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 α, β-unsaturated carbonyl compounds. **05**

(c) What are Phenols? How phenols are prepared? **05**

Q.3 **(a)** What do you mean by Neucleophilic 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_2 and C_3. **06**

(b) How will convert the following. **05**

i) Acetophenone to α-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^{nd} position rather than 3^{rd} 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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