

GUJARAT TECHNOLOGICAL UNIVERSITY
BE - SEMESTER-IV EXAMINATION – WINTER 2015

Subject Code: 143501**Date: 22/12/2015****Subject Name: Organic Chemistry for Technologist-II****Time: 02:30pm to 05:00pm****Total Marks: 70****Instructions:**

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

Q.1 (a) Define Nucleophilic substitution reaction. Explain SN^1 and SN^2 reaction with mechanism. **07**

(b) How is Phenol prepared? How does phenol react with the following reagents? **07**

- | | |
|------------|--------------------|
| a. Zn/heat | b. Br_2/H_2O |
| c. HNO_2 | d. Conc. H_2SO_4 |
| e. HNO_3 | f. H_2/Ni |

Q.2 (a) Explain Pinacol-Pinacolone rearrangement with mechanism. **07**

(b) How will you convert phenol into:
1. Salicylic acid. **04**
2. Salicylaldehyde. **03**

OR

(b) Explain why,
a. Methyl group acts as ortho-para director. **03**
b. Nitro group acts as meta director. **04**

Q.3 (a) Give only chemical reaction for following:

- | | |
|---------------------------------------|-----------|
| a. Benzene \rightarrow Aniline | 03 |
| b. Toluene \rightarrow Chloramine-T | 04 |

(b) How is Aniline prepared in the laboratory? Describe its important reaction. **07**

OR

Q.3 (a) Write a note on: Skraups Synthesis. **07**

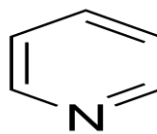
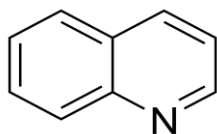
(b) How is Pyrrole synthesized? What happens when pyrrole treated with the following reagents: **07**

1. Nitric acid in acetic anhydride at -10^0C .
2. Sulfur trioxide in pyridine.
3. Benzenediazonium chloride.
4. Bromine in alcohol.

Q.4 (a) Write a note on: Reduction of Nitro aromatic compound. **07**

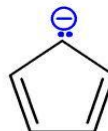
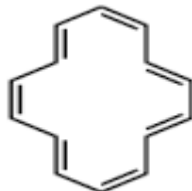
(b) 1. Give IUPAC name for following compounds; **02**

a.



2. State whether the following compounds are aromatic or non-aromatic. Give reason also. **02**

a.



3. How will you synthesize 4, 4'-Benzidine from Nitrobenzene? **03**

OR

Q.4 (a) How is Pyridine synthesized? Describe its important reactions. **07**

(b) Write a note on: Biological Importance of Heterocyclic compound. **07**

Q.5 (a) Explain Hydroboration-Oxidation reaction with mechanism in detail. **07**

(b) Write a note on: Benzilic acid rearrangement mechanism. **07**

OR

Q.5 (a) Name the following reaction and Explain its mechanism & application in detail. **07**



(b) Describe the rules of Aromaticity and also explain why thiophene is aromatic in nature. **07**
