on R and S nomenclature
- III) Write a note on Newman and Sawhorse Representation
- IV) Write a note on reactions of alcohols
- V) Write a note on preparation of ethers
- VI) Write a short note on green chemistry

**Q-5 Answer the following:** [10]

A) What do you mean by Chiral carbon, explain in detail conformational isomerism

OR

A) Write difference between Structural Isomerism, Geometrical Isomerism, Stereoisomerism

B) Explain with suitable examples stereoselective and stereospecific reactions

OR

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B) Explain reactions of epoxide and alkyl halide

**Q-6 Answer the following in detail. (Any 2)**

**[10]**

A) Explain following terms 1. Optical isomerism, 2. Fischer representation and Racemization

B) Explain the importance of Chemical bonding in organic chemistry

C) What are free radicals explain the stability of free radicals along with steps involved in generation of free radicals

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