Name:

Enrolment No:

UNIVERSITY OF PETROLEUM AND ENERGY STUDIES
End Semester Examination, May 2022

Course: Organic Chemistry III — **Semester: IV**
Program: BSc. Honors — **Time : 03 hrs.**
Course Code: — **Max. Marks: 100**

Instructions:

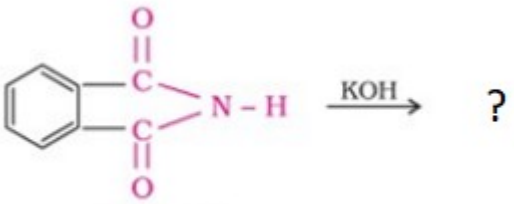
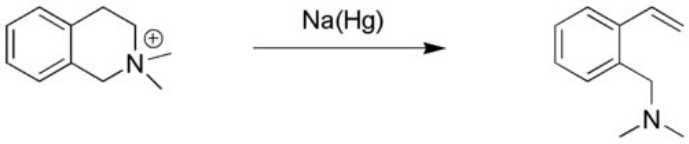
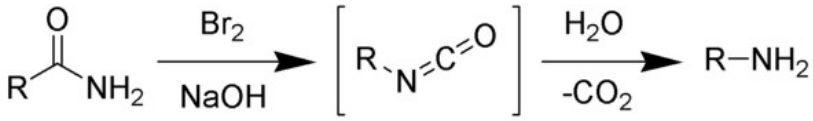
SECTION A
(5Qx4M=20Marks)

S. No.		Marks	CO
Q 1	What is the significance of isoprene rule ?	**4**	**CO1**
Q2	How will you differentiate between the 2 isomers having a formula CH_3NO_2 ?	**4**	**CO1**
Q3	Is it possible for tertiary amines to undergo acetylation ? Explain why.	**4**	**CO2**
Q4	Arrange primary, secondary, and tertiary amines on the basis of increasing basicity. Provide an explanation to this trend.	**4**	**CO2**
Q5	Protonation of nitroalkanes in the presence of metal catalyst results in the formation of _____. Write the mechanism for the reaction.	**4**	**CO2**

SECTION B
(4Qx10M= 40 Marks)

Q6	a. Write a detailed stepwise mechanism for the formation of amide from nitrile. b. Write the mechanism of Emde Degradation in alkaloids	**5+5**	**CO3**
Q7	Differentiate between the Hoffman degradation reaction and the Hoffman rearrangement.	**5+5**	**CO3**
Q8	Describe mechanistically the formation primary aromatic amines from aromatic carboxylic acids.	**10**	**CO1**
Q9	Write a note on the synthesis of pyrrole by Parr Knoll method. Write the detailed mechanism for the reaction. **OR** Write a chemical reactions that help to identify the presence of unsaturation and carbonyl functional group in terpenes.	**5+5**	**CO3**

SECTION-C
(2Qx20M=40 Marks)

Q10	a. Differentiate between the Curtius reaction and Curtius rearrangement with detailed mechanism. b. Complete the following reaction with a suitable mechanism  Phthalimide **OR** Write mechanism for the following reactions **A.**  **B.**  	**10+10**	**CO4**
Q11	a. Discuss the suitability of Pyridine ring towards electrophilic and nucleophilic reactions with suitable examples. b. Discuss the mechanism for the formation of salts from primary nitroalkanes in the presence of a basic medium. How will you detect the formation of these salts? Provide a suitable chemical test for the same.	**10+10**	**CO4**