
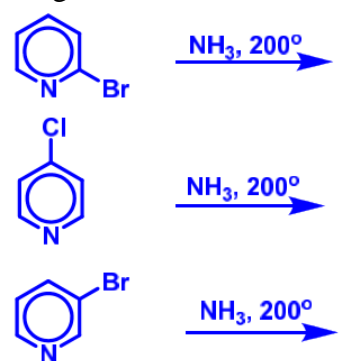
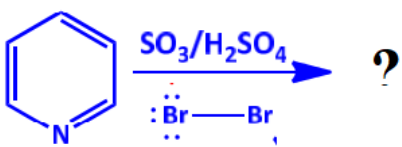
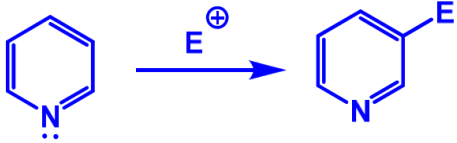


Name:			
Enrolment No:			
UNIVERSITY OF PETROLEUM AND ENERGY STUDIES End Semester Examination, Dec 2021			
Course: Chemistry of Heterocyclic Compounds Program: M.Sc. Chemistry Course Code: CHEM 8027P		Semester: III Time 03 hrs. Max. Marks: 100	
SECTION A			
1. Section A: Each Question will carry 4 Marks 2. Instruction: Complete the statement / Select the correct answer(s)			
S. No.	Questions	CO	Max Marks
Q 1	Discuss about the basicity of Pyridine	CO1	4
Q 2	Which ring is more electrophilic among Benzene and Pyridine? Give reasons	CO1	4
Q 3	Electrophilic aromatic substitution on 5 membered heterocycles is regioselective at the alpha position. Give reasons	CO1	4
Q4	Mention the reagents used for the conversion of substituted amide to aryl aldehyde	CO1	4
Q5	Which reagents are required for the nitration and sulfonation of Furan by Electrophilic aromatic substitution reaction.	CO1	4
SECTION B			
1. Each question will carry 10 marks 2. Instruction: Write short / brief notes			

Q 6	Explain the mechanism of a reaction for the formation of amino alkylated 5-membered heterocyclic compounds.	CO2	10
Q 7	Discuss the chemical properties of Pyridine in terms of electrophilic and nucleophilic reactions	CO2	10
Q 8	Give an account of the nucleophilic substitution reactions of α -halogenated 6-membered heterocycles	CO2	10
Q 9	<p>Identify the products for the following reactions</p>  <p style="text-align: center;">OR</p> <p>Complete the following reaction with a detailed mechanism</p> 	CO2	10
SECTION-C			
<p>1. Each Question carries 20 Marks. 2. Instruction: Write long answer.</p>			

Q 10	<p>Write the detailed mechanism of a Mannich Reaction.</p> <p style="text-align: center;">OR</p> <p>Write the detailed mechanism of Vilsmeier-Haack Reaction</p>	CO3	20
Q 11	<p>Explain the reason for the following conversion</p> <div style="text-align: center;">  <p>The diagram shows a chemical reaction where a pyridine ring (with two lone pairs on the nitrogen atom) reacts with an electrophile E^+. An arrow points from the pyridine ring to the product, which is a 3-substituted pyridine ring (with the substituent E at the meta position relative to the nitrogen).</p> </div>	CO3	20