

GUJARAT TECHNOLOGICAL UNIVERSITY

B. Pharm. - SEMESTER- IV • EXAMINATION – SUMMER-2016

Subject Code: 2240004

Date: 01/06/2016

Subject Name: Pharmaceutical Chemistry-VI (Organic Chemistry-II)

Time: 10:30 AM to 1:30 PM

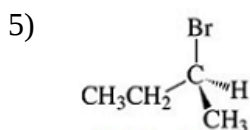
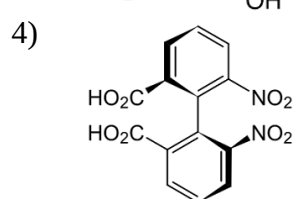
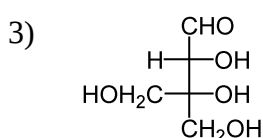
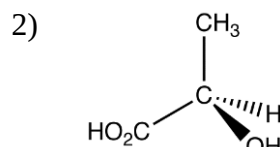
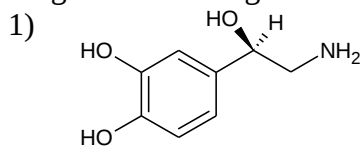
Total Marks: 80

Instructions:

1. Attempt any five questions.
2. Make suitable assumptions wherever necessary.
3. Figures to the right indicate full marks.

Q.1 (a) What is racemic modification? Enlist different methods of resolution of racemic modifications and explain any one method in detail. **06**

(b) Assign R & S configuration for following : **05**



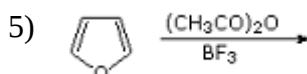
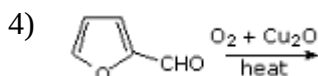
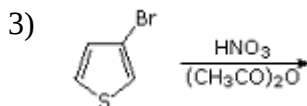
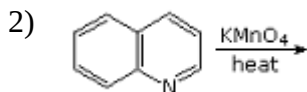
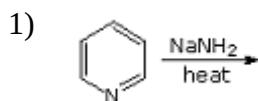
(c) What is configuration and conformation? Explain with suitable examples. Write in brief about Atropisomerism. **05**

Q.2 (a) Give the structure and numbering of following : **06**

- | | | |
|-------------------|-----------------|---------------|
| i) Furan | ii) Oxazole | iii) Pyrazine |
| iv) Benzimidazole | v) Isoquinoline | vi) Indole |

(b) Give the synthesis and reactions of pyridine **05**

(c) Predict the product for the following reactions : **05**



- Q.3** (a) Write a short note on followings (Any Two): **06**
1) Knoevenagel condensation 2) Hofmann rearrangement
3) Aldol condensation
- (b) Answer the following (Any Two): **05**
1) Why thiophene is more stable and more aromatic than pyrrole and furan ?
2) Why pyridine undergoes electrophilic substitution at β -position ?
3) Why pyrrole is weak base than pyridine?
- (c) Describe in detail about Nucleophilic aromatic substitution reaction with suitable examples. **05**
- Q.4** (a) Explain why aldehydes are more reactive than Ketones for nucleophilic addition reaction and add a note on Cannizzaro reaction ? **06**
- (b) Answer the following (Any Two): **05**
1) Describe how primary, secondary and tertiary amines can be distinguished from one another ?
2) How will you differentiate the following pair of compounds by simple chemical test ?
i) Pentanal and Pentanone ii) Aniline and phenol
3) What is the correct order of reactivity (most reactive first) of pyrrole furan and thiophene towards electrophiles?
- (c) Write short notes on **05**
1) Grignard reactions of Aldehydes and Ketones
2) Claisen Ester synthesis
- Q.5** (a) Write short notes on (any two) : **06**
1) Fischer indole synthesis 2) Knorr Pyrrole synthesis
3) Skraup Quinoline synthesis
- (b) Give two methods of synthesis and two reactions of any two of the following heterocycles : **05**
1) Furan 2) Pyridine 3) Pyrrole
- (c) Explain acid catalyzed esterification of carboxylic acids **05**
- Q. 6** (a) What are diastereomers ? Explain with suitable examples **06**
(b) Write in brief conformational analysis of n-Butane **05**
(c) Give two methods of synthesis & reactions of carboxylic acid and its derivatives **05**
- Q.7** (a) Describe in details about principles and applications of nanochemistry **06**
(b) Enlist the "Green chemical principles". Give a brief account of green chemistry, its advantage and add a note on reactions using microwave energy. **05**
(c) Write short notes on (any two) : **05**
1) Wittig reaction 2) Michael addition reaction 3) Perkin condensation
