

Reg. No.

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**OCH 551**

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

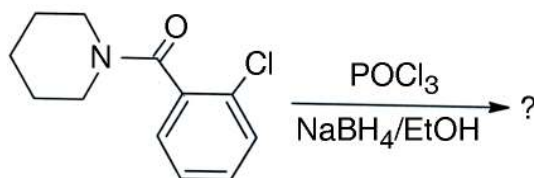
Time : 3 Hours

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**

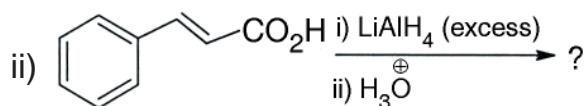
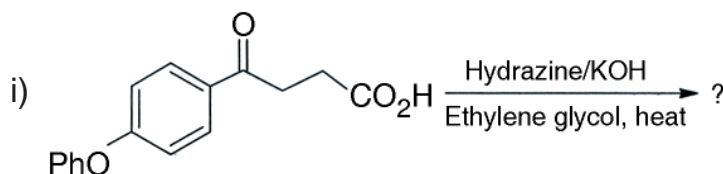
Answer **any four** full questions of the following : **(4×13=52)**

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.



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

c) Write a note on stereochemistry of ketone reduction using  $\text{LiAlH}_4$ . (5+4+4=13)

4. Discuss the synthetic uses of the following reagents :

a)  $\text{O}_3$

b) Des-Martin periodinane

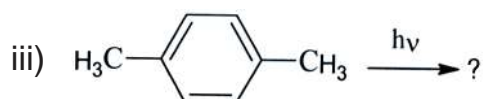
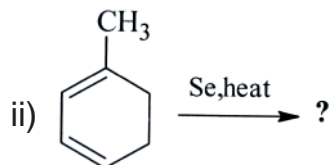
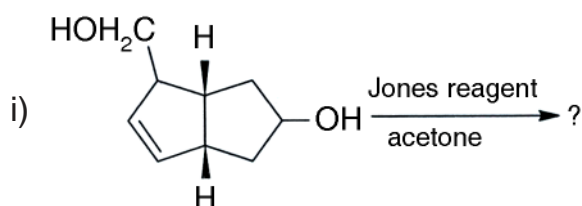
c)  $\text{Pb}(\text{OCOCH}_3)_4$ .

(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 :



(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)**

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