Reg. No. | | | | | | | | | |

OCH 551

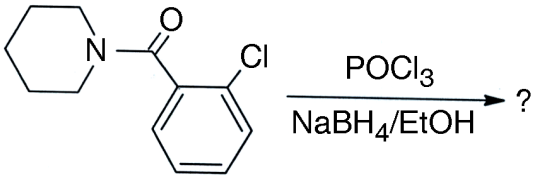
IV Semester M.Sc. Examination, September/October 2022
(CBCS – 2016-17 Syllabus)
(Freshers and Repeaters)
ORGANIC CHEMISTRY
Organic Synthetic Methods

Time : 3 Hours Max. Marks : 70

Note *: Answer* ***all*** *questions from Part –* ***A*** *and* ***any four*** *questions from Part –* ***B****.*

PART – A

1. a) Write the product formed in the following reaction : **(9×2=18)**



b) Propose the mechanism for the reaction of nitrile with DIBAL.

c) What is hydrogenolysis ? Give an example.

d) What is Lemieux-Johnson reagent ? Give its one use.

e) Give one synthetic use of oxone in organic synthesis.

f) What is PCC ? Give an application.

g) Define synthons and synthetic equivalents.

h) How is carboxyl group protected ?

i) Illustrate one group C-X disconnection with an example.

PART – B

Answer **any four** full questions of the following : **(4×13=52)**

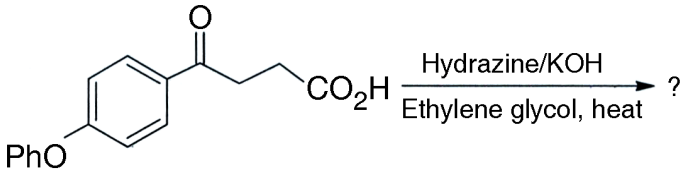
2. a) What is McMurry reaction ? Discuss its applications in organic synthesis.

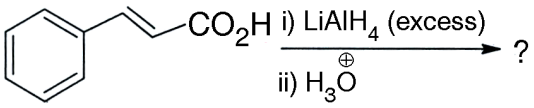
b) Explain the mechanism of Clemmensen reduction.

c) Write a note on Birch reduction. **(5+3+5=13)**

P.T.O.

3. a) Predict the products in the following reactions and outline their mechanisms.

i) 

ii) 

b) How are diimides generated ? Give any two applications.

c) Write a note on stereochemistry of ketone reduction using $LiAlH_4$. **(5+4+4=13)**

4. Discuss the synthetic uses of the following reagents :

a) O_3

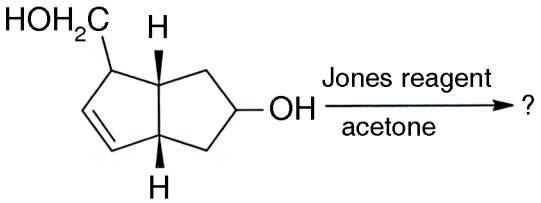
b) Des-Martin periodinane

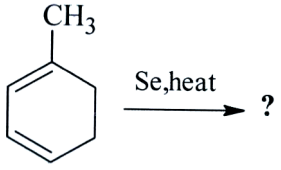
c) Pb $(OCOCH_3)_4$. **(3+4+6=13)**

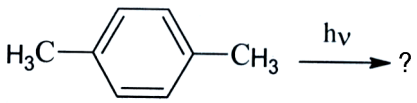
5. a) Discuss the applications of periodic acid in organic synthesis.

b) Write a note on dehalogenation reactions.

c) Sketch the products formed in the reactions given below and outline their mechanism :

i) 

ii) 

iii) 

(4+3+6=13)

6. Discuss the retrosynthetic analysis and synthesis of the following :

   i) Warfarin

   ii) p-methoxyacetophenone

   iii) Nitrofurazone. **(4+4+5=13)**

7. a) Give an account of principles and technologies used in the disconnection approach.

   b) Sketch the retrosynthetic scheme and write the synthesis of pentalenolactone.

   c) Write a note on functional group interconversion. **(4+5+4=13)**
