

**MASTER OF SCIENCE (CHEMISTRY) (CBCS - 2018 COURSE)**  
**M.Sc. (Chemistry) Sem-IV OC :SUMMER- 2022**  
**SUBJECT : SYNTHETIC ORGANIC CHEMISTRY**

Day : Saturday  
 Date : 02-07-2022

**S-20163-2022**

Time : 03:00 PM-06:00 PM  
 Max. Marks : 60

**N.B.**

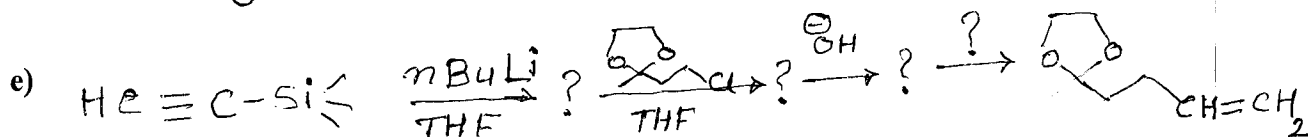
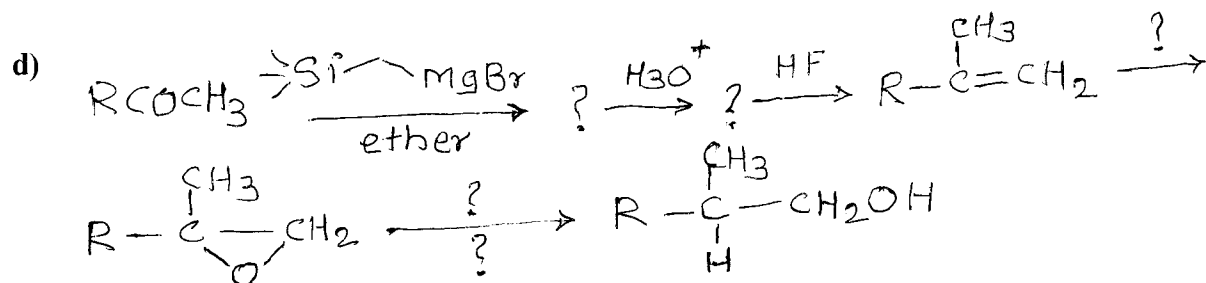
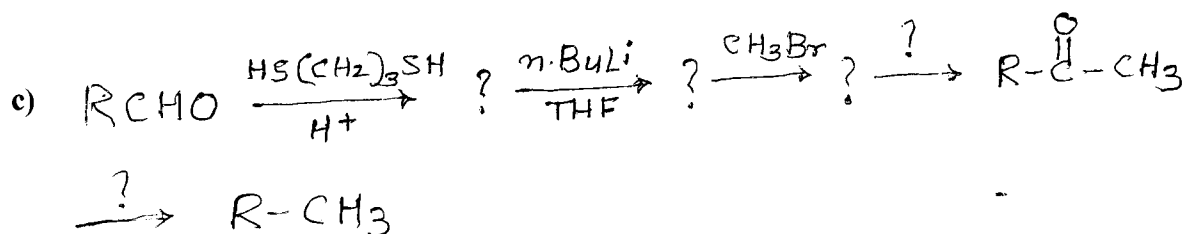
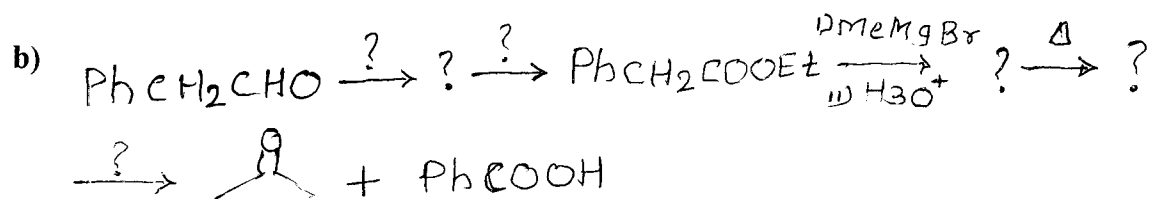
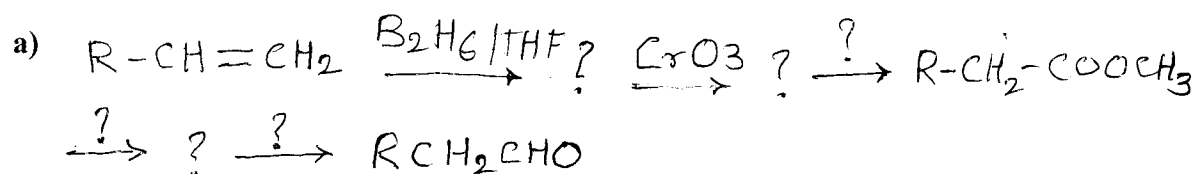
- 1) All questions are **COMPULSORY**.
- 2) Figures to the right indicate **FULL** marks.
- 3) Answers to both the sections should be written in the **SEPARATE** answer book.

**SECTION - I**

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

- a) Synthesis of ethyl propyl ketone using Umpolung approach.
- b) Mechanistic approach in Wacker-process.
- c) Versatile reactivity of alkyl boranes.
- d) Coupling of halides using Ni-carbonyls.
- e) Write a short note on ene-yne metathesis.

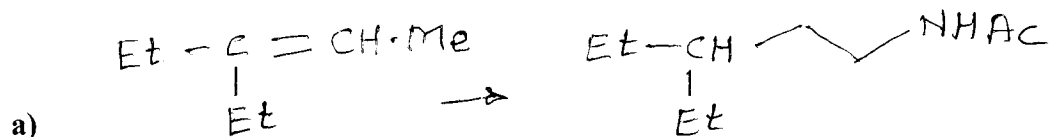
**Q.2** Attempt **ANY THREE** of the following: **(15)**



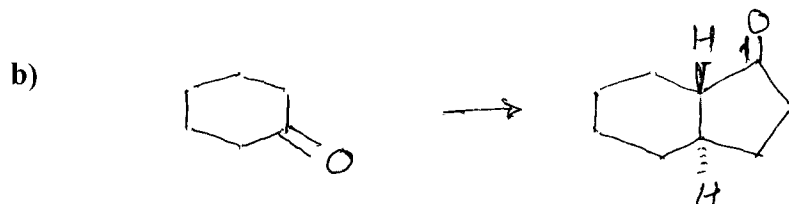
SECTION - II

Q.3

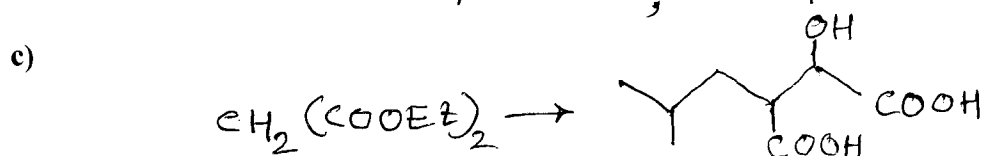
Attempt ANY THREE of the following; arrange the reagents in order to achieve Target Molecule. Write all intermediate product/s. (15)



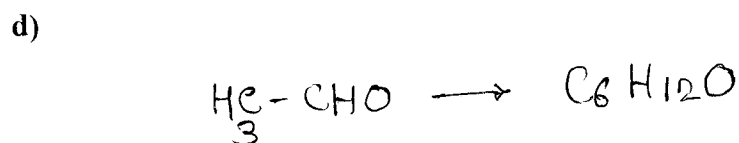
Reagents:  $\text{Ac}_2\text{O}$ ;  $150^\circ\text{C}$ ; 1-decene/ $\Delta$ ;  $\text{B}_2\text{H}_6$  excess/dig;  $\text{NH}_2\text{OSO}_3\text{H}$



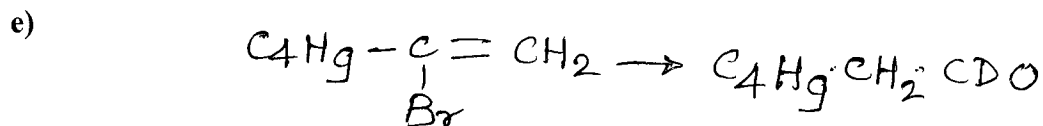
Reagents:  $\text{CO}$ ;  $\text{H-BH}_2$ /dig;  $\text{CrO}_3$ ;  $\text{H}_3\text{O}^+$ / $\Delta$ ; vinylLi/THF;  $\text{NaBH}_4$



Reagents:  $\text{CH}_3\text{CH}_2\text{CH}_2\text{Br}$ ;  $\text{NaOEt}$ ;  $\text{HCOOEt}$ ;  $\text{H}_3\text{O}^+$ / $\Delta$ ;  $\text{NaOMe}$ ;  $\text{H}^+$ /EtOH;  $\text{CN}^-$ ;  $\text{H}_3\text{O}^+$



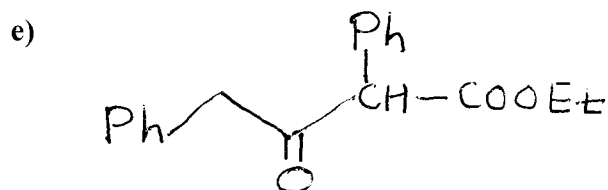
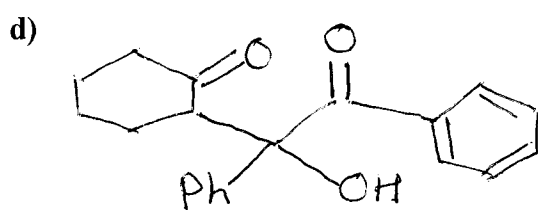
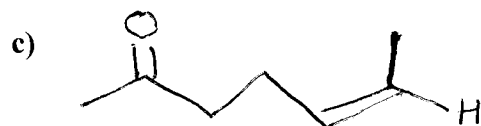
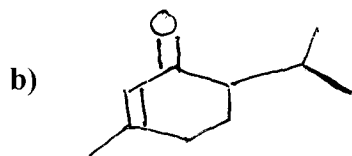
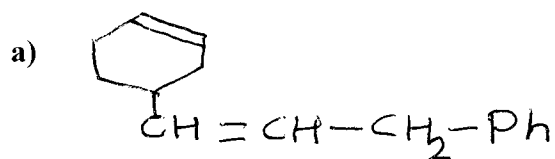
Reagents:  $\text{HgCl}_2/\text{H}_2\text{O}$ ; isopropyl bromide;  $\text{H}_3\text{O}^+$ / $\Delta$ ;  $\text{HS}(\text{CH}_2)_3\text{SH}/\text{H}^+$ ;  $n\text{BuLi}/\text{THF}$ ; PBA.



Reagents:  $\text{HS}(\text{CH}_2)_3\text{SH}/\text{H}^+$ ;  $\text{NaOEt}$ ;  $n\text{BuLi}/\text{THF}$ ;  $(\text{C}_5\text{H}_{11})_2\text{BH}/\text{dig}$ ;  $\text{D}_2\text{O}$ ;  $\text{H}_2\text{O}_2/\text{OH}^-$

Q.4

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



\* \* \*