

**M. SC. (ORGANIC CHEMISTRY) SEM-IV (CHOICE BASED  
CREDIT & GRADE SYSTEM) : WINTER - 2017  
SUBJECT : SYNTHETIC ORGANIC CHEMISTRY**

Day : Wednesday  
Date : 01/11/2017

Time: 03.00 PM TO 06.00 PM  
Max. Marks : 60

**W-2017-0791**

**N.B.:**

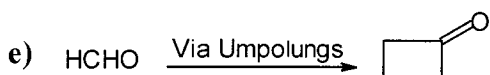
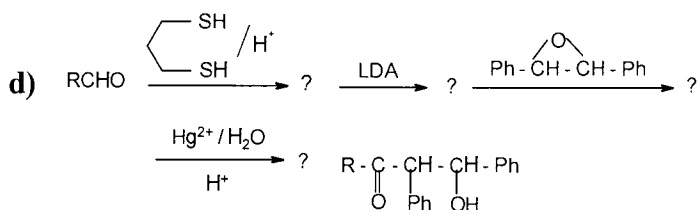
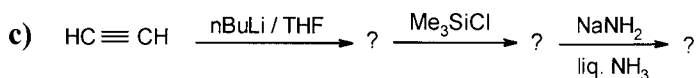
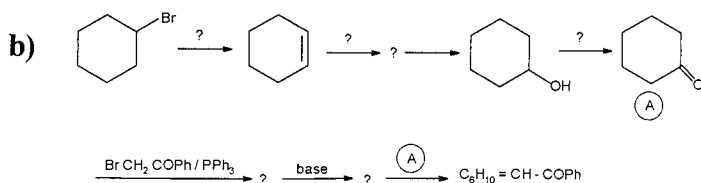
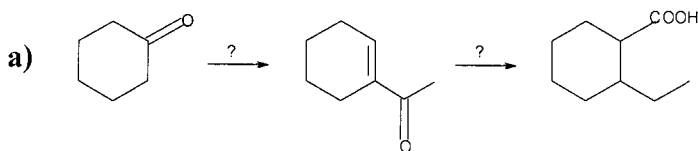
- 1) All questions are **COMPULSORY**.
- 2) Figures to the right indicate **FULL** marks.
- 3) Answers to both the sections should be written in **SEPARATE** answer books.

**SECTION – I**

**Q.1** Explain **ANY THREE** of the following: **[15]**

- a) Mechanism of carbonylation of alkyl borane for ketone and tertiary alcohol.
- b) IPSO substitution in arylsilane.
- c) Ziegler – Natta catalyst.
- d) Protection and deprotection of hydroxy group.
- e) Umpolung phenomenon is used to get illogical synthon with example.

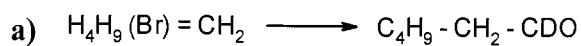
**Q.2** Attempt **ANY THREE** of the following: **[15]**




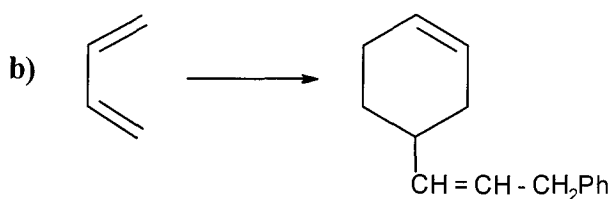
**P.T.O.**

**SECTION – II**

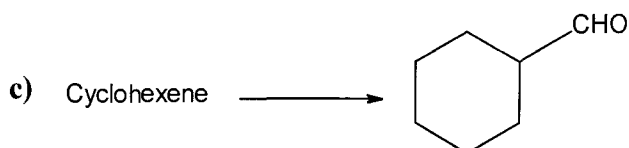
**Q.3** Attempt **ANY THREE** of the following: arrange the reagents in proper order to achieve the target molecule. Write all intermediate products. [15]



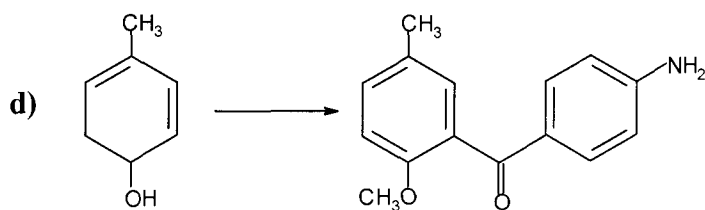
Reagents :  /  $\text{H}^+$  ;  $\text{D}_2\text{O}$ ,  $\text{H}_2\text{O}_2$  /  $\text{OH}^-$  ;  $n\text{BuLi}$  / ether,  $\text{NaOEt}$ , disiamylborane / THF



Reagents : Benzene – Toluene,  $\Delta$ ,  $h\nu$ , base,  $\text{PBr}_3$ ,  $\text{PhBr}$ ,  $\text{Mg}$  / dry ether, ethylene oxide,  $\text{CH}_2 = \text{CHCHO}$ ,  $\text{PPh}_3$ .



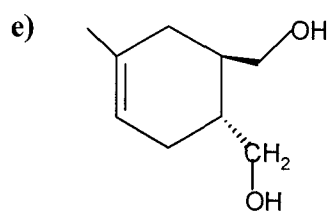
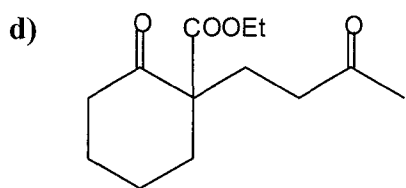
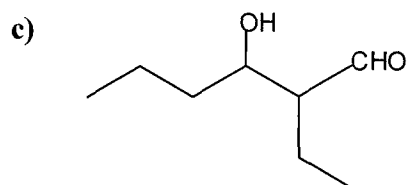
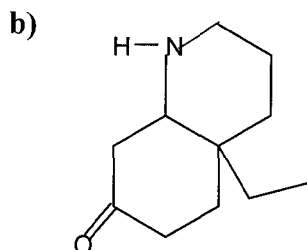
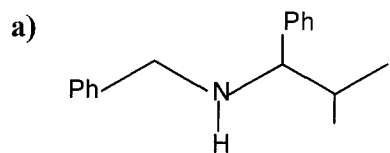
Reagents :  $\text{CO}$ ,  $\text{LiAlH}(\text{OMe})_3$ ; 9BBN;  $\text{H}_2\text{O}_2$  buffer.



Reagents : *p*-nitrobenzoic Acid,  $\text{CH}_2\text{N}_2$ ;  $\text{SOCl}_2$ ,  $\text{Sn}$  / Conc.  $\text{HCl}$ .

e) Write a short note on: chemoselectivity in achieving the synthesis of various products.

**Q.4** Using retrosynthesis analysis suggest convenient route for the synthesis of **ANY THREE** of the following: **[15]**



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