

GUJARAT TECHNOLOGICAL UNIVERSITY

B.PHARM- SEM-IV-EXAMINATION – MAY 2012

Subject code: 240003

Date: 25/05/2012

Subject Name: Pharmaceutical Chemistry- IV

Time: 10:30 am – 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. What are atropisomers ? Which type of compound shows this type of isomerism? How? How will you define configuration of atropisomer? Explain with suitable example. (6)
- b. What is conformation? What are the different possible conformations of 1,2-dibromoethane? Which one is more stable? Why? (4)
- c. Acetaldehyde and ethyl bromide on Grignard reaction gave product A? What is product A? Discuss about its stereochemistry and define configuration. (6)
- Q.2. Write a note on following reactions (Give reaction mechanism) 4 x 4
1. Friedle Craft acylation
 2. Sandmeyer reaction
 3. Riemer Tiemann reaction
 4. Hofmann degradation of amide
- Q.3. a. How carbonyl compounds are converted to alkane? Write in detail about the reactions used for it. (6)
- b. How diethyl malonate is useful in the synthesis of various carboxylic acids? Give reaction with mechanism. (4)
- c. What is green chemistry? What are the approaches to achieve it? Discuss it suitable example. (6)
- Q.4. How will you convert following 4 x 4
- a. 2-Hydroxy-2-phenylacetic acid from benzaldehyde
 - b. 1-Phenyl-1,3-butadiene from benzaldehyde
 - c. β -Phenylethylamine from toluene
 - d. *p*-Aminobenzoic acid from bromobenzene
- Q.5. a. Give detail account on nitration of benzene with mechanism of reaction. Discuss about the orientation of the product form towards the electrophilic substitution reaction. (6)
- b. How bromobenzene is converted to aniline? Give mechanism of reaction. (4)
- c. α,β -Unsaturated carbonyl compounds undergo nucleophilic and electrophilic addition reactions on unsaturated bond. How? Discuss with suitable example and mechanism. (6)

- Q.6. a. Which are the functional derivatives of carboxylic acid? Give two methods for preparation of each. What are the applications of these products? (8)
- b. What will be the products form when cumene is air oxidized and then acid hydrolysed? Give reaction and mechanism of reaction. After separation of products what will be the product form when low boiling product is heated with 50% solution of potassium hydroxide and high boiling product is reacted with bromine water? (8)
- Q.7. a. Explain with suitable example.
- i. Meso compound ii. Allenes iii. Stereoselective reaction (6)
- b. How microwaves are useful in organic synthesis? Give its applications and limitations with suitable examples. (4)
- c. What is racemic mixture? Why it is important to resolve racemic mixture? What are the methods used to resolve it? (6)
