

Seat No.: \_\_\_\_\_

Enrolment No. \_\_\_\_\_

**GUJARAT TECHNOLOGICAL UNIVERSITY**  
**B.Ph. - SEMESTER- IV • EXAMINATION – SUMMER 2018**

**Subject Code: 2240004****Date: 21/05/2018****Subject Name: Pharmaceutical Chemistry-VI (Organic Chemistry-II)****Time: 10:30 AM TO 01:30 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)** Draw structure for the following compounds. **06**
- 1) trans-1-bromo-3-chlorocyclobutane    2) cis-3-chloro-1-butene  
3) 2-bromo-4-chloropentane    4) 3-chloro-2-butanol  
5) (S)-3-chloro-1-pentanol    6) (2S,3R)-3-methyl-2-pentanol
- (b)** Write a Short note on stereochemistry of Biphenyls. **05**
- (c)** Define the following terms: **05**
- i) Specific Rotation  
ii) Racemic mixture  
iii) Configuration  
iv) Enantiomer  
v) Geometrical isomerism
- Q.2 (a)** Explain the following reactions. **06**
- i) Kolbe reaction of Phenols  
ii) Michael addition
- (b)** Discuss with mechanism Perkin reaction to synthesize  $\alpha$ ,  $\beta$ -unsaturated carbonyl compounds. **05**
- (c)** What are Phenols? How phenols are prepared? **05**
- Q.3 (a)** What do you mean by Nucleophilic aromatic substitution reaction? Give mechanism for Elimination –addition reaction for aryl halides. **06**
- (b)** Explain the Hofmann degradation of amides. **05**
- (c)** Explain the mechanism involved in Aldol condensation. **05**
- Q.4 (a)** What do you mean by conformation? Discuss the stability and potential energy changes of all conformations for n-pentane considering bond between C<sub>2</sub> and C<sub>3</sub>. **06**

- (b) How will convert the following. 05
- i) Acetophenone to  $\alpha$ -Phenyl ethyl alcohol.
  - ii) Benzoyl chloride to Ethyl benzoate
  - iii) Toluene to Benzylamine
  - iv) Toluene to *o*-Bromotoluene
  - v) Nitrobenzene to *m*-bromophenol
- (c) What are Acid derivatives? Discuss the preparation and reactions of Esters. 05
- Q.5** (a) Discuss the Neucleophilic addition reactions for carbonyl compounds. 06
- (b) What are nano particles? How nano particles are used in Pharmacy. 05
- (c) Give the structure of the following compounds: 05
- i) 3,5-Dinitrobenzoyl Chloride
  - ii) *p*-hydroxyphenylacetic acid
  - iii) N,N-Dimethylaminocyclohexane
  - iv) *o*-Chloroanisole
  - v) Ethyl isopropyl ketone
- Q.6** (a) What are heterocyclic compounds? Give the preparations and reactions of pyridine. 06
- (b) Give the structure of the following. 05
- 1) Pyrazine 2) Imidazole 3) Isoquinoline 4) Thiazole 5) Indole
- (c) Comment on the following. 05
- i) Electrophilic substitution in Pyrrole occurs at 2<sup>nd</sup> position rather than 3<sup>rd</sup> position.
  - ii) Thiophene is more basic than furan.
- Q.7** (a) Give preparation and reactions of diazonium salt. 06
- (b) Write a note on green chemistry. 05
- (c) Give applications of microwave synthesis in chemistry. 05

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