

This question paper contains 5 printed pages]

NEPWT—87—2024

FACULTY OF SCIENCE AND TECHNOLOGY

M.Sc. (Second Year) (Third Semester) EXAMINATION

NOVEMBER/DECEMBER, 2024

ORGANIC CHEMISTRY

Paper-I (SCHECT-1502)

(Organic Synthesis)

(Thursday, 12-12-2024)

Time : 2.00 p.m. to 5.00 p.m.

Time—3 Hours

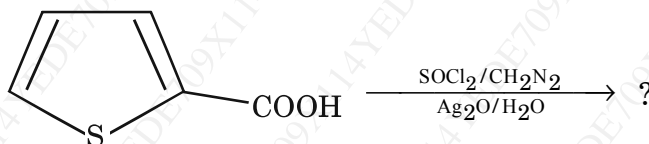
Maximum Marks—80

N.B. :— (i) Question No. 1 is compulsory.

(ii) Solve any *three* from remaining five questions.

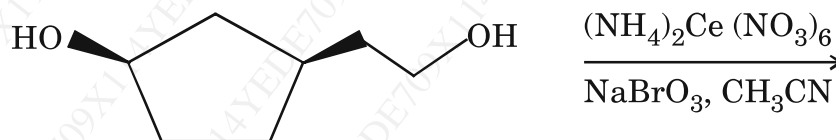
1. Solve the following : 20

(a) Predict the product of the following reaction with mechanism :



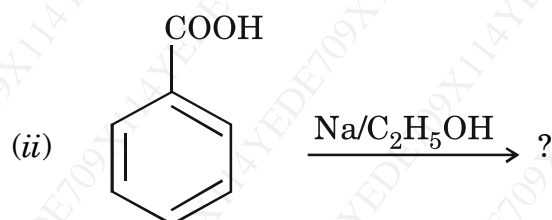
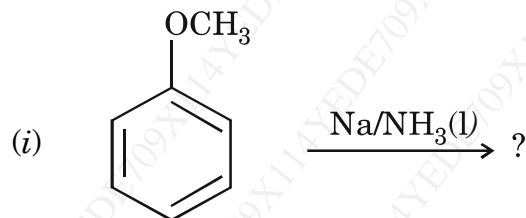
(b) Explain Vilsmeier-Haack reaction with mechanism.

(c) Predict the product of the following reaction ? Comment on its chemoselectivity :



P.T.O.

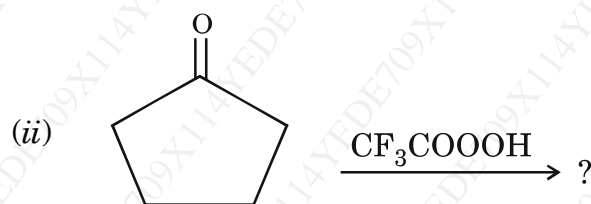
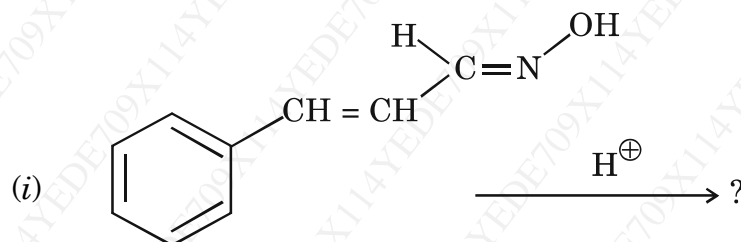
(d) Complete the following reaction :



2. Answer the following :

20

(a) Complete and outline the mechanism of the following reaction :



(b) Give the uses of the following oxidising agent with mechanism in organic synthesis :

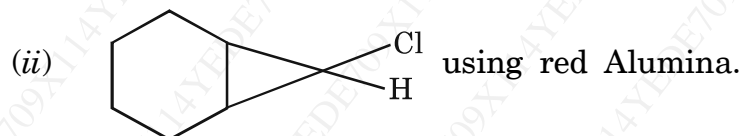
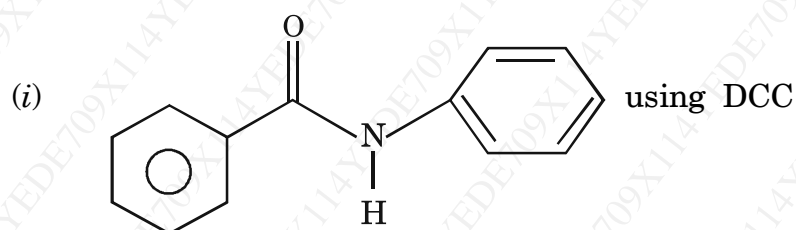


3. Explain the following : 20

(a) What is Corey-Winter olefination ? Explain with suitable example and mechanism.

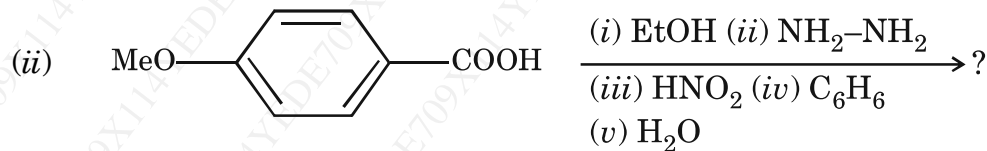
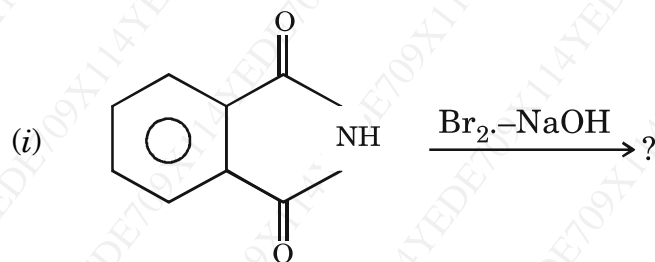
(b) How will you obtain the following compounds using suitable reagent ?

Explain with mechanism :



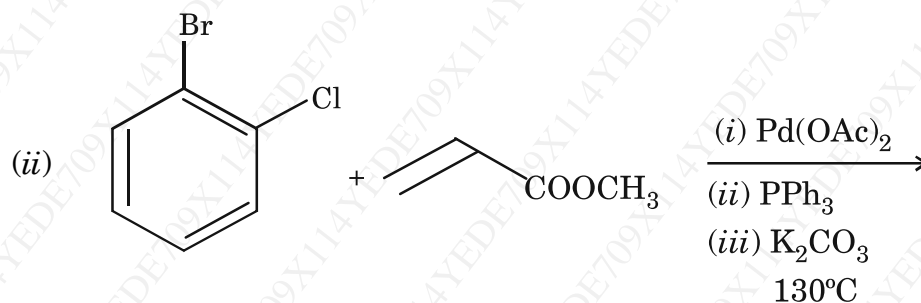
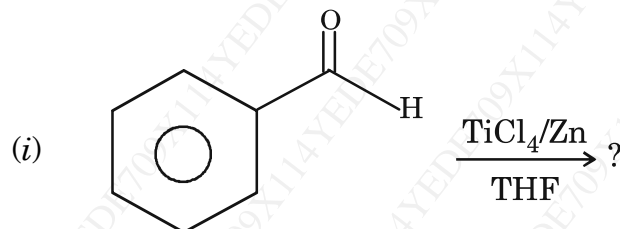
4. Solve the following :

(a) Predict the product of the following reaction with mechanism : 20



P.T.O.

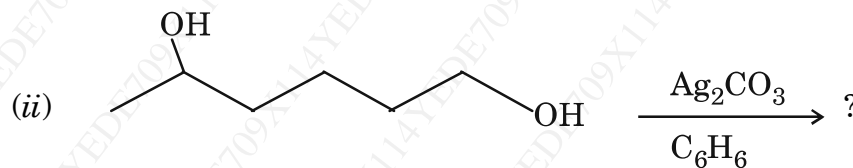
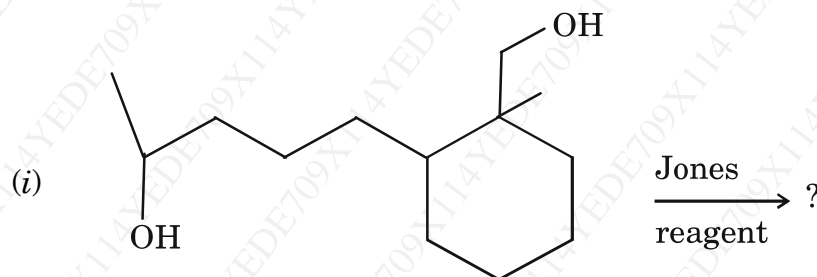
(b) Predict the product of the following reactions with mechanism :



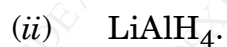
5. Solve the following :

20

(a) Predict the product of the following reaction with mechanism :



(b) How will you convert carboxylic acid into alcohol using the following reagents, explain with mechanism :



6. Write short notes on the following :

20

- (a) Pinacol-pinacolone rearrangement
- (b) Bathford Steven's and discuss role of solvent
- (c) Lead tetraacetate
- (d) Hydrogenolysis using BBr_3 and HI.