

This question paper contains 4+2 printed pages]

**ST—231—2022**

**FACULTY OF SCIENCE**

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

**JUNE/JULY, 2022**

**(New/CBCS Pattern)**

**CHEMISTRY**

**OCH-513**

**(Organic Synthesis)**

**(Saturday, 2-7-2022)**

**Time : 2.00 p.m. to 5.45 p.m.**

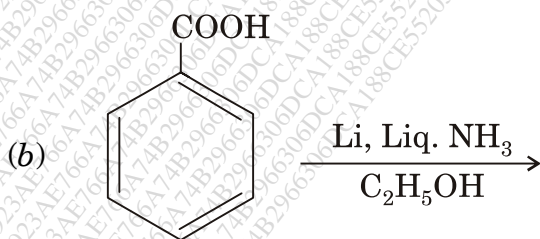
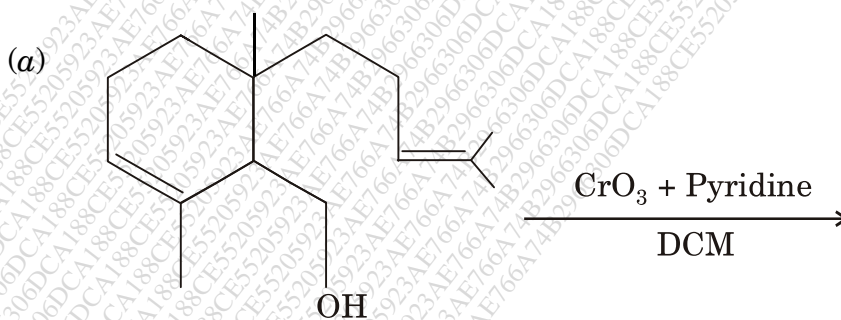
*Time— 3.45 Hours*

*Maximum Marks—75*

*N.B. :— (i) All questions are compulsory.*

*(ii) Figures to the right indicate full marks.*

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

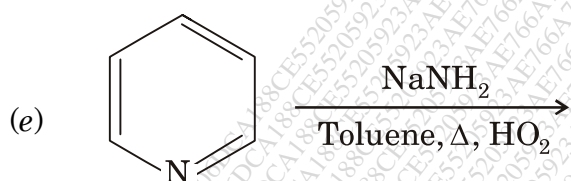
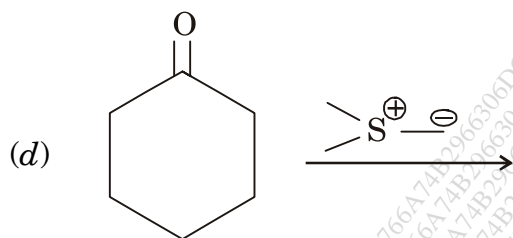
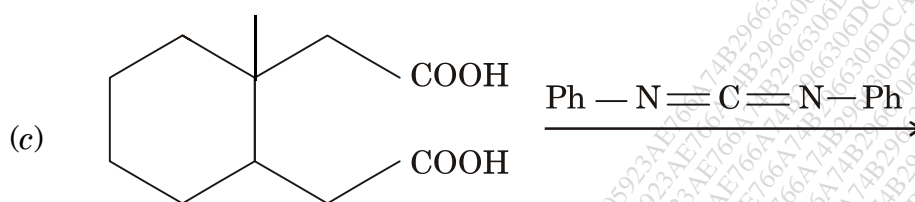


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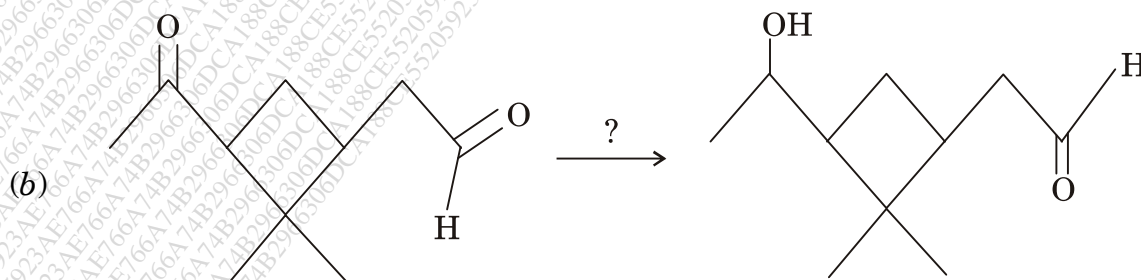
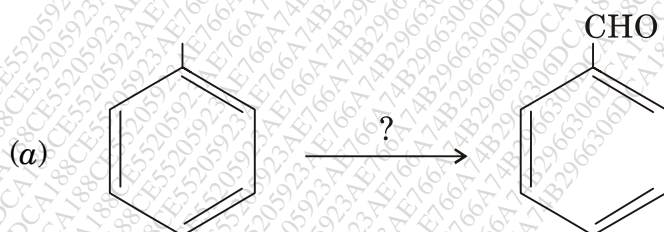
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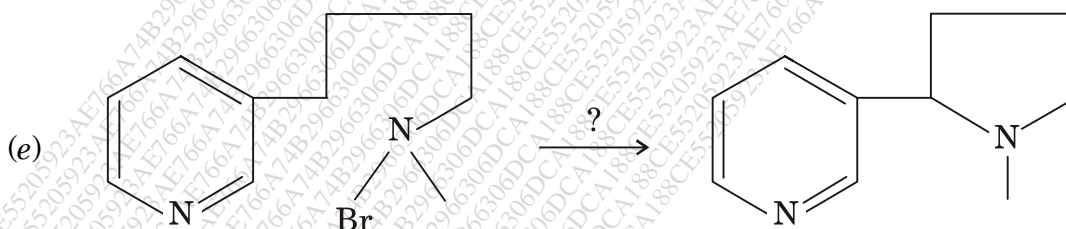
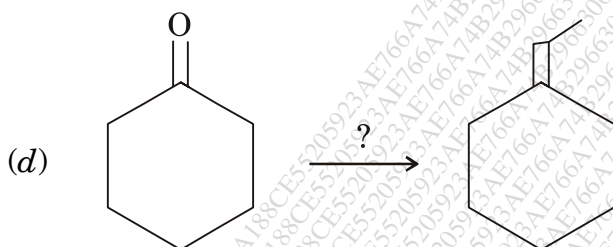
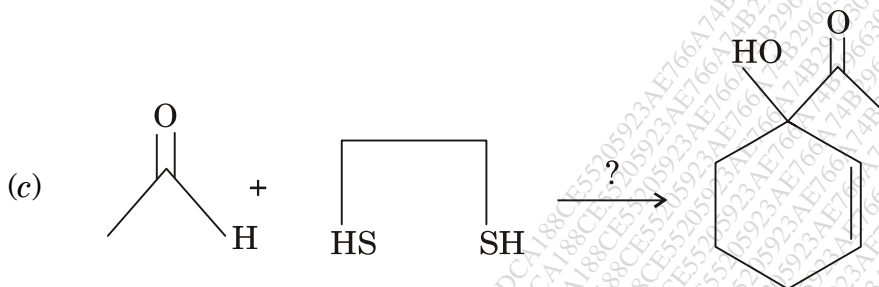
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2. Select suitable reagents for the following conversions and give appropriate mechanism (any *three*) : 15





3. Solve the following :

8

- (a) (i) Ozonolysis  
(ii) Clemmenson reduction.

Or

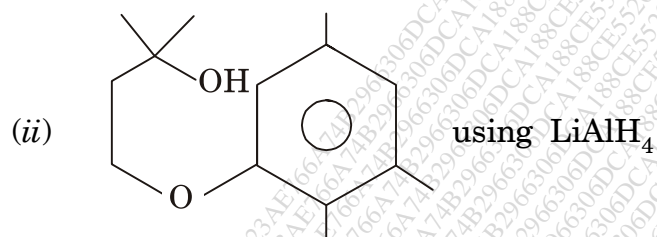
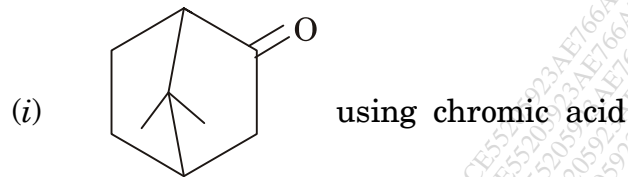
- (i) Osmium tetroxide  
(ii) Sulphonium ylide.

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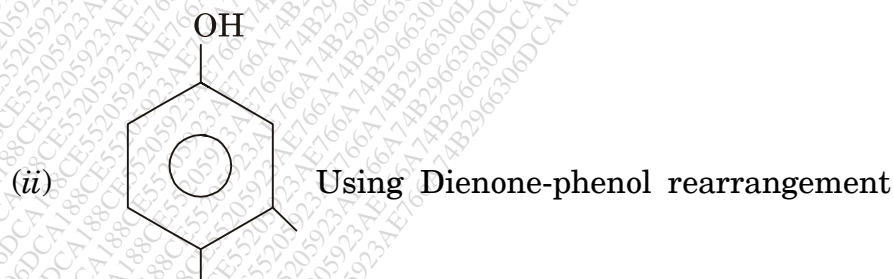
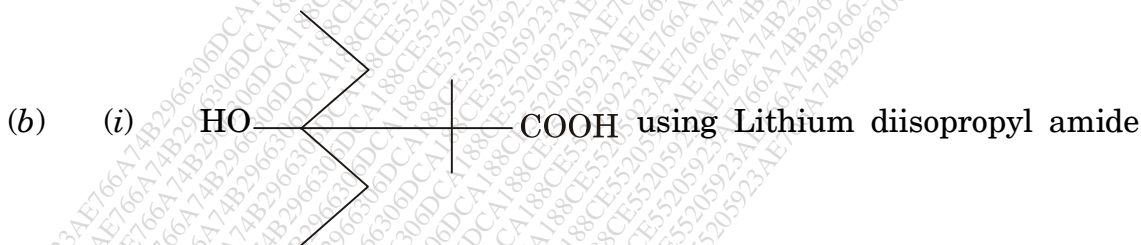


(b) How will you prepare the following :

7



Or



4. Solve the following :

(a) Discuss the following by using suitable examples with mechanism : 8

(i) Baeyer-Villiger oxidation

(ii) Wolf-Kishner reduction.

Or

- (i) Favorski rearrangement
- (ii) Reimer-Tiemann rearrangement.
- (b) Explain :
- (i) Woodward and Prevost hydroxylation with mechanism
- (ii)  $\text{Bu}_3\text{SnH}$  with mechanism.

Or

- (i) MPV reduction with mechanism
- (ii) Fries rearrangement.
5. (A) Select and write the *correct* answer of the following : 5

- (i) Activated  $\text{MnO}_2$  oxidises .....
- (a) Allylic alcohol (b) Acid
- (c) Ester (d) Nitrile
- (ii) Which of the following is used as homogeneous catalytic hydrogenation ?
- (a)  $\text{H}_2/\text{Ni}$  (b)  $\text{Ph}_3\text{PRhCl}$
- (c) Lindlar catalyst (d) Na in Liq.  $\text{NH}_3$
- (iii) Diazomethane is .....agent.
- (a) Acetoxylating (b) Decarboxylating
- (c) Methylating (d) None of these

P.T.O.

- (iv) The conversion of diazomethane to ketene is known as :
- (a) Wolf rearrangement
  - (b) Hofmann rearrangement
  - (c) Dienone-phenol rearrangement
  - (d) Fries rearrangement
- (v) Primary amine is prepared by :
- (a) Michael reaction
  - (b) Gabriel reaction
  - (c) Neber rearrangement
  - (d) Lossen rearrangement
- (B) Write short notes on the following (any two) : 10
- (i)  $\text{LiAlH}_4$
  - (ii) Michael reaction
  - (iii) Mannich reaction.