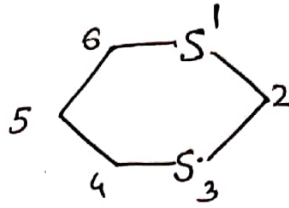


# Reagent Chemistry

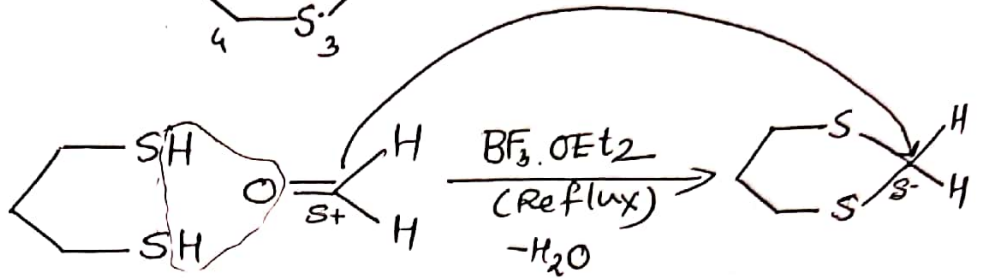
(1)

1,3-dithiane →

structure:

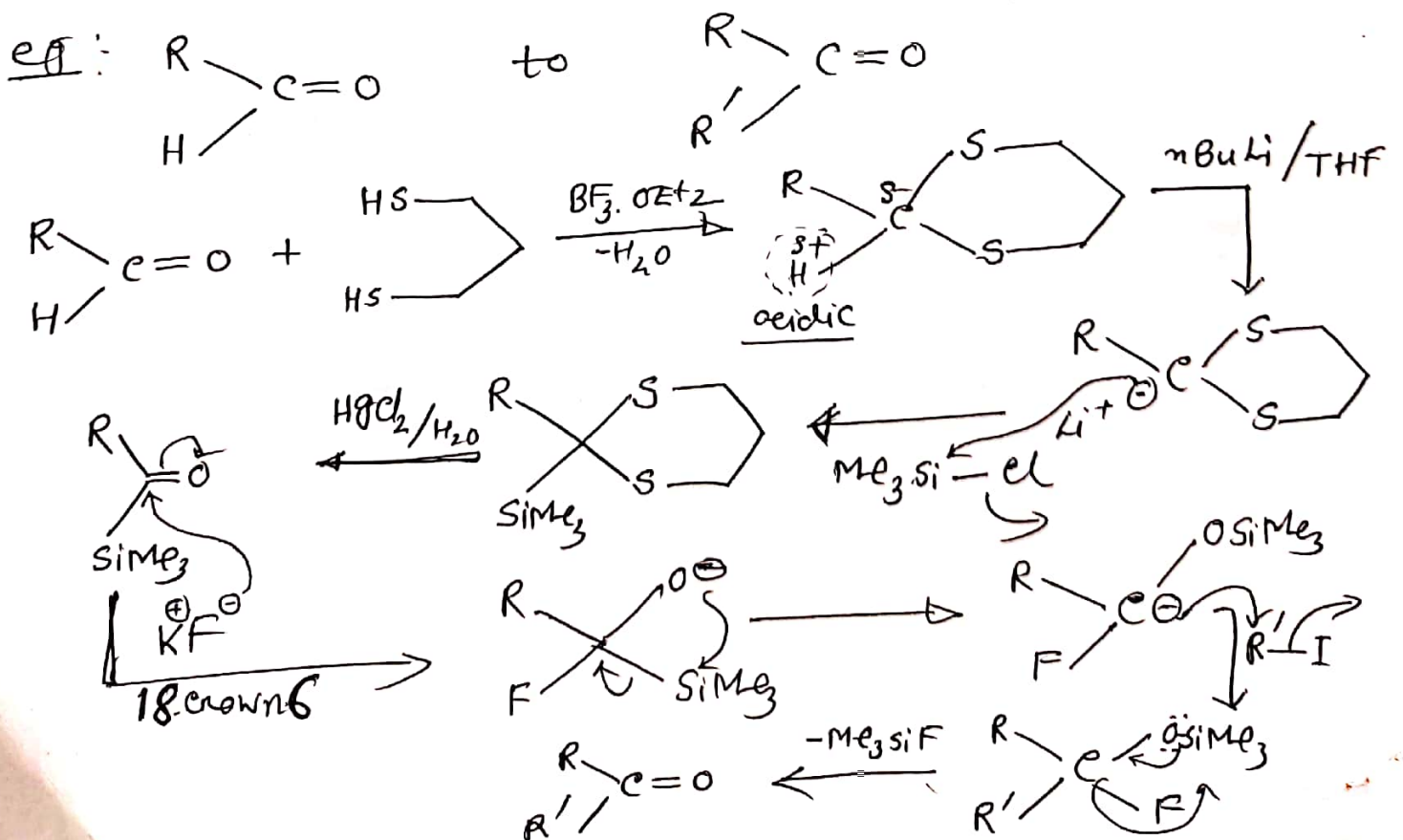


Preparation:



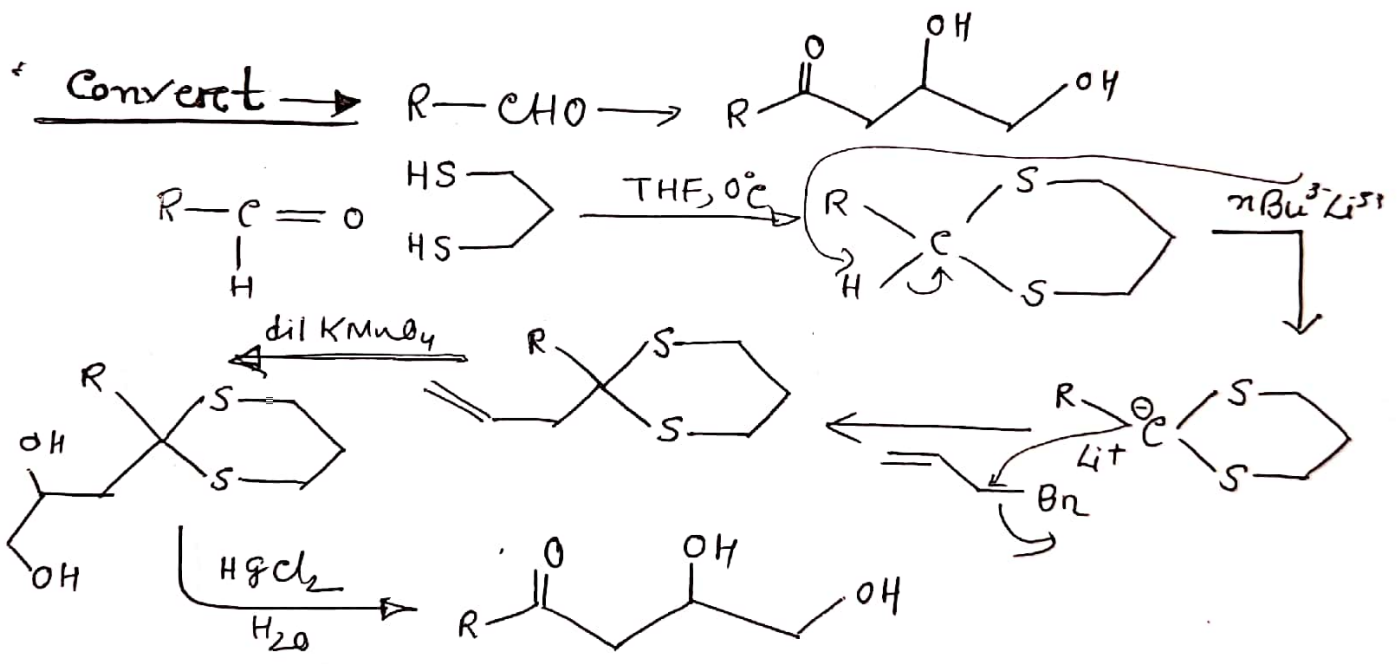
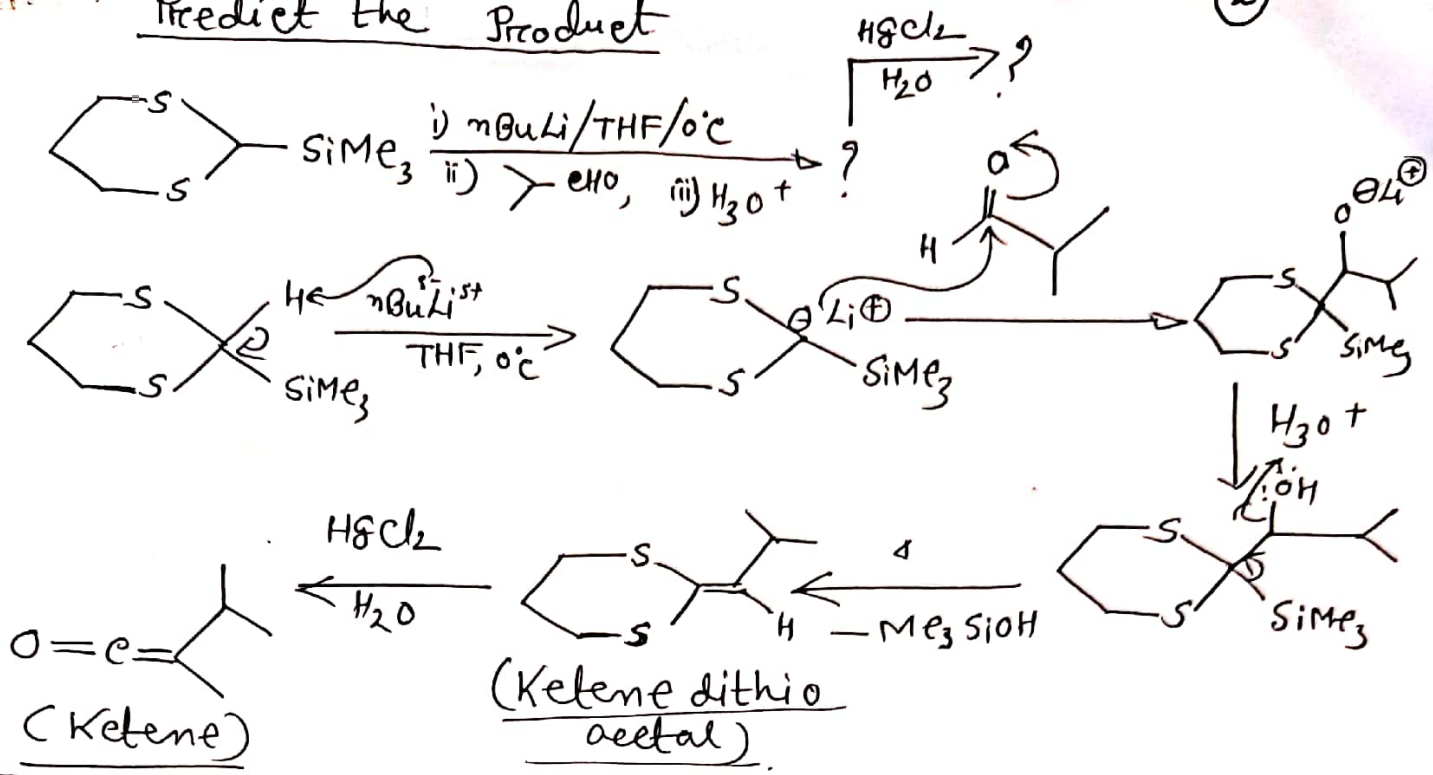
This reaction involves change in polarity from  $C^{\delta+}$  to  $C^{\delta-}$ , this is known as Umpolung effect meaning reversal of polarity named by Sebach Umpolung.

synthetic application: Transformation of carbonyl compound (aldehyde) to many compounds of various functionality.

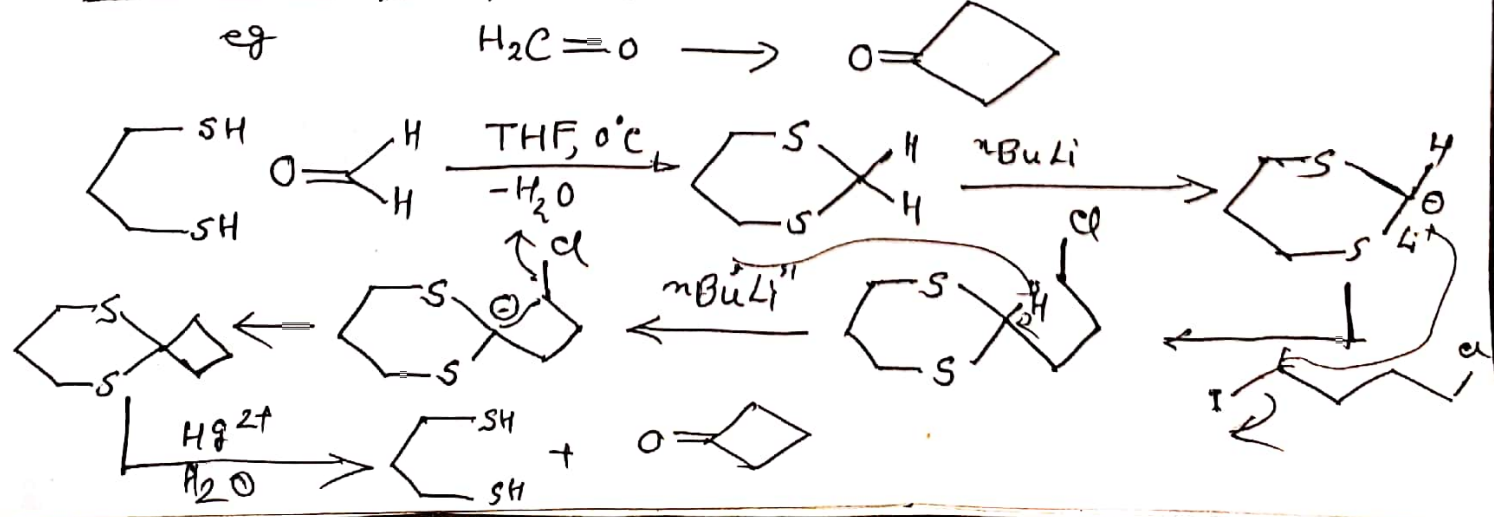


# Predict the Product

(2)

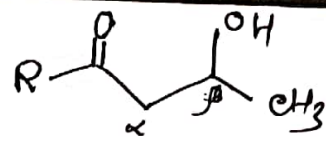


## Synthesis of cyclic Ketone

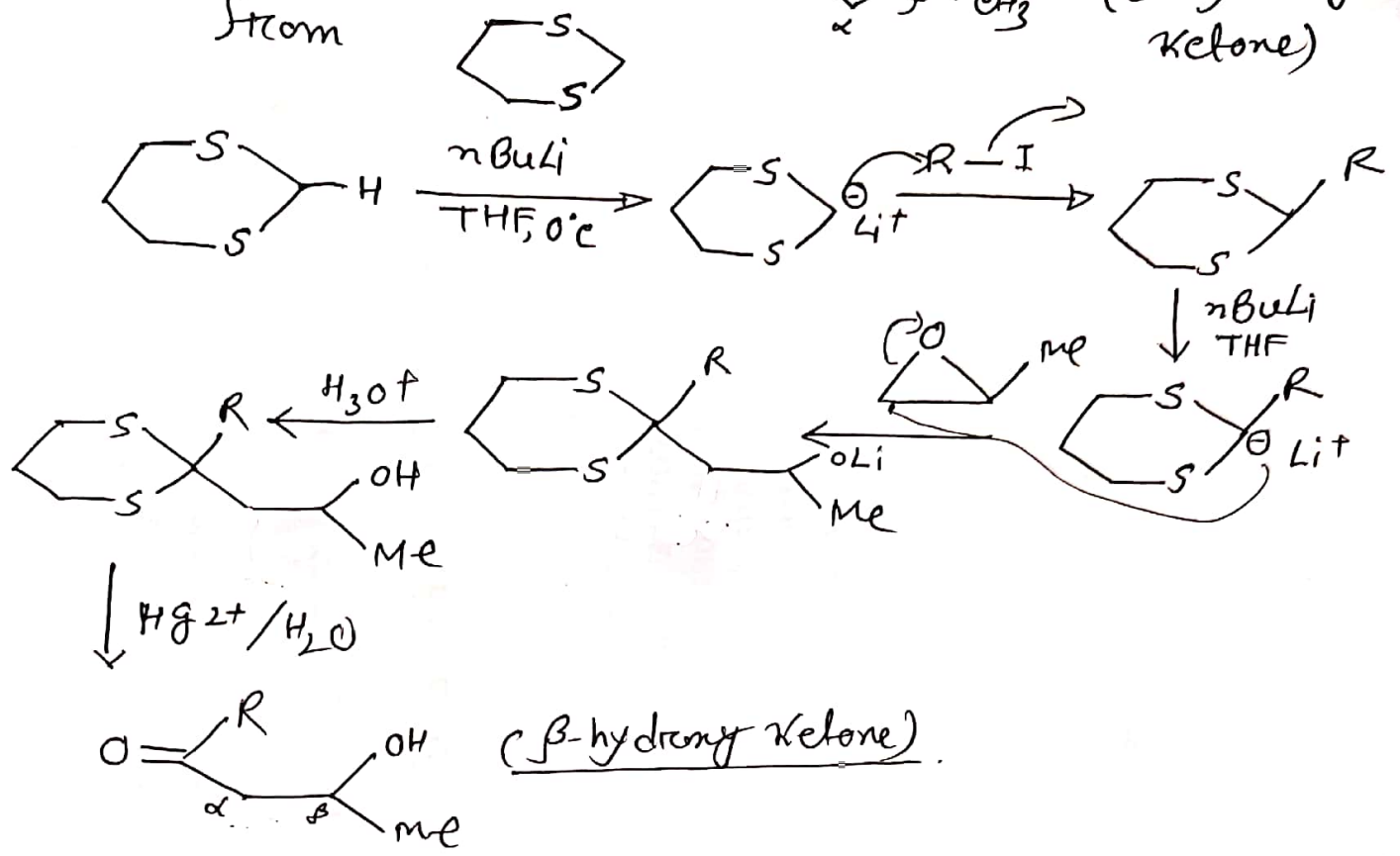


Synthesis

from

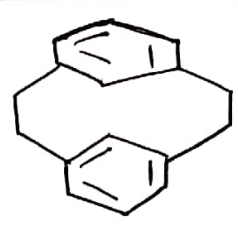


( $\beta$ -hydroxy ketone)

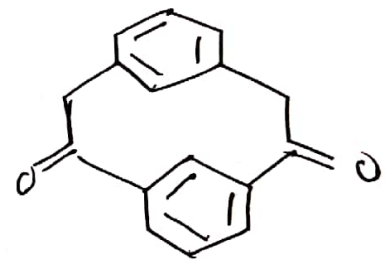


H.W. Synthesis

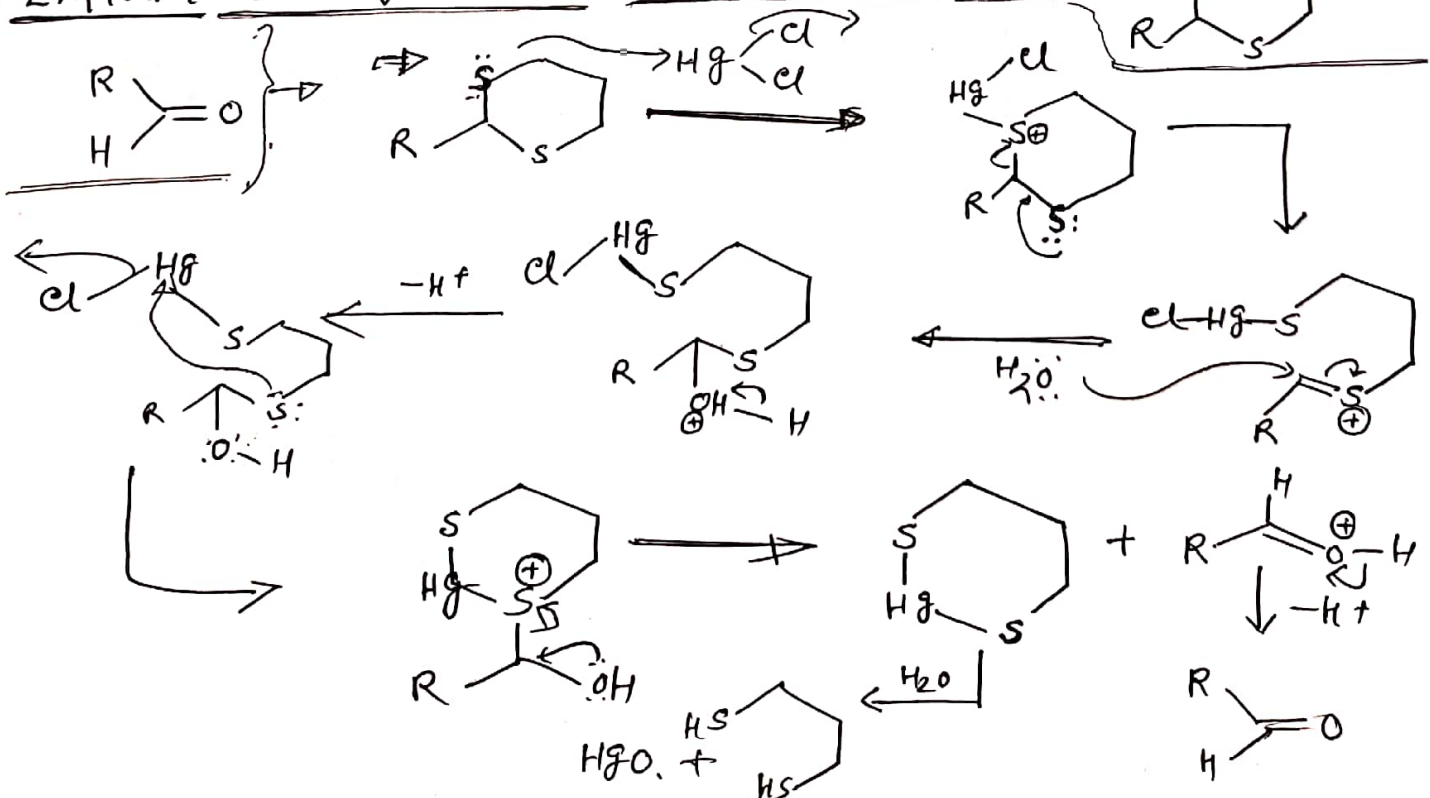
from



and



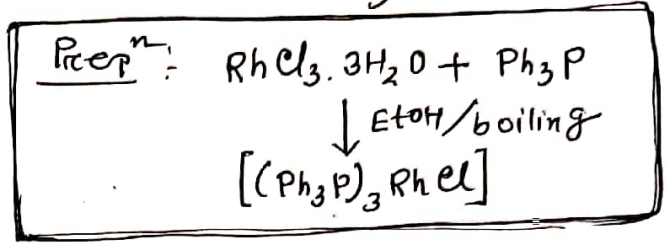
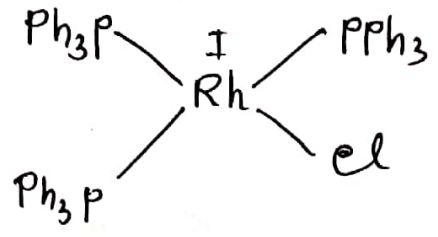
Explain the hydrolysis mechanism of R-S(=O)2-CH2-CH2-S to



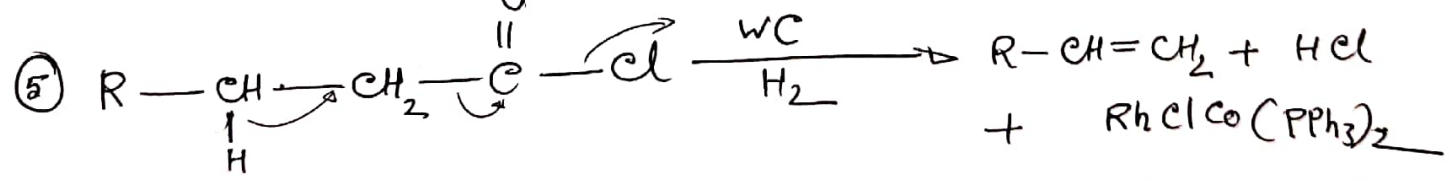
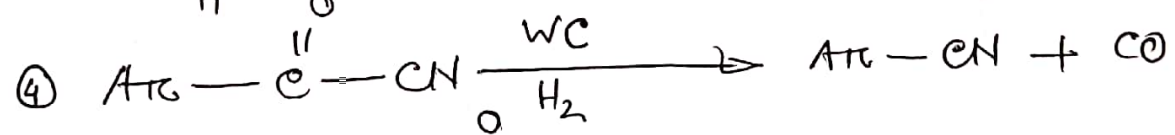
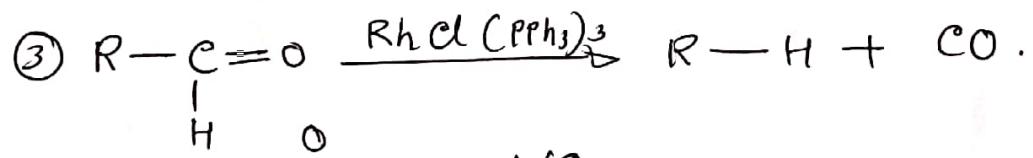
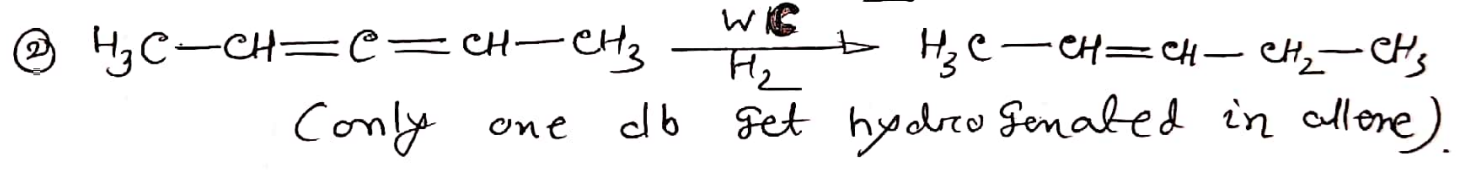
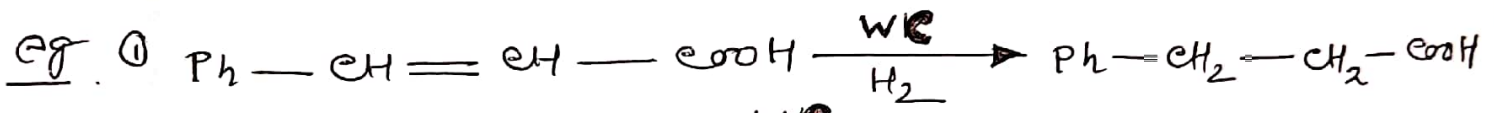
# Wilkinson's catalyst

Rhodium complex,  $[RhCl(PPh_3)_3]$  is known as Wilkinson catalyst.

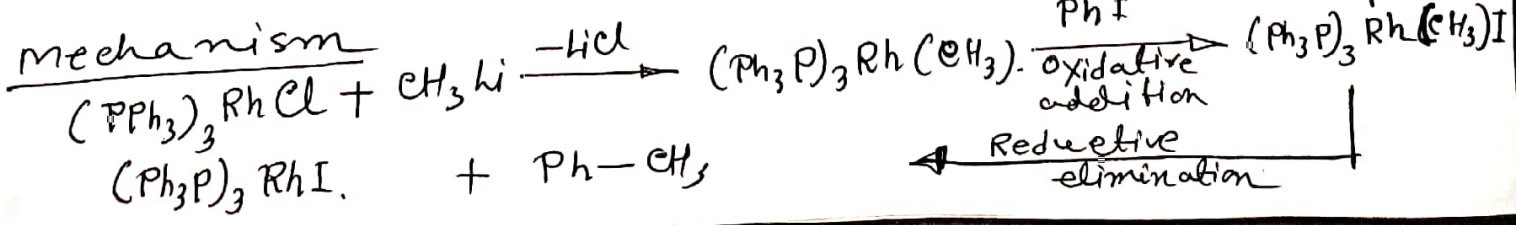
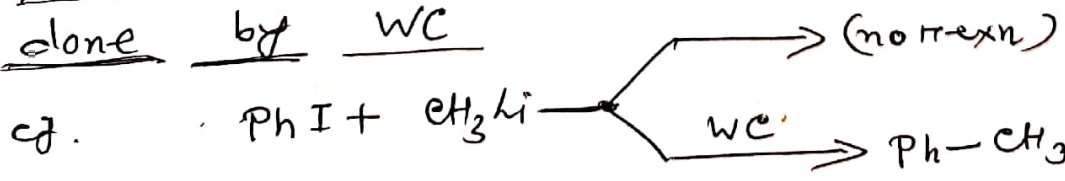
Chlorotris(triphenylphosphine)rhodium (I).

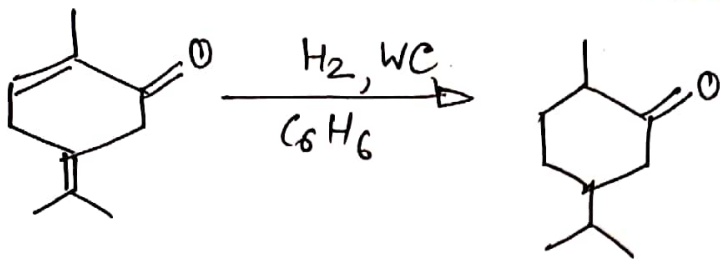


- Use:
- ① It is a homogeneous catalyst for hydrogenation rxn of multiple bond.
  - ② It is also used for decarbonylation of aldehyde.

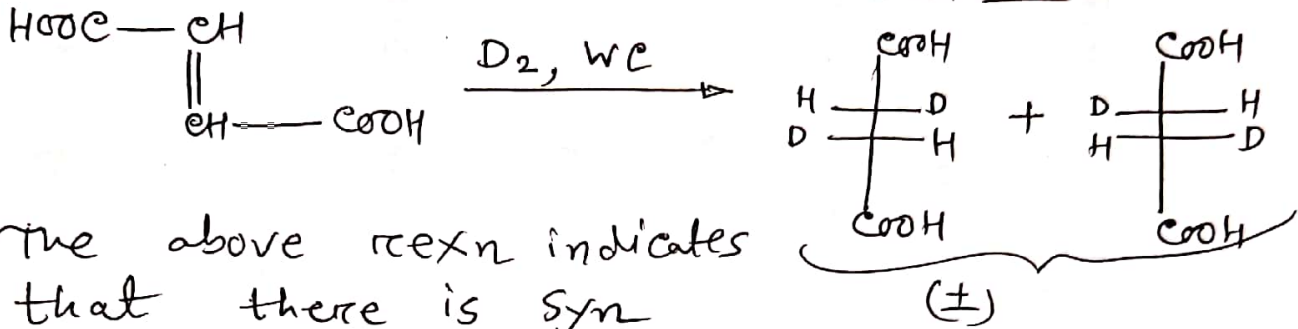
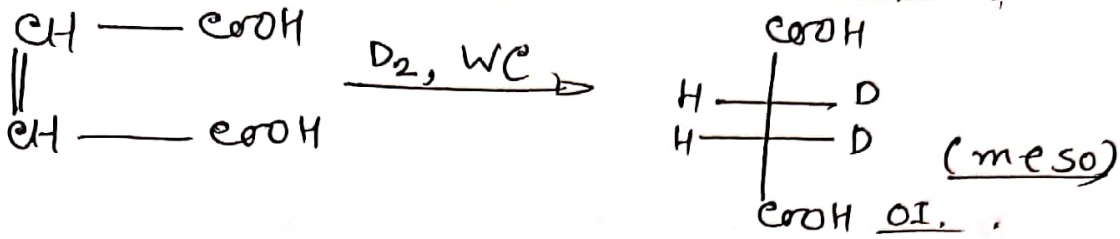


⑥ Formation of carbon-carbon bond can be done by WC

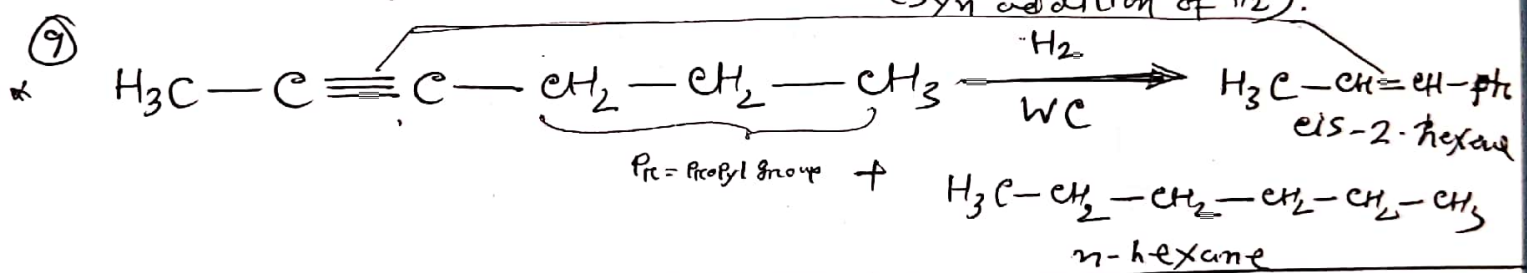




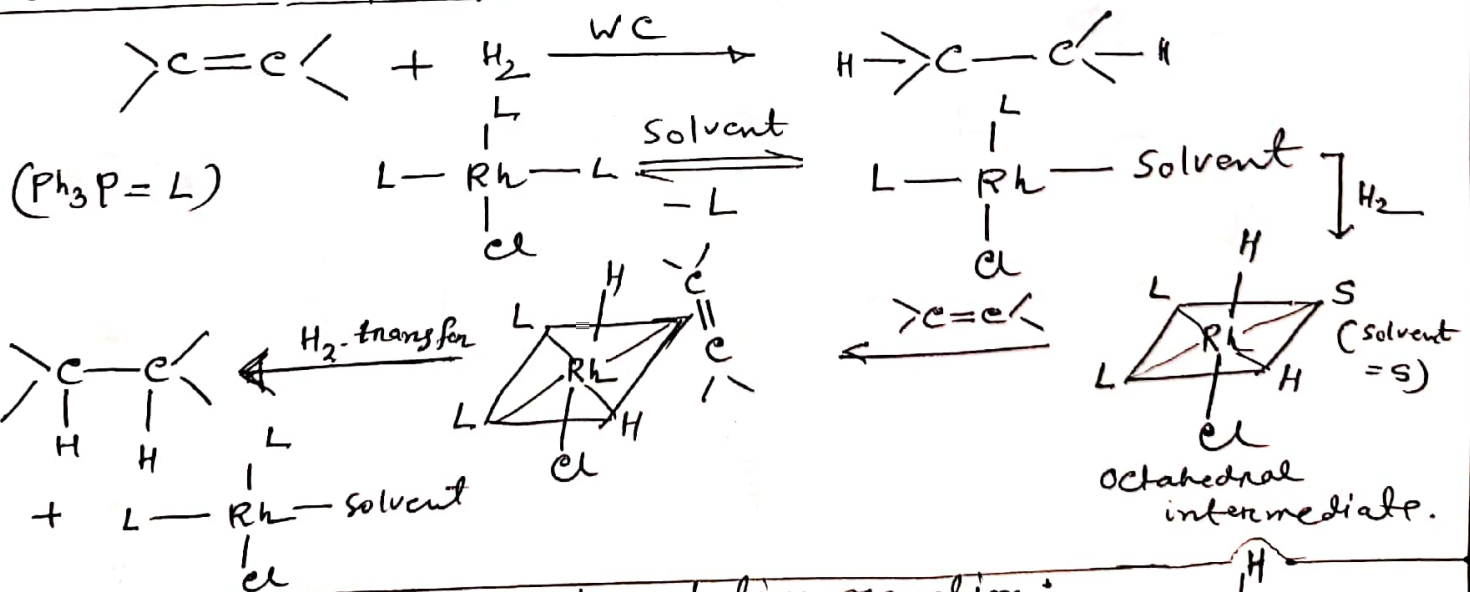
⑤  
 (only exocyclic  
 db get  
 hydrogenated)



The above rxn indicates that there is syn addition occurs in double bond during homogeneous hydrogenation.



Mechanism of hydrogenation reaction:



Mechanism for decarbonylation reaction:

