

(Organic Chemistry)  
**MASTER OF SCIENCE (CHEMISTRY) (CBCS - 2018 COURSE)**  
**M.Sc. (Chemistry) Sem-IV : WINTER :- 2021**  
**SUBJECT: SYNTHETIC ORGANIC CHEMISTRY**

Day : Monday  
 Date 17-01-2022

W-20163-2021

Time : 02:00 PM-05:00 PM  
 Max. Marks: 60

**N.B.**

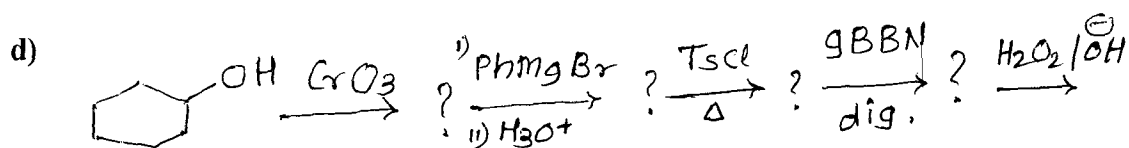
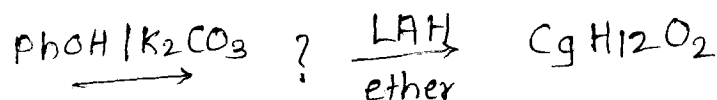
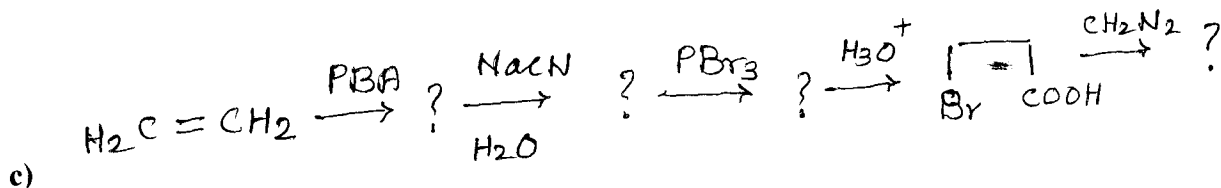
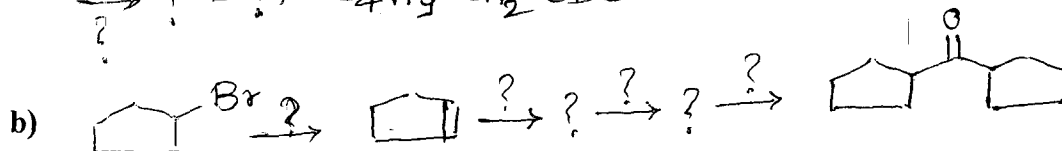
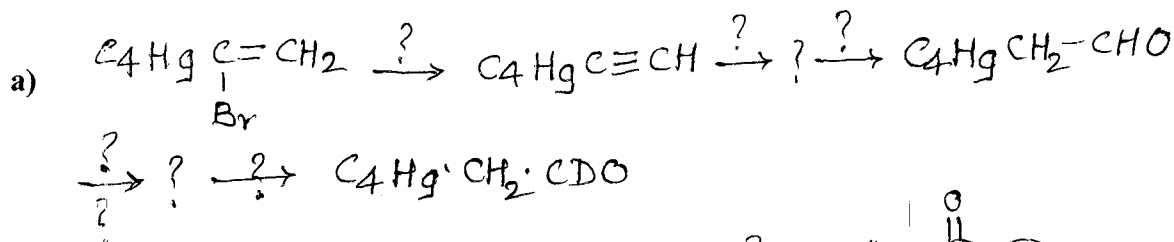
- 1) All questions are **COMPULSORY**.
- 2) Figures to the right indicate **FULL** marks.
- 3) Answers to both the sections should be written in the **SEPARATE** answer book.

**SECTION - I**

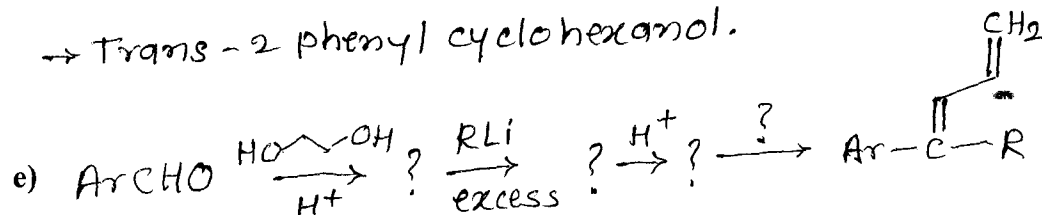
**Q.1** Explain **ANY THREE** of the following: **(15)**

- a) Hydrogen migration reaction using Rh (I), (III) as a catalyst.
- b) Wilkinson catalyst with preparation and applications.
- c) Role of MOP, MOM, MEM and MTM in hydroxy group protection.
- d) 'Oxo' process.
- e) Umpolung reaction in nature.

**Q.2** Attempt **ANY THREE** of the following: **(15)**

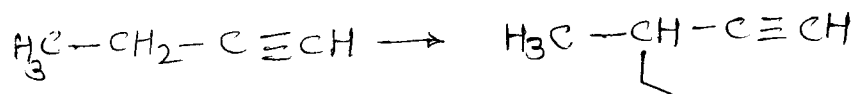


→ Trans - 2 phenyl cyclohexanol.



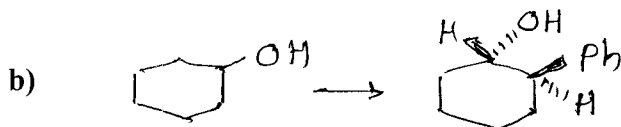
SECTION - II

Q.3 Attempt ANY THREE of the following; arrange the reagents in order to achieve Target Molecule. Write all intermediate product/s. (15)



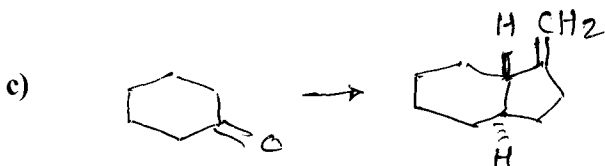
a)

Reagents:  $\text{NaOH}/\text{HOH}$ ;  $n\text{BuLi}/\text{THF}$ ;  $\text{EtBr}$ ;  
 $\text{Me}_3\text{SiCl}$ ;  $\text{LAH}/\text{ether}$ .



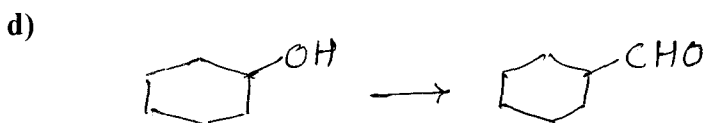
b)

Reagents:  $\text{PhMgBr}/\text{THF}$ ;  $\text{CrO}_3$ ;  $\text{H}_3\text{O}^+$ ;  $\text{TsCl}/\Delta$ ;  $\text{H}_2\text{O}_2/\text{OH}^-$ ;  
 $\text{GBBN}/\text{dig}$ .



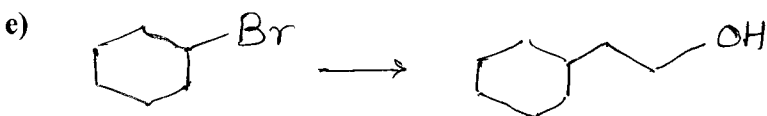
c)

Reagents:  $\text{H}_2\text{BH}_2/\text{dig}$ ; vinyl bromide;  $\text{Li}/\text{ether}$ ;  
 $\text{CH}_3\text{Br}$ ;  $n\text{-BuLi}/\text{ether}$ ;  $\text{PPh}_3$ ;  $\text{CO}/\text{H}_2\text{O}$ .



d)

Reagents:  $\text{LiAlH}(\text{Ome})_3/\text{THF}$ ;  $\text{H}_2\text{O}_2$  buffer;  $\text{CO}$ ;  $\text{GBBN}/\text{dig}$ ;  
 $\text{PBr}_3$ ;  $\text{NaOEt}$ .

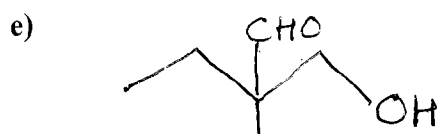
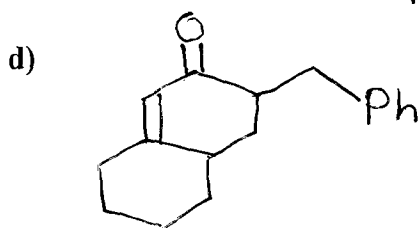
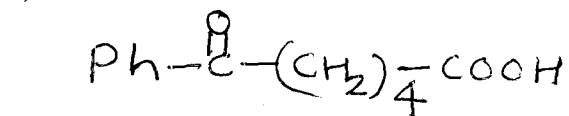
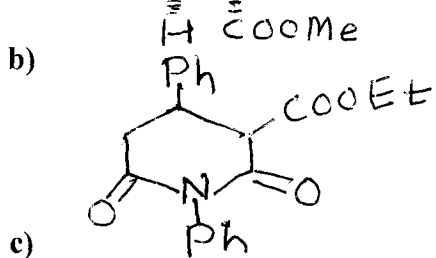
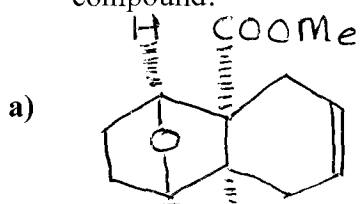


e)

Reagents:  $\text{Ph}_3\text{P}=\text{CH}_2$ ;  $\text{NaOH}$ ;  $\text{CrO}_3$ ;  $\text{LAH}/\text{ether}$ ;  
 $\text{Ni}(\text{CO})_4$ ,  $\text{CO}$ ,  $\text{H}_2\text{O}$ .

Q.4

Give retro synthetic approach to synthesize ANY THREE of the following (15) compound:



\* \* \*