Exam. Code : 107402
Subject Code : 1840

B.Sc. (Biotechnology) 2nd Semester

ORGANIC CHEMISTRY—B

Paper : BT-4

Time Allowed—Three Hours] [Maximum Marks—40

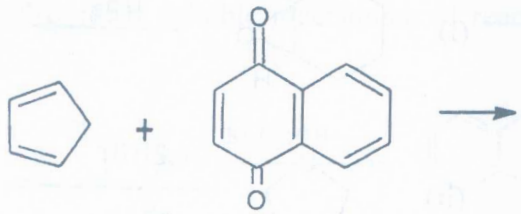
Note :—(1) Attempt **FIVE** questions in all, selecting at least **ONE** question from each section.

(2) The fifth question may be attempted from any section. Each question is of **8** marks.

SECTION—A

1. (a) Write a short note on Diel's Alder reaction, describe the mechanism and discuss the Orbital Symmetry and Diel's Alder reaction.

(b) Give the product of following reaction :



6,2

2. (a) Explain the acidic nature of Alkynes and compare it with alkanes and alkenes.

(b) Explain with Mechanism the Metal Ammonia Reduction, give its applications. 4,4

SECTION—B

3. (a) Discuss the regioselectivity of acid catalysed ring opening of unsymmetrical oxiranes.

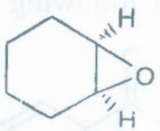
(b) Anisole is prepared by reaction between sodium phenoxide and methyl bromide and not by the reaction between sodium meth oxide and bromo benzene. 4,4

4. (a) Draw the structure of 12-crown-4.

(b) Give the structure of metamer of diethyl ether and give its IUPAC name.

(c) How will you convert ethylene oxide to hexan-1-ol ?

(d) Complete the reaction :

(i) 

(ii) 

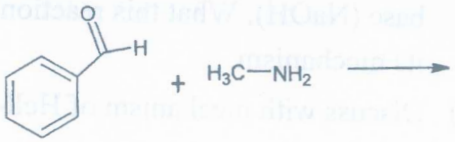
2,2,2,2

SECTION—C

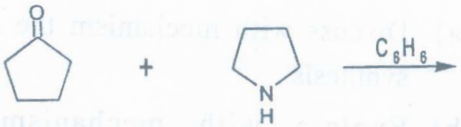
5. (a) Sketch and discuss the mechanism of Conjugate additions in unsaturated carbonyl compounds.

(b) Complete the following reactions :

(i)



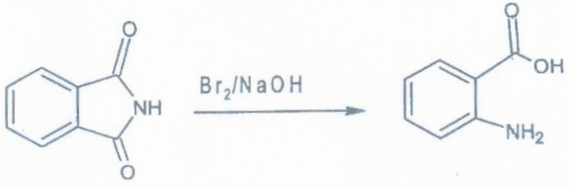
(ii)



(c) What is meant by Hydration of carbonyl compounds ? Explain the significance of hydration constant. 4,2,2

6. (a) Provide the suitable conditions and write the reaction sequence for the following reaction and explain its mechanism. Give the name reaction involved in the conversion :

(b) Provide a suitable mechanism of reaction :



4,4

SECTION—D

7. (a) Explain the formation of β-hydroxy Aldehydes when an aldehyde is reacted in the presence of a base (NaOH). What this reaction is called, explain its mechanism.

   (b) Discuss with mechanism of Hell-Volhard-Zelinsky reaction. 4,4

8. (a) Discuss with mechanism the Aceto acetic ester synthesis.

   (b) Explain with mechanism the Hofmann rearrangements of N-Bromamides. 4,4