

GUJARAT TECHNOLOGICAL UNIVERSITY
B.PHARM - SEMESTER- 3 EXAMINATION – SUMMER -2019

Subject Code: 2230004**Date: 07-06-2019****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.

- Q.1** (a) Give structural formula of the following compounds. **06**
1) Isobutene,
2) Cinnamyl alcohol,
3) 1,6-hexadiene,
4) 2,3- dimethyl-4-pentyne,
5) Vinyl bromide,
6) 2,2,4-trimethylpentane.
- (b) Explain different types of bond giving examples. **05**
(c) Write a note on Molecular orbital theory. **05**
- Q.2** (a) Justify the following statements. **06**
1) 1, 3-butadiene is more stable than 1, 2-butadiene.
2) Acetylene is more acidic than ethane.
3) Epoxides are more reactive than ether.
- (b) Write reactions of naphthalene and anthracene. **05**
(c) How will you distinguish between primary, secondary and tertiary alcohol? **05**
- Q.3** (a) What are polynuclear aromatic compounds? Explain in detail Haworth synthesis for naphthalene. **06**
(b) What is symmetrical and asymmetrical ether? Write a brief note Williamson's ether synthesis. **05**
(c) Define Nitrenes. Explain the structure and reactions of Nitrenes. **05**
- Q.4** (a) Give types, preparation and reaction of dienes. **06**
(b) Differentiate: SN1 and SN2 reactions. **05**
(c) Enumerate various methods for quantitative estimation of nitrogen. Describe in detail about Dumas method. **05**
- Q.5** (a) Define and explain following terms. **06**
1) Inductive effect,
2) Electrophile,
3) Stearic effect,
4) Polarity of bonds,
5) Carbanion,
6) Substitution reaction.
- (b) Define hybridization. Explain hybrid orbitals with examples. **05**
(c) State Saytzeff's orientation and Markovnikov rules with examples. **05**
- Q. 6** (a) Justify the following statements. **06**
1) Nitro group, when attached to benzene, activates the ring.
2) Bromination of alkane is more selective than chlorination.
3) Benzene undergoes electrophilic substitution reaction.
- (b) Differentiate: E2 and E1 mechanism of elimination. **05**

- (c) What are epoxides? Explain anti hydroxylation by the cleavage of epoxides. **05**
- Q.7** (a) Give structural formula of the following compounds. **06**
- 1) Diallyl ether,
 - 2) Cis-4-methyl-2-pentene,
 - 3) 2,2,3,3 tetramethylhexane
 - 4) β -naphthol,
 - 5) m-xylene,
 - 6) Isopropylbenzene.
- (b) Describe the importance of resonance and hyperconjugation in stability and reactivity of molecules. **05**
- (c) Write the mechanism and limitations of Friedel-Crafts acylation of benzene. **05**
