

This question paper contains 7 printed pages]

AI—237—2017

FACULTY OF SCIENCE

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

MARCH/APRIL, 2017

(CBCS Pattern)

CHEMISTRY

Paper 543/2

(Organic Synthesis—II)

(Wednesday, 26-4-2017)

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

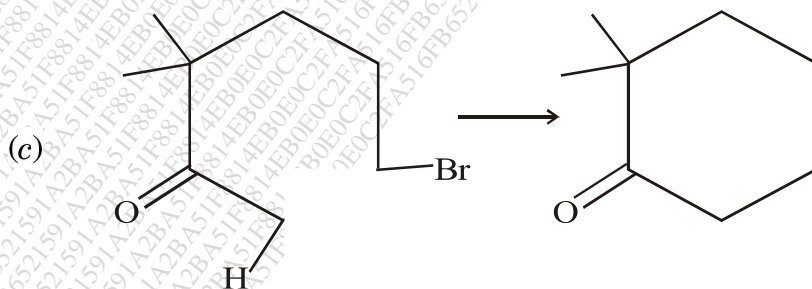
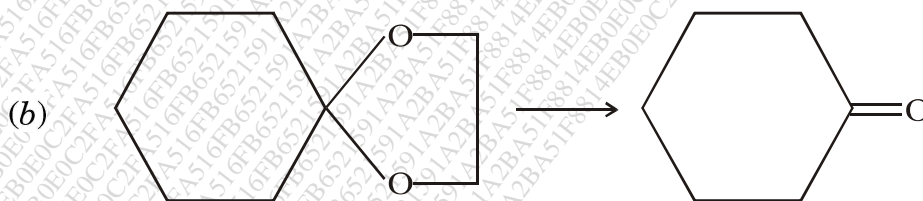
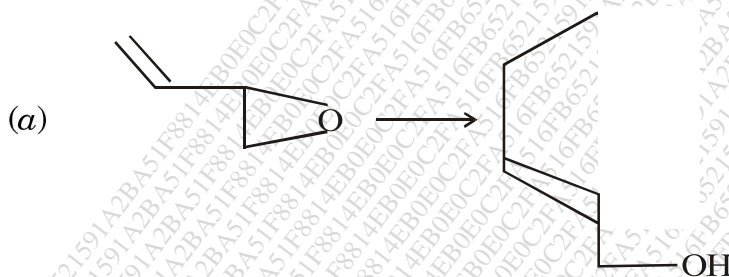
Time—3 Hours

Maximum Marks—75

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

(ii) Figures to the right indicate full marks.

1. Complete the following conversions by giving suitable reagents (any three) : 15

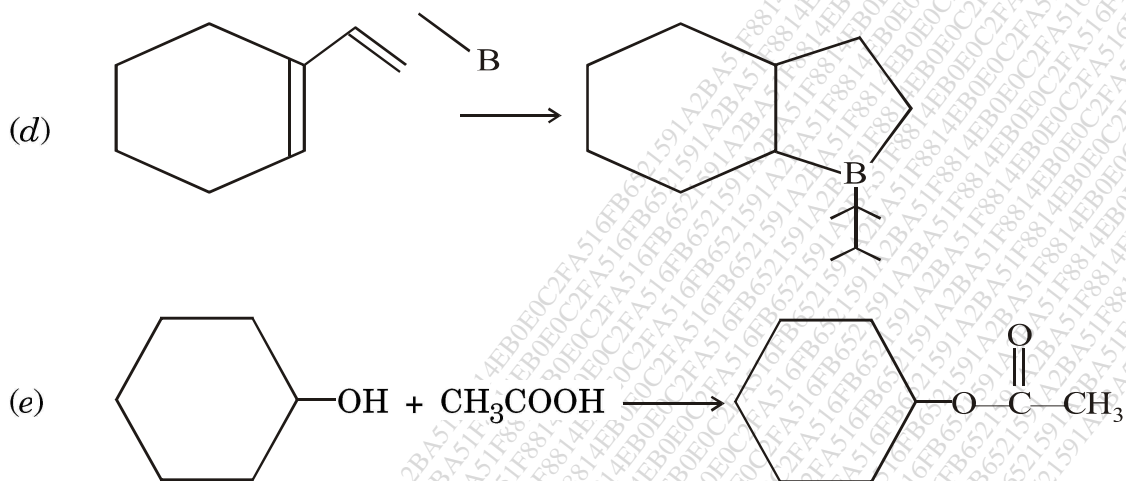


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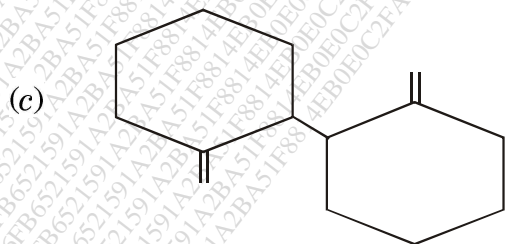
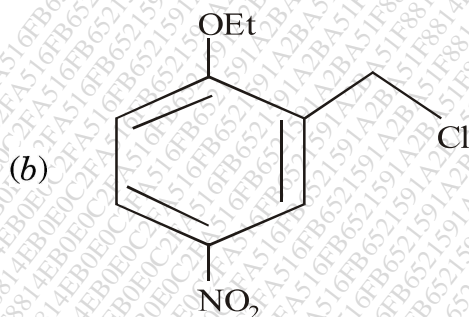
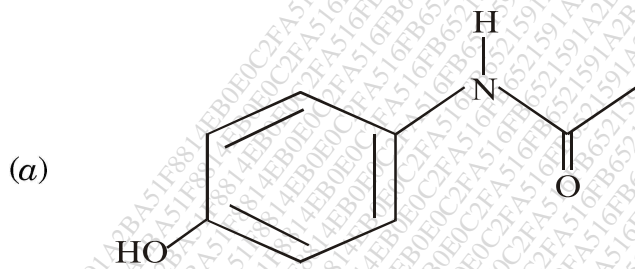
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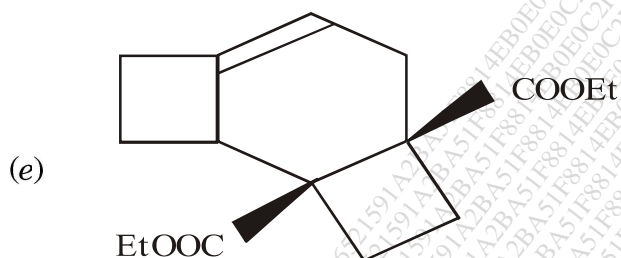
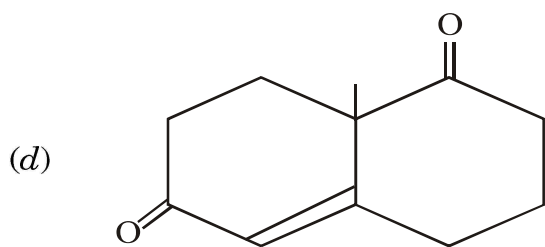
(2)

AI-237-2017



2. Using retrosynthetic analysis suggest a suitable method for the synthesis of the following (any *three*) : 15

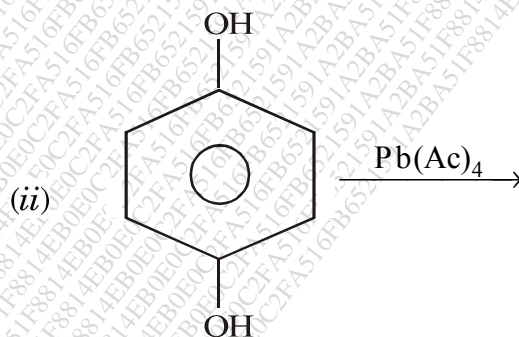
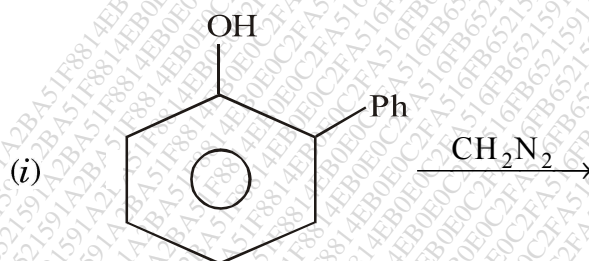




3. Solve the following :

(a) Predict the product with suitable mechanism :

8

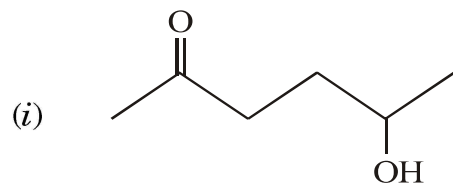


Or

What is Umpolung concept ? Using Umpolung concept design the

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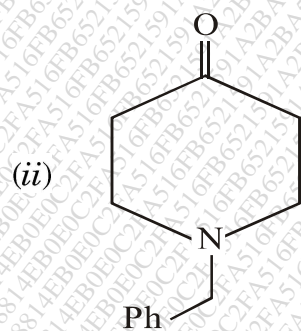
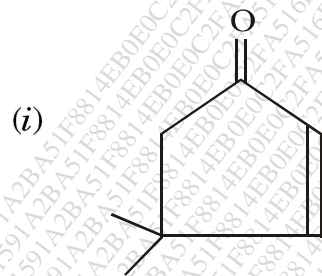
synthesis path for the following :



(b) Describe the retrosynthetic analysis and synthesis of Camphor. 7

Or

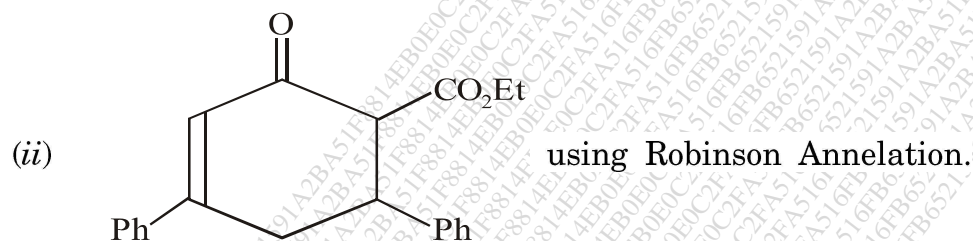
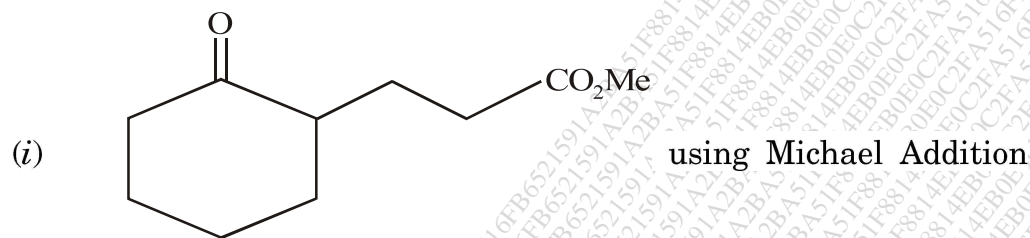
Describe the retrosynthesis path for the following five membered and six membered ring compounds :



4. Solve the following :

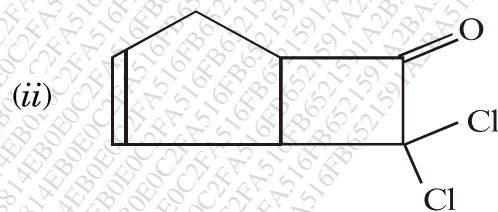
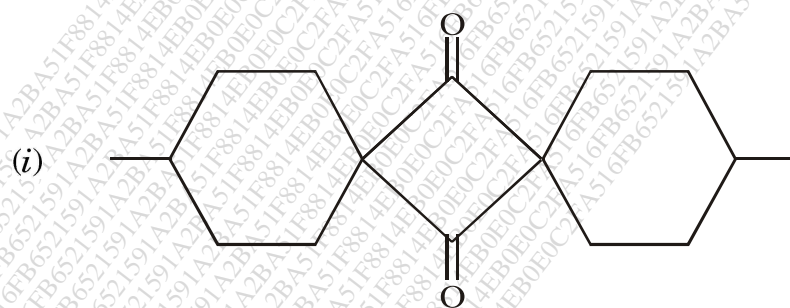
(a) Suggest the retrosynthesis of the following :

8



Or

Explain the use of Ketenes in the synthesis of the following compounds :

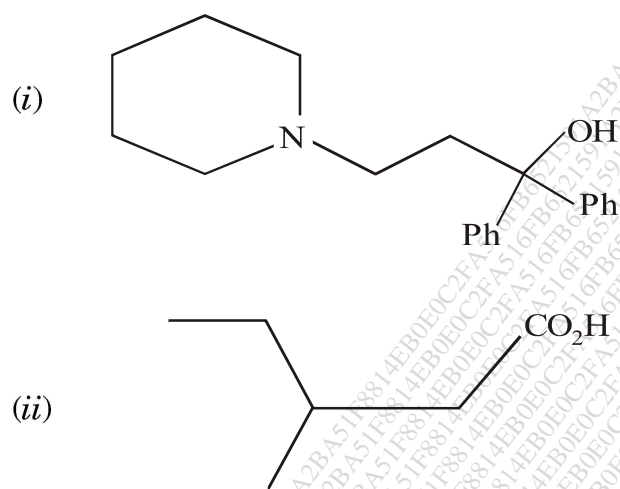


(b) Explain the protection and deprotection of amino and diol functional groups with suitable examples. 7

Or

Suggest the retrosynthesis path for the following compounds :

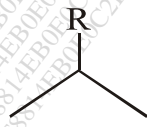
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5. (A) Select and write the *correct* answer of the following choices : 5

(i) Electrophilic bromination of aromatic compound is carried out by using :

- (a) $\text{RBr} + \text{AlCl}_3$
 (b) $\text{Br}_2 + \text{FeCl}_3$
 (c) $\text{Br}_2 + \text{Fe}$
 (d) None of the above

(ii) On disconnection of H_2N  CN gives :

- (a) $\text{R}-\overset{\text{O}}{\parallel}{\text{C}}-\text{NH}_2$, HCN
 (b) $\text{R}-\text{CHO}$, NH_3 , HCN
 (c) RCN , $\text{H}-\overset{\text{O}}{\parallel}{\text{C}}-\text{NH}_2$
 (d) All of the above

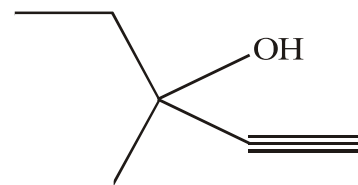
- (iii) Epoxidation and homologation of aldehydes and ketones can be carried out using :
- (a) Gillman Reagent
 - (b) Diazomethane
 - (c) Trimethyl Silyl iodide
 - (d) Tetramethyl Silave
- (iv) Carbonyl group can be protected by :
- (a) Dithiane
 - (b) Alcohols
 - (c) Diols
 - (d) All of the above
- (v) Alcohols are converted into thiols using :
- (a) R'SH
 - (b) $(\text{NH}_2)_2\text{CS}$
 - (c) H_2S
 - (d) None of the above

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

10

- (i) Give the synthetic utility and limitations of PPA.

- (ii) Use of acetylene in the synthesis of



- (iii) Synthons.