

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) Steric 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**
