## **GUJARAT TECHNOLOGICAL UNIVERSITY** BE - SEMESTER- IV EXAMINATION - SUMMER • 2014

Su	bject	Date: 16-06-2014		
Su Tii Ins	bject me: 1 truction	Name: Organic Chemistry for Technologist -11 0:30 am - 01:00 pm	Total Marks: 70	
	1. 2. 3.	Attempt all questions. Make suitable assumptions wherever necessary. Figures to the right indicate full marks.		
Q.1	(a) (b)	<ul> <li>Explain Hydroboration-Oxidation reaction with mechanism</li> <li>Explain why,</li> <li>a. Methyl group (-CH<sub>3</sub>) acts as ortho-para director.</li> <li>b. Nitro group (-NO<sub>2</sub>) acts as meta director.</li> </ul>	in detail. 07 07	
Q.2	(a)	1. Give IUPAC name for following compound: a. H N b. (give name by using delta)	02	

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



3. How will you convert Nitrobenzene into 4, 4'-Benzidine?	03
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(b) Distinguish between  $SN^1$  and  $SN^2$  reaction with mechanism?

## OR

Give only chemical reaction for following:				
a.	Benzene $\rightarrow$ Aniline	03		
b.	Toluene $\rightarrow$ Chloramine-T	04		
	Giv a. b.	<ul> <li>Give only chemical reaction for following:</li> <li>a. Benzene → Aniline</li> <li>b. Toluene → Chloramine-T</li> </ul>		

07

Q.3	(a) (b)	<ol> <li>What happens when,         <ul> <li>Aniline is treated with nitrous acid at 0-5<sup>0</sup>C.</li> <li>Phenol is heated with CCl<sub>4</sub> in the presence of NaOH Solution and then with dilute HCl?</li> <li>Explain why p-nitrophenol is a stronger acid than Phenol?</li> <li>How will you synthesized Sulfanilamide from Aniline?</li> <li>How will you convert:                 <ul> <li>Toluene → Saccharin</li> <li>Phenol → Salicyaldehyde</li> <li>Benzene → DDT</li></ul></li></ul></li></ol>	03 02 02 07
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? b. Aniline is more reactive than benzene in friedel – craft reaction.	04 03
Q.4	(a)	How is pyridine synthesized? How does it react with the following reagents: a. $KNO_3/H_2SO_4$ at $300^{0}C$ b. Fuming $H_2SO_4$ at $250^{0}C$ c. $Br_2$ at $300^{0}C$ d. $NaNH_2$ at $100^{0}C$ e. $H_2/Ni$ f. $C_6H_5Li$ at $100^{0}C$	07
	<b>(b</b> )	Explain Pinacole - Pinacolone rearrangement with mechanism.	07

## OR

Q.4 (a) 1. Compound (A) C<sub>6</sub>H<sub>6</sub>O is soluble in NaOH when treated with CHCl<sub>3</sub> & 04 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 H<sub>2</sub>SO<sub>4</sub> to form (D), C<sub>9</sub>H<sub>8</sub>O<sub>4</sub>. Deduce the structural formulas of (A), (B), (C) & (D). Write equation for the reaction involved.
2. How will you distinguish between N-methylaniline and N, N- 03 dimethylaniline?

- (b) Describe the rules of Aeromaticity and also explain why thiophene is aromatic 07 in nature.
- Q.5 (a) Name the following reaction and Explain its mechanism & application in detail. 07



per acid where,  $R_3 = -C_6H_5$ (b) Write a note on: Reformatsky reaction with mechanism. 07

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 07 reaction of benzene with mechanism.

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