

This question paper contains 7 printed pages]

NY—166—2023

FACULTY OF SCIENCE AND TECHNOLOGY

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

NOVEMBER/DECEMBER, 2023

(New/CBCS Pattern)

ORGANIC CHEMISTRY

Paper XVII (OCH-513)

(Organic Synthesis)

(Saturday, 9-12-2023)

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

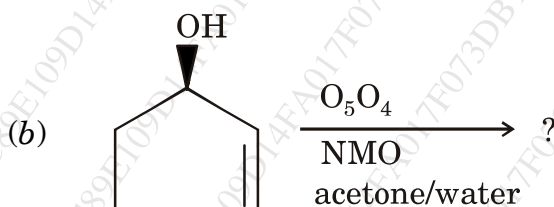
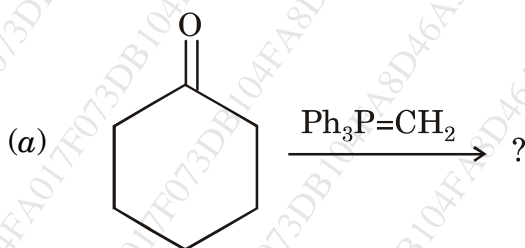
Time—Three Hours

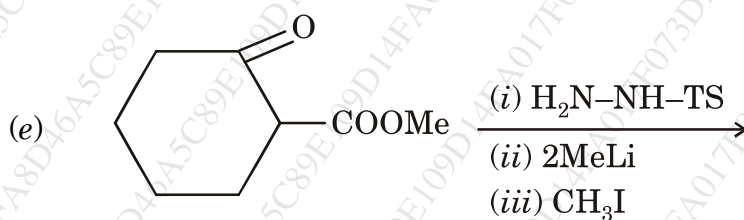
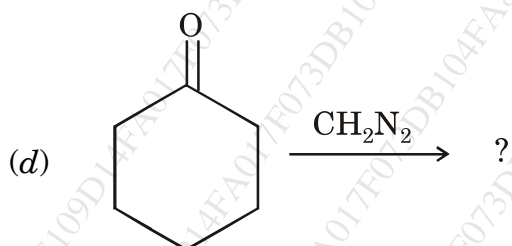
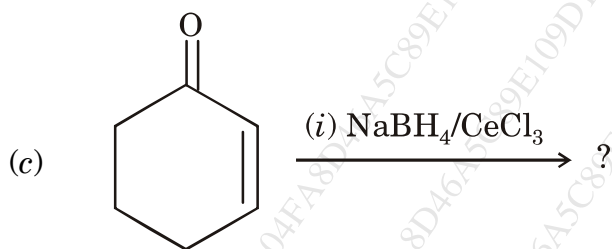
Maximum Marks—75

N.B. :- (i) All questions are compulsory.

(ii) Figures to the right indicate full marks.

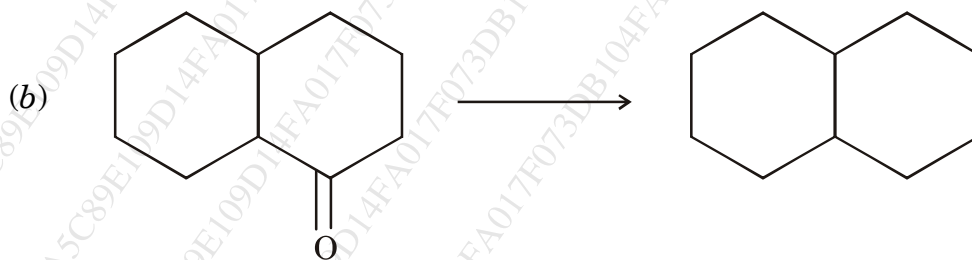
1. Predict the product with appropriate mechanism (any *three*) : 15

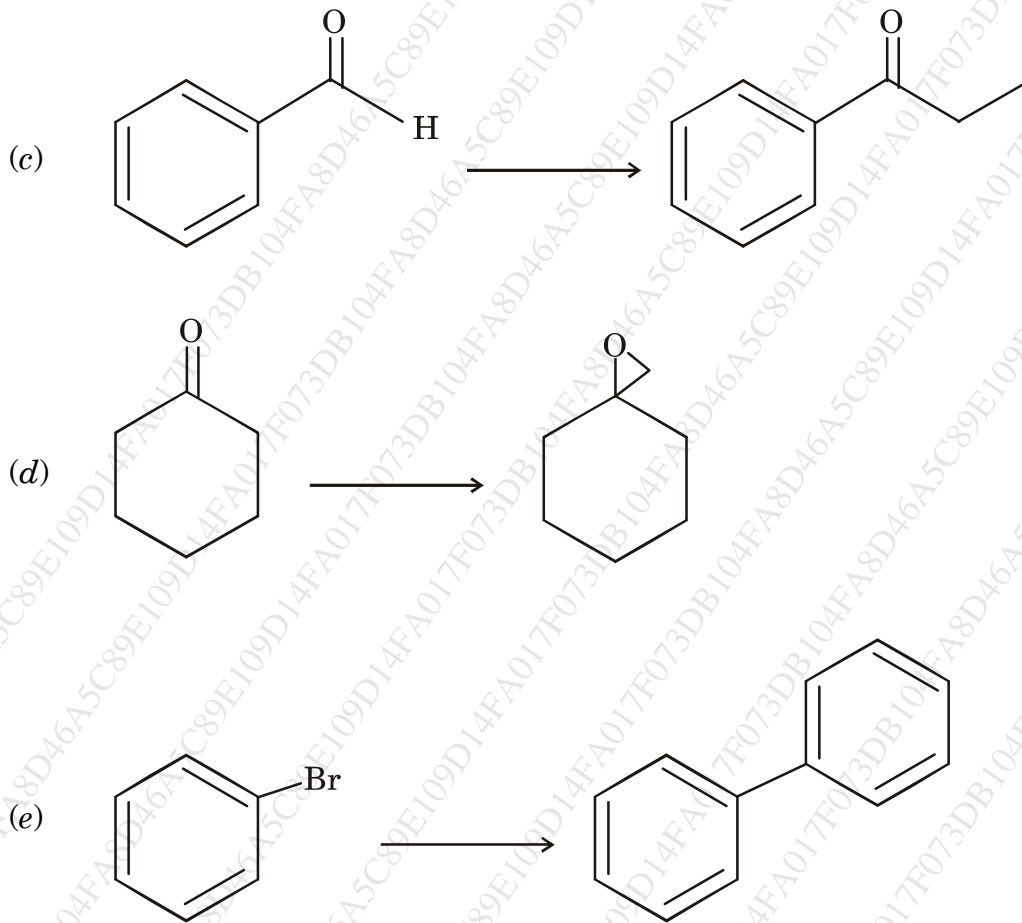




2. Select the suitable reagent for the following conversion and give appropriate mechanism (any *three*):

15





3. (A) Discuss the following giving suitable example with mechanism : 8

(i) Semipinacol rearrangement

(ii) LDA.

Or

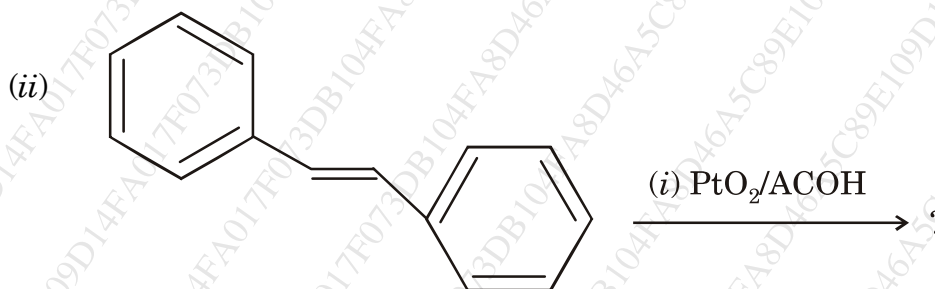
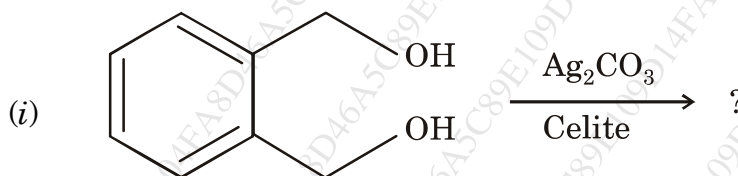
(i) Woodward oxidation

(ii) Birch reduction.

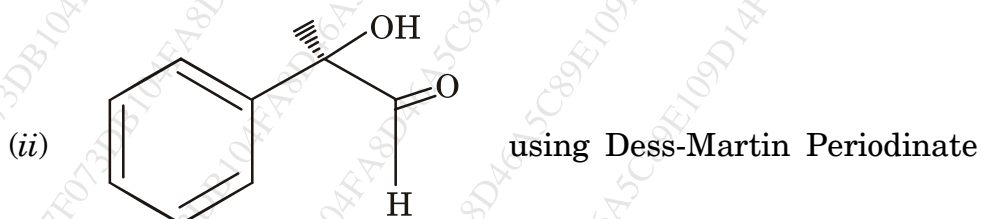
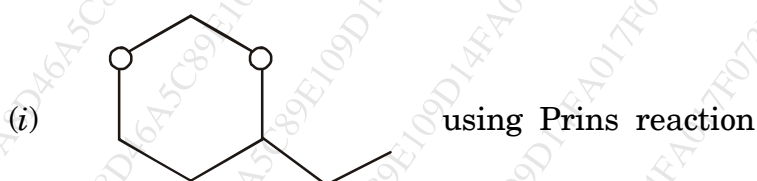
P.T.O.

(B) Explain the following :

7



Or



4. (A) Give the reasoning with example :

8

(i) Dithiane used for protection of carbonyl (umpolung concept).

(ii) Stabilized sulphur ylide gives cyclopropane while non-stabilized sulphur ylide gives epoxide.

WT

(5)

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Or

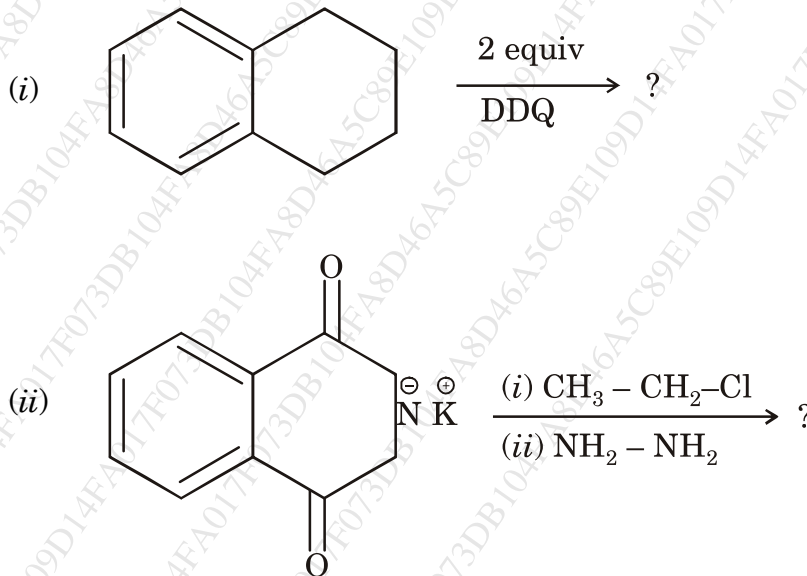
Discuss the following giving suitable example with mechanism :

- (i) Suzuki reaction
- (ii) TBTH (tri-n-butyl tinhydride).

(B) Discuss the following giving suitable example with mechanism : 7

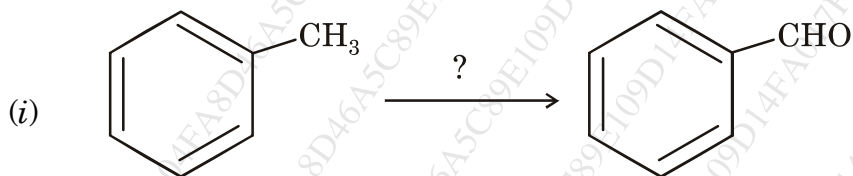
- (i) Wolf Kishner reduction
- (ii) Favorskii rearrangement.

Or



P.T.O.

5. (A) Select and write the correct answer of the following : 5



In above reaction oxidizing agent used is :

- (a) CrO_3
 - (b) CrO
 - (c) CrO_2Cl_2
 - (d) CAN
- (ii) Which of the following is an example of homogeneous catalysis :
- (a) H_2 , Pd/C
 - (b) Wilkinson catalyst
 - (c) Lindlar catalyst
 - (d) Raney Ni
- (iii) What will be the geometry of alkene formed in Wittig reaction :
- (a) E
 - (b) Z
 - (c) Both (a) and (b)
 - (d) None of the above

(iv) Which of the following reaction involves carbene intermediate :

- (a) Vilsmeier-Haack reaction
- (b) Peterson olefination
- (c) Reimer-Tiemann reaction
- (d) Corey-Fuchs reaction

(vi) α -haloketones are reacted with alkoxide to form ester is called :

- (a) Benzilic acid rearrangement
- (b) Semibenzilic acid
- (c) Curtius rearrangement
- (d) Favorskii rearrangement

(B) Write short notes on the following (any two) :

10

- (a) Darzen reaction
- (b) EDC or DCC
- (c) $\text{Pb}(\text{OAc})_4$