

This question paper contains 7 printed pages]

**ST—298—2022**

**FACULTY OF SCIENCE AND TECHNOLOGY**

**M.Sc. (Fourth Semester) EXAMINATION**

**MAY/JUNE, 2022**

**(New/CBCS Pattern)**

**ORGANIC CHEMISTRY**

**Paper-XXII (OCH-523)**

**(Organic Synthesis : Retero Synthetic Approach)**

**(Monday, 4-7-2022)**

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

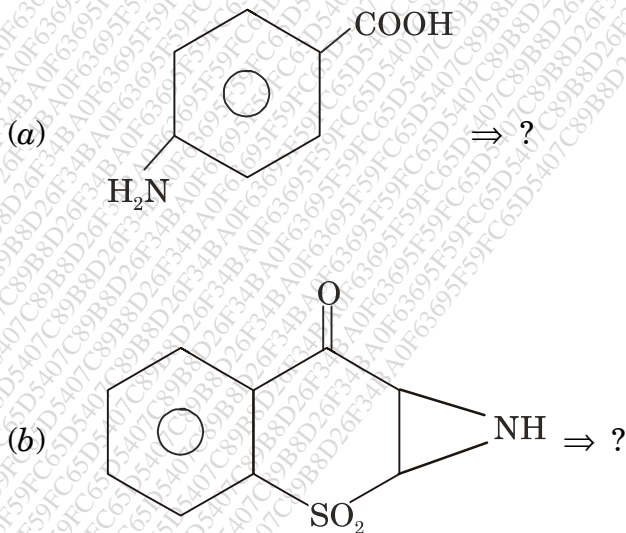
*Time— 3.45 Hours*

*Maximum Marks—75*

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

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

1. Using retero synthetic analysis, suggest suitable method for the synthesis of the following (any *three*) : 15

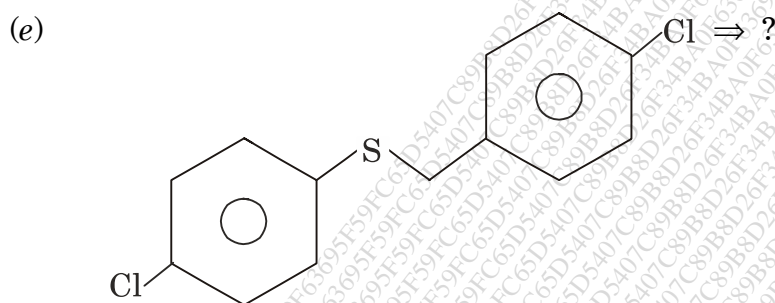
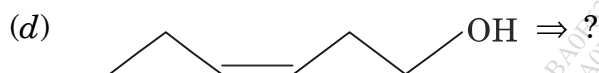
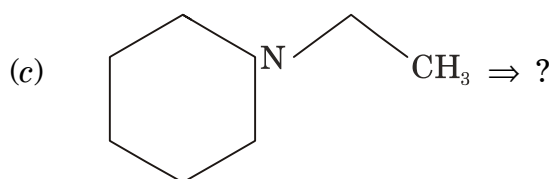


P.T.O.

WT

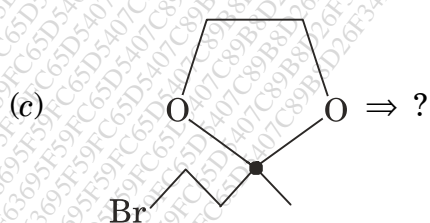
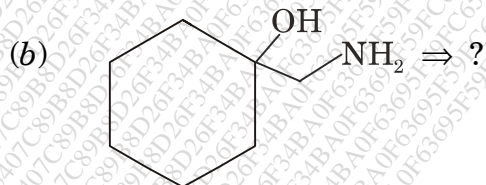
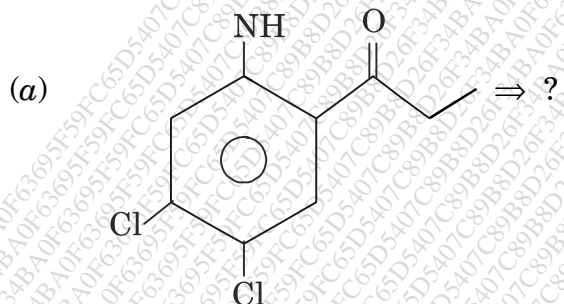
( 2 )

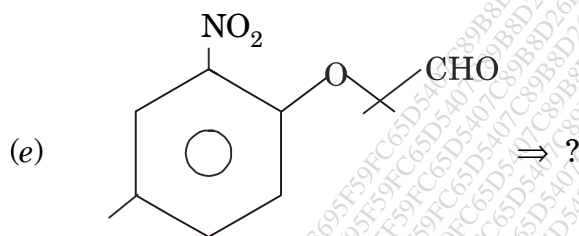
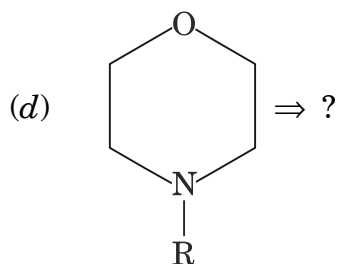
ST—298—2022



2. Using retrosynthesis suggest the suitable method for the synthesis of the following (any *three*):

15





3. Solve the following :

15

(a) Discuss the following giving suitable example :

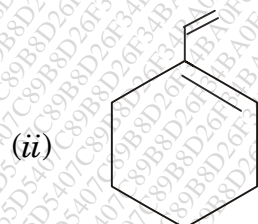
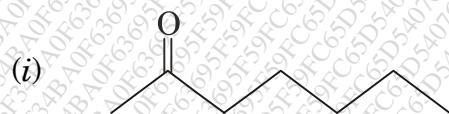
8

(i) Robinson Annelation

(ii) Reversal of polarity (unipolung concept)

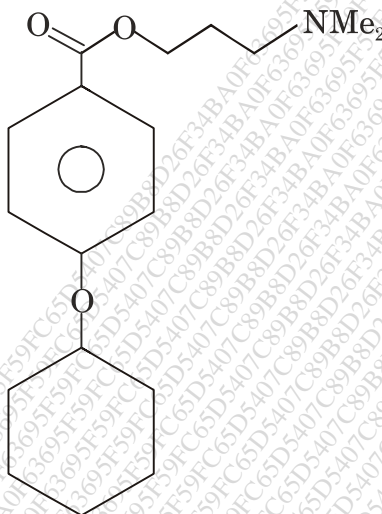
Or

How will you synthesize the following compounds using acetylene :



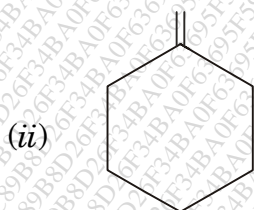
P.T.O.

- (b) Using chemoselective approach and FGI, give the synthesis of the following :



Or

How will you synthesis the following target molecule using (i) Alkene synthesis (ii) wittig reaction

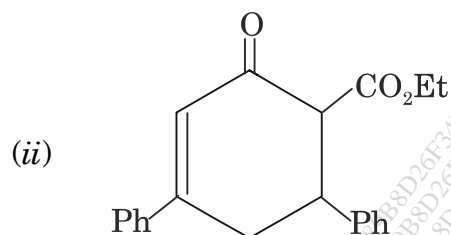
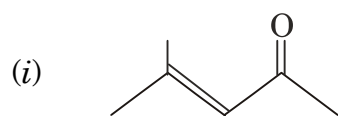


4. Solve the following :

15

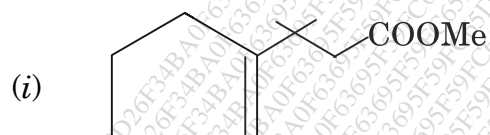
- (a) Using retrosynthesis suggest the suitable method for the synthesis of the following :

8



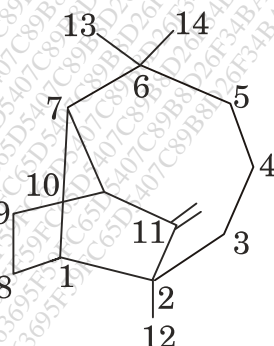
Or

How will you synthesis the following using rearrangement :



(b) Describe the reterosynthesis of *Longifolene*.

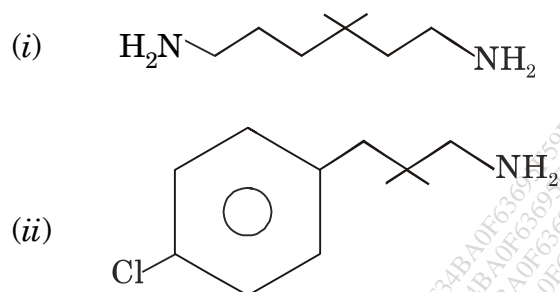
7



Or

How will you synthesis the following molecule using aliphatic nitro compound ?

P.T.O.



5. (A) Select the *correct* answer from the following alternatives : 5

(i) Diels-Alder reaction is an example of.....reaction.

(a) Enantioselective

(b) Regioselective

(c) Stereoselective

(d) Both (a) and (c)

(ii) The synthon  $\text{HO}-\text{CH}_2-\overset{\oplus}{\text{C}}\text{H}_2$ , if equivalent reagent is :

(a)  $\text{HO}-\text{CH}_2-\text{CH}_2-\text{Cl}$  (b)  $\text{CH}_2=\text{CH}_2$

(c)  $\text{CH}_3\text{CHO}$  (d) 

(iii) The molecule is to be synthesized is :

(a) Reagent (b) Synthon

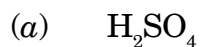
(c) Synthetic equivalent (d) Target molecule

(iv) Synthetic equivalent of  $\overset{\ominus}{\text{C}}\text{H}_3$  is :

(a)  $\text{CH}_3-\text{Br}$  (b)  $\text{CH}_3\text{Cl}$

(c)  $\text{CH}_3\text{Li}$  (d) Both (a) and (c)

(v) Synthetic equivalent of  $H^{\ominus}$  ion is :



(B) Write short notes on any *two* of the following : 10

(i) Reserpine

(ii) Michael addition

(iii) Use of acetylene in organic synthesis.