

GUJARAT TECHNOLOGICAL UNIVERSITY
BE - SEMESTER- IV EXAMINATION – SUMMER • 2014

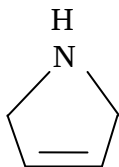
Subject Code: 143501**Date: 16-06-2014****Subject Name: Organic Chemistry for Technologist -II****Time: 10:30 am - 01:00 pm****Total Marks: 70****Instructions:**

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

- Q.1** (a) Explain Hydroboration-Oxidation reaction with mechanism in detail. **07**
(b) Explain why, **07**
a. Methyl group ($-\text{CH}_3$) acts as ortho-para director.
b. Nitro group ($-\text{NO}_2$) acts as meta director.

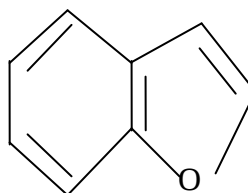
- Q.2** (a) 1. Give IUPAC name for following compound: **02**

a.



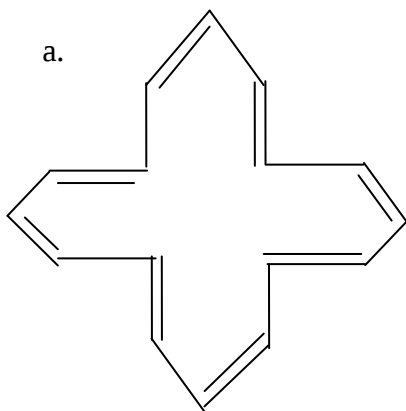
(give name by using, delta)

b.

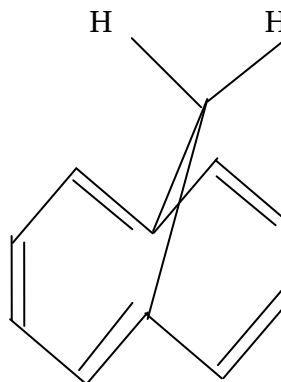


2. State whether the following compounds are aromatic or non-aromatic. Give reason also. **02**

a.



b.



3. How will you convert Nitrobenzene into 4, 4'-Benzidine? **03**

- (b) Distinguish between SN^1 and SN^2 reaction with mechanism? **07**

OR

- (b) Give only chemical reaction for following:

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

- Q.3 (a)** 1. What happens when, **03**
 a. Aniline is treated with nitrous acid at 0-5°C.
 b. Phenol is heated with CCl₄ in the presence of NaOH Solution and then with dilute HCl?
 2. Explain why p-nitrophenol is a stronger acid than Phenol? **02**
 3. How will you synthesized Sulfanilamide from Aniline? **02**
(b) How will you convert: **07**
 a. Toluene → Saccharin
 b. Phenol → Salicylaldehyde
 c. Benzene → DDT

OR

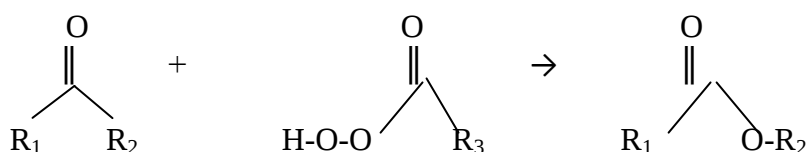
- Q.3 (a)** How is furan synthesized? Describe its important reaction. **07**
(b) Explain why,
 a. o-nitrophenol is steam volatile whereas p-nitrophenol is not? **04**
 b. Aniline is more reactive than benzene in friedel – craft reaction. **03**

- Q.4 (a)** How is pyridine synthesized? How does it react with the following reagents: **07**
 a. KNO₃/H₂SO₄ at 300°C
 b. Fuming H₂SO₄ at 250°C
 c. Br₂ at 300°C
 d. NaNH₂ at 100°C
 e. H₂/Ni
 f. C₆H₅Li at 100°C
(b) Explain Pinacole - Pinacolone rearrangement with mechanism. **07**

OR

- Q.4 (a)** 1. Compound (A) C₆H₆O is soluble in NaOH when treated with CHCl₃ & NaOH; it forms (B) (Reimer-Tiemann reaction). Compound (B), an oxidation gives (C) which reacts with acetic anhydride in the presence of a small amount of H₂SO₄ to form (D), C₉H₈O₄. Deduce the structural formulas of (A), (B), (C) & (D). Write equation for the reaction involved. **04**
 2. How will you distinguish between N-methylaniline and N, N-dimethylaniline? **03**
(b) Describe the rules of Aromaticity and also explain why thiophene is aromatic in nature. **07**

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



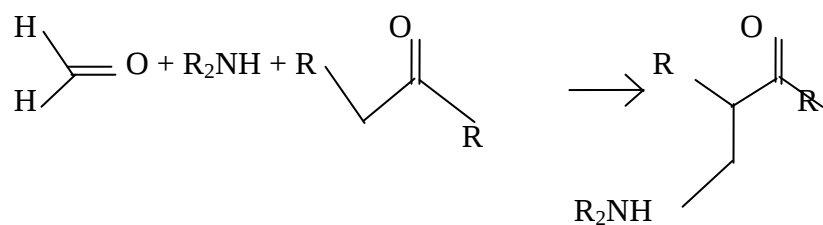
per acid

where, R₃ = -C₆H₅

- (b)** Write a note on: Reformatsky reaction with mechanism. **07**

OR

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



(b) What is a Friedel-Craft reaction? Explain Friedel-Craft alkylation and acylation reaction of benzene with mechanism. **07**
