

This question paper contains 7 printed pages]

**AI—192—2017**

**FACULTY OF SCIENCE**

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

**NOVEMBER/DECEMBER, 2017**

**(CBCS Pattern)**

**ORGANIC CHEMISTRY**

**Paper II (CH-543/2)**

**(Organic Synthesis)**

**(Thursday, 16-11-2017)**

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

*Time—3 Hours*

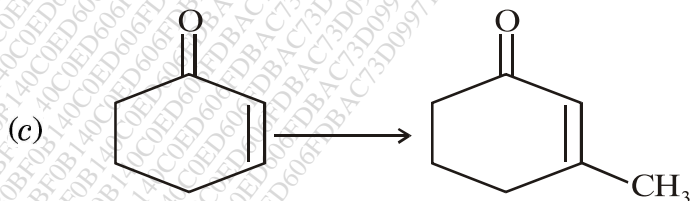
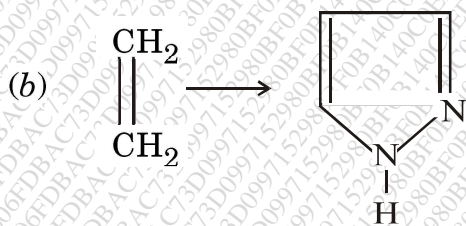
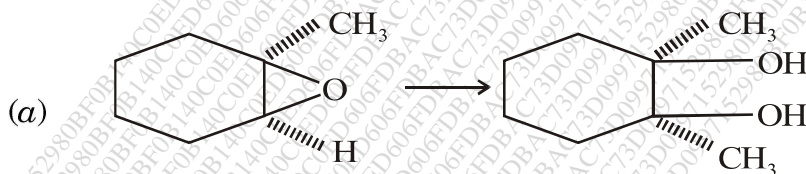
*Maximum Marks—75*

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

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

1. Suggest the suitable reagents for the following conversions :

15

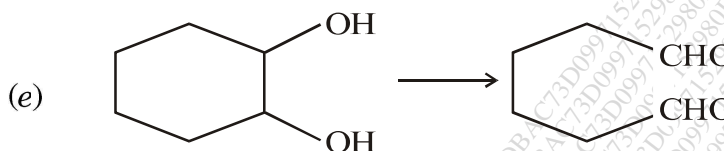
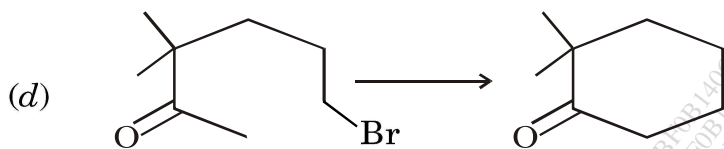


P.T.O.

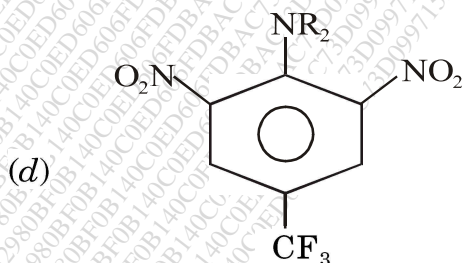
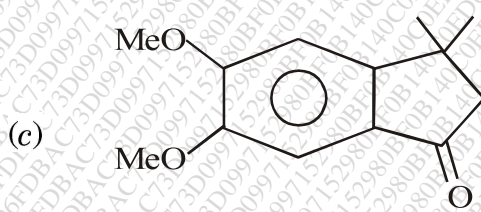
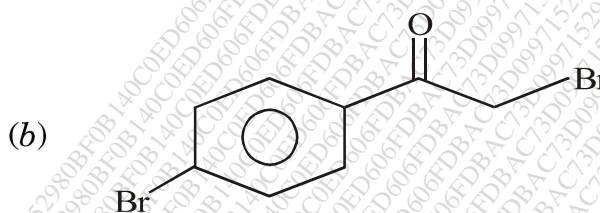
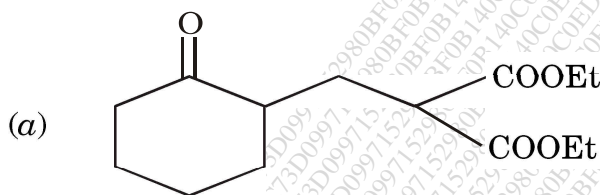
WT

( 2 )

AI-192-2017



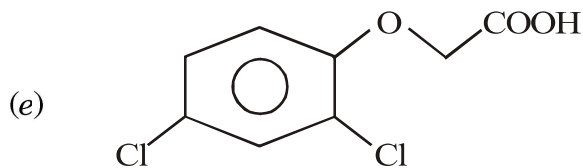
2. Using retrosynthetic analysis suggest suitable method for the synthesis of the following : 15



WT

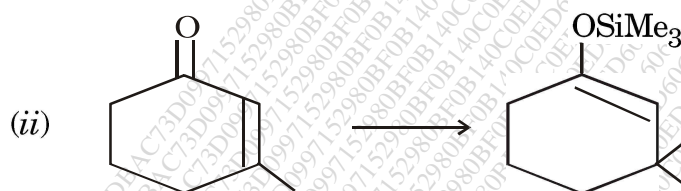
( 3 )

AI-192-2017



3. Solve the following :

(a) Use suitable reagents and mechanism for the following conversion : 8

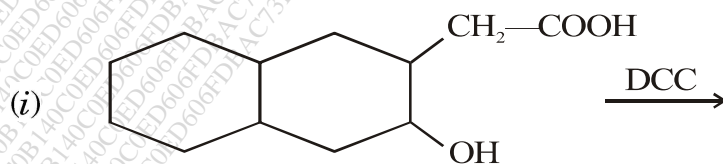


Or

Using concept of protecting functional groups how will you protect the following :

- (i) Alcohols
- (ii) Amines
- (iii) Carbonyl group
- (iv) Double bond.

(b) Predict the product with mechanism and justify your answer for the following : 7

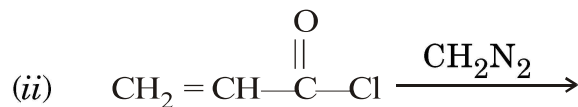


P.T.O.

WT

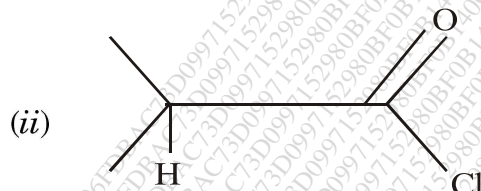
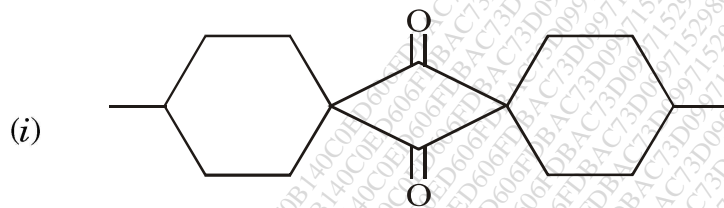
( 4 )

AI-192-2017



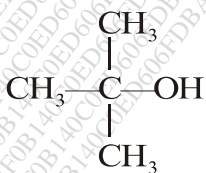
Or

How will you synthesis the following compounds using Ketene :



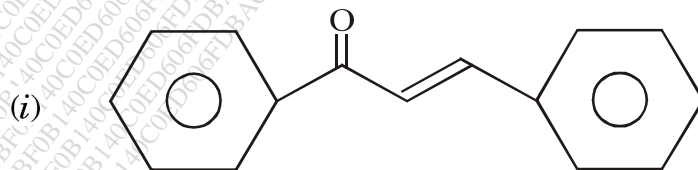
4. Solve the following :

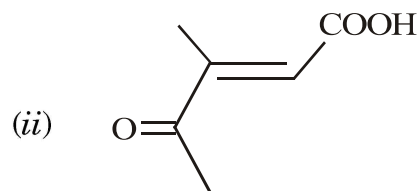
(a) Using knowledge of retro-synthetic analysis suggest any four different ways for the synthesis of the following : 8



Or

Control of enantioselectivity in the following carbonyl condensation :

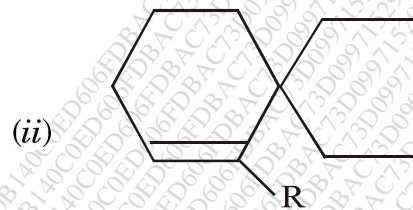
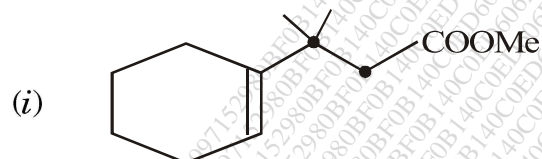




(b) Discuss the retrosynthetic analysis of camphor. 7

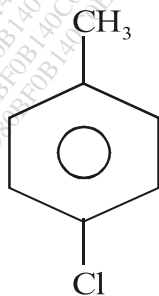
Or

Using rearrangements in synthesis, how will you synthesis the following :



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

(i) If there is a choice to disconnect which group first disconnect in the following :



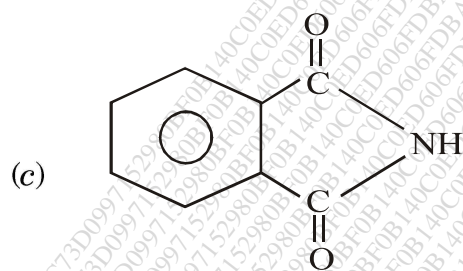
(a) -CH<sub>3</sub>

P.T.O.

- (b)  $-\text{Cl}$   
 (c)  $-\text{H}$   
 (d) Both (a) and (b)

(ii) The best synthetic equivalent for  $\overset{\ominus}{\text{N}}\text{H}_2$  is :

- (a)  $\text{NaNH}_2$   
 (b)  $\text{HO}-\text{NH}_2$



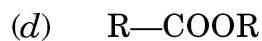
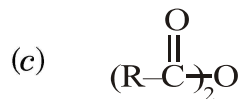
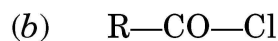
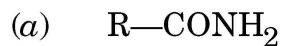
(iii) Synthetic equivalent of  $\overset{\ominus}{\text{C}}\text{H}_3$  is :

- (a)  $\text{CH}_3-\text{Mg}-\text{Br}$   
 (b)  $(\text{CH}_3)_2\text{CuLi}$   
 (c)  $\text{CH}_3\text{Li}$   
 (d) All of the above

(iv) Diazomethane is source of ..... carbon.

- (a) Nucleophilic  
 (b) Electrophilic  
 (c) Both (a) and (b)  
 (d) None of the above

(v) The most stable acid derivative is :



(B) Write short notes on (any *two*) :

10

(i) Synthesis of six membered ring

(ii) Use of Nitro compound in synthesis

(iii) Umpolung concept.