

GUJARAT TECHNOLOGICAL UNIVERSITY
B. Pharm. - SEMESTER-3 • EXAMINATION – SUMMER -2018

Subject Code: 2230004**Date: 07/05/2018****Subject Name: Pharmaceutical Chemistry-IV (Organic Chemistry - I)****Time: 02:30 PM TO 05:30 PM****Total Marks: 80****Instructions:**

1. Attempt any five questions.
2. Make suitable assumptions wherever necessary.
3. Figures to the right indicate full marks.

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|-------------|-----|--|-----------|
| Q.1 | (a) | What are intermolecular forces? Comment on types of intermolecular forces with examples. | 06 |
| | (b) | Explain electro-negativity. Comment polarity of bonds and molecules with examples. | 05 |
| | (c) | Define bonding and anti-bonding orbital's and explain them in detail. | 05 |
| Q.2 | (a) | Give reasons for acceptance of Kekules structure of benzene. | 06 |
| | (b) | What are 1°, 2° & 3° hydrogen atoms? Comment on the ease of abstraction of each type of hydrogen atom. Support your answer with suitable reactions. | 05 |
| | (c) | What are nitrenes and carbenes? Comment on generation and reactions of different types of carbenes. | 05 |
| Q.3 | (a) | Classify alcohols with examples. Explain Lucas Test. | 06 |
| | (b) | Enlist various reactions for preparation of alcohols. Comment on oxymercuration-demercuration reaction for preparation of alcohols. | 05 |
| | (c) | Classify dienes and comment on stability of allyl radical. | 05 |
| Q.4 | (a) | Give three methods for preparation of alkanes with example. | 06 |
| | (b) | What is conformation? Explain conformation of n-butane with potential energy diagram. | 05 |
| | (c) | Explain Saytzeffs rule and Markonikov's rule with suitable examples. | 05 |
| Q.5 | (a) | Differentiate between E1 and E2 mechanism with examples. | 06 |
| | (b) | Comment on the following:
i. Water is liquid while hydrogen sulphide is gas at room temperature
ii. Tri-chloroacetic acid is more acidic than acetic acid. | 05 |
| | (c) | What are geometric isomers? Comment on orientation of double bond in E1 reaction with suitable example. | 05 |
| Q. 6 | (a) | What are nucleophilic substitution reactions? Explain mechanism and stereochemistry of SN2 reactions. | 06 |
| | (b) | What are alkynes? Give any four chemical reactions of alkynes with examples. | 05 |
| | (c) | Comment on the following:
i. Pi bonds are weaker than sigma bonds.
ii. Length of carbon-carbon triple bond is smaller than double bond. | 05 |
| Q.7 | (a) | Give structure and IUPAC nomenclature of the following:
Allyl alcohol, Isopropyl chloride, Dimethylacetylene, Isobutylene. | 06 |
| | (b) | Explain why primary alkyl halides follow SN2 mechanism of reaction. | 05 |
| | (c) | Comment in detail on utility of Grignard reactions in organic chemistry. | 05 |