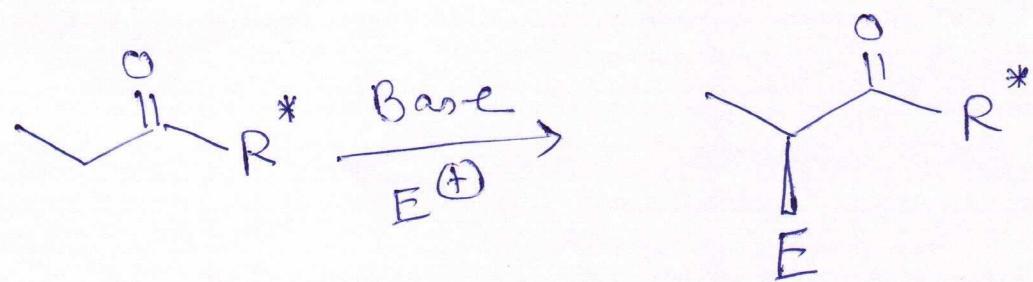
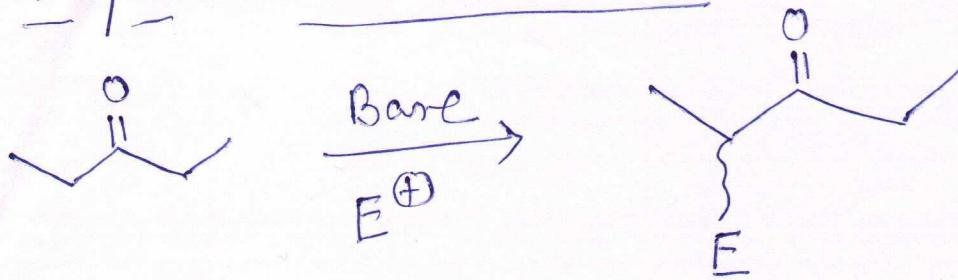
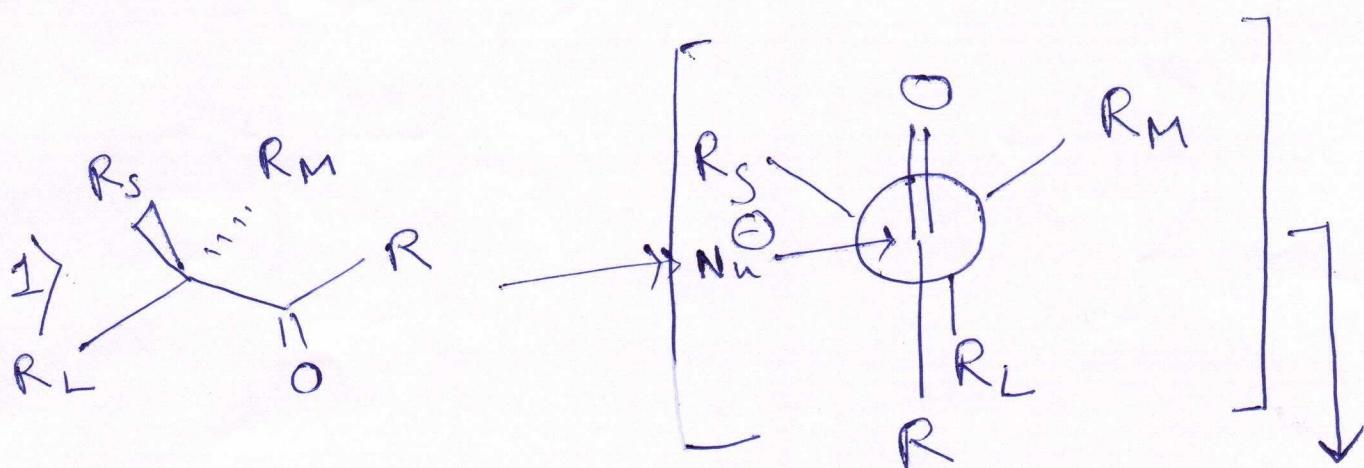
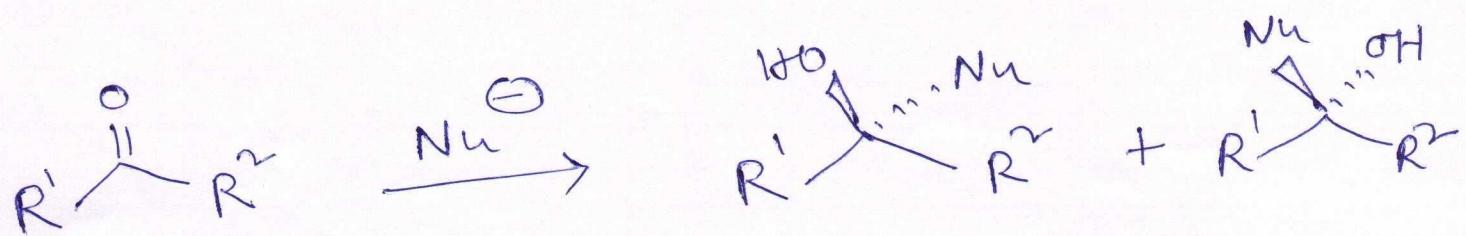


Acyclic Stereocontrol

(1)



R^* = chiral group

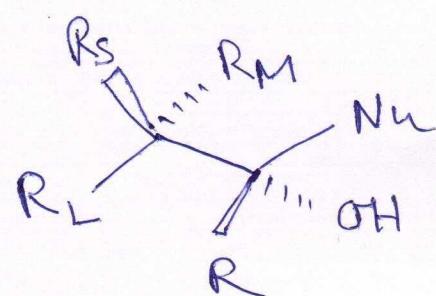


$R_L \Rightarrow$ Large grp

$R_M \Rightarrow$ Medium "

$R_S \Rightarrow$ Small "

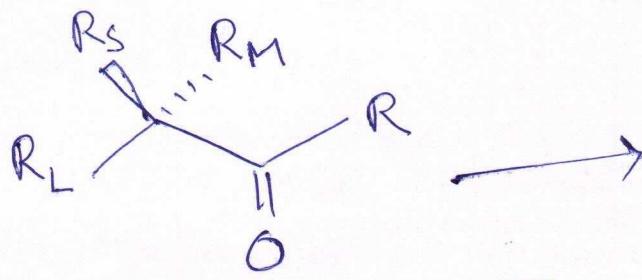
Cram
Model
1952



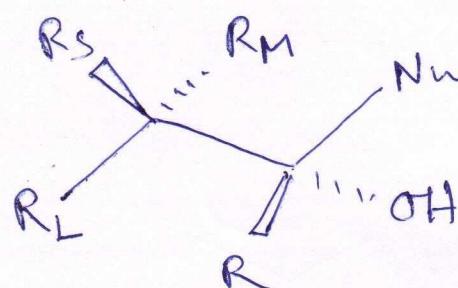
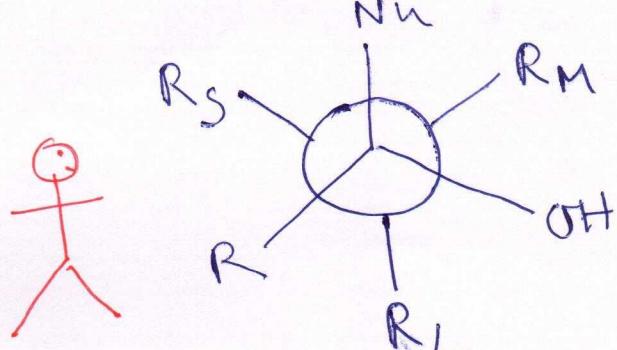
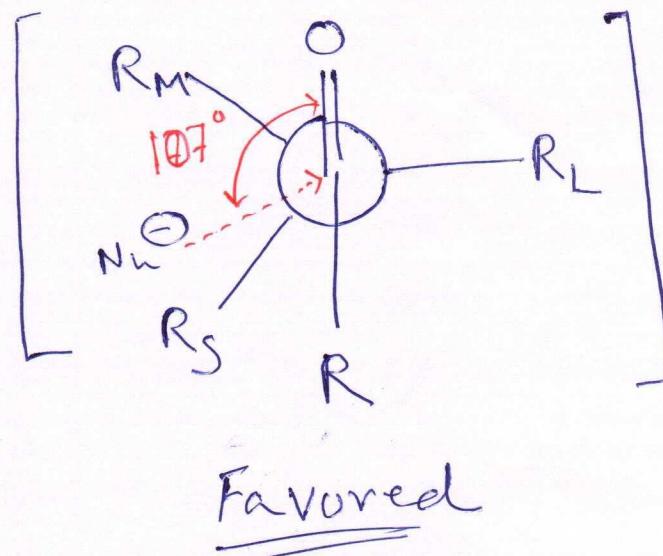
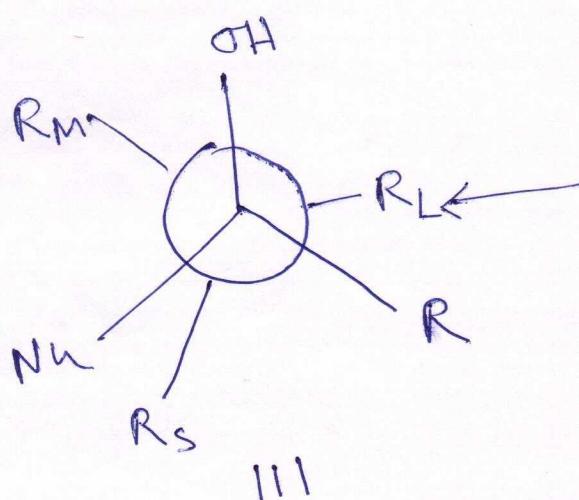
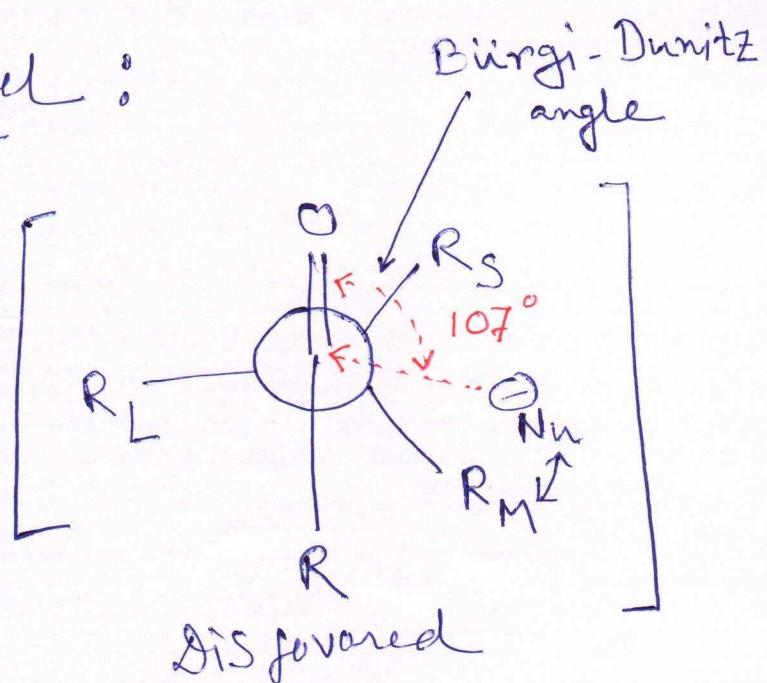
②

X [Eclipsed conformations
Perpendicular approach]

2) Felkin-Anh Model:

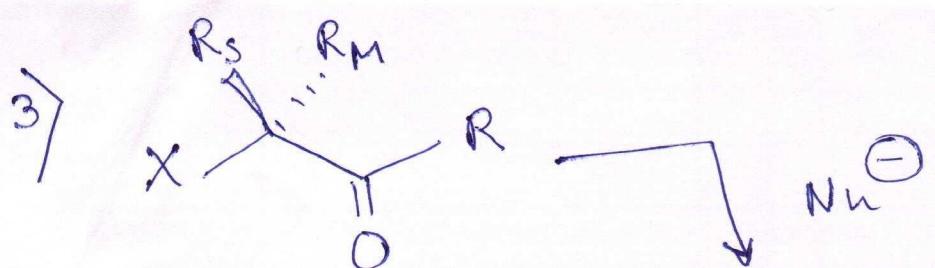


Considering only sterics

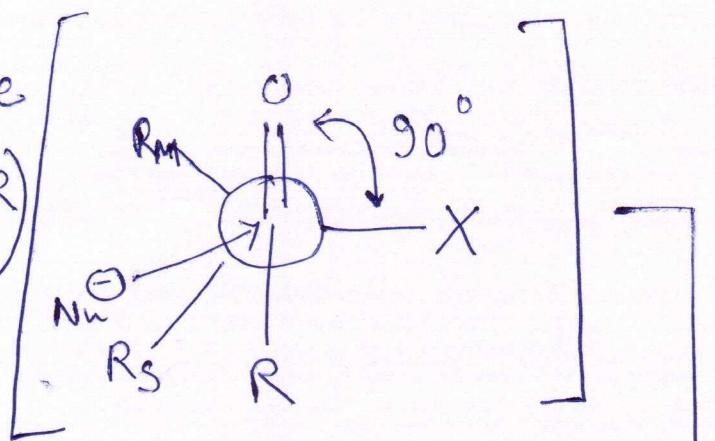


1,2-Syn (Major)

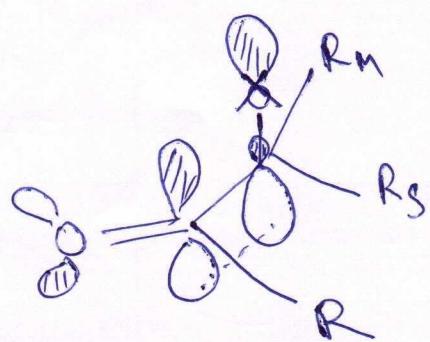
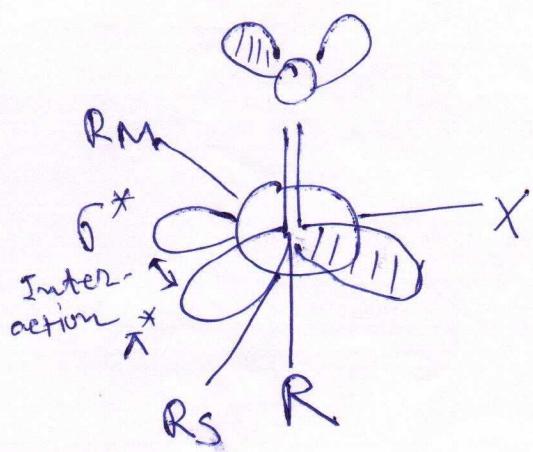
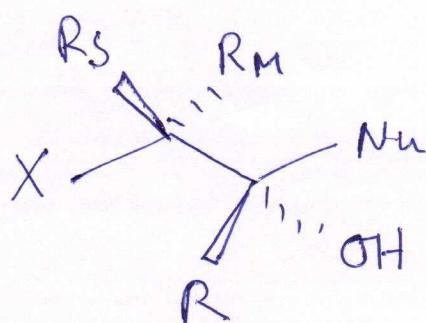
③



$X = \text{Electronegative group (OR, } \text{NR}_2, \text{ SR)}$
etc

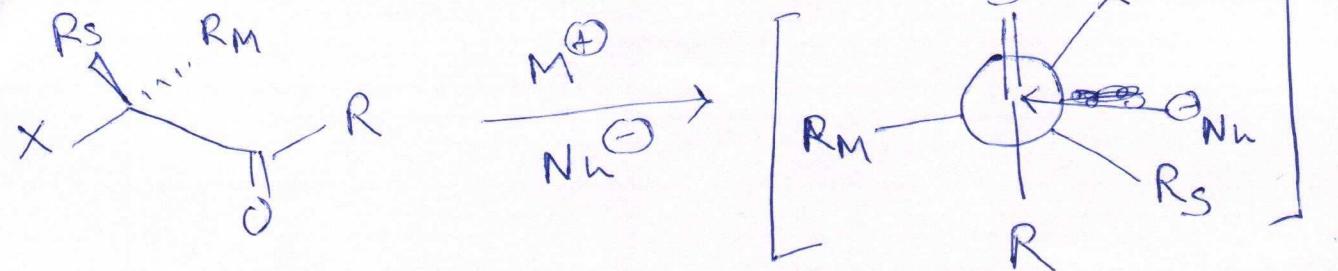


Polar Felkin-Anh
model

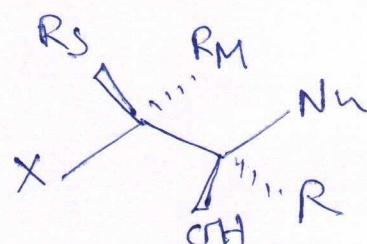


Low energy LUMO
more reactive

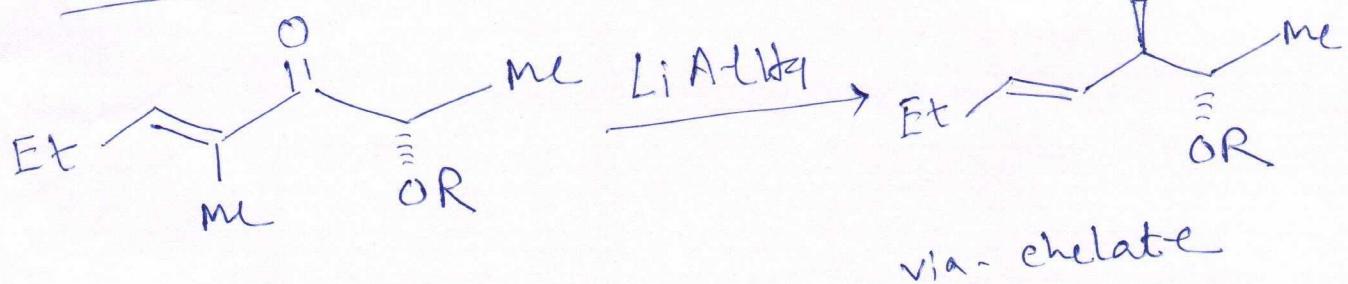
4) Cram - Chelate Model:



X = chelating group



a) Substituent effect:



R
Bn dr
98 : 2

TBDPS 5 : 95

b) Solvent effect:

strong coordinating solvent \Rightarrow Less chelation

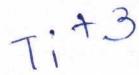
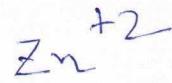
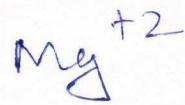
$\text{THF} > \text{Et}_2\text{O} > \text{CHCl}_2 >$ Hydrocarbon

(5)

c) Metal ion effect:

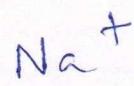
Metal ions involved in chelation

Li (Only sometimes)

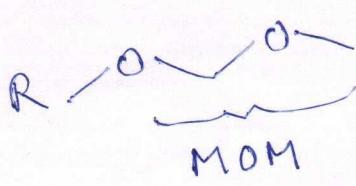
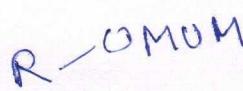
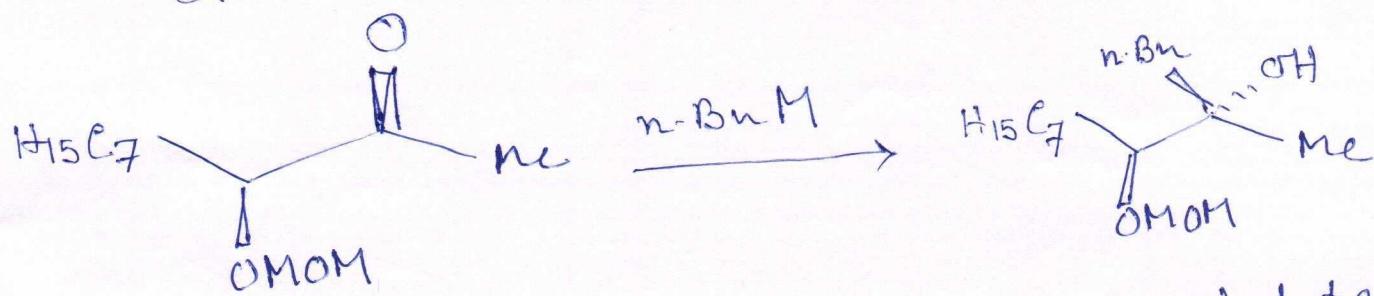


etc.

Metal ions not usually involved in chelation



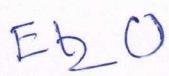
etc.



Solvent

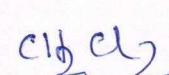
dr
M = Li

dr
M = Mg



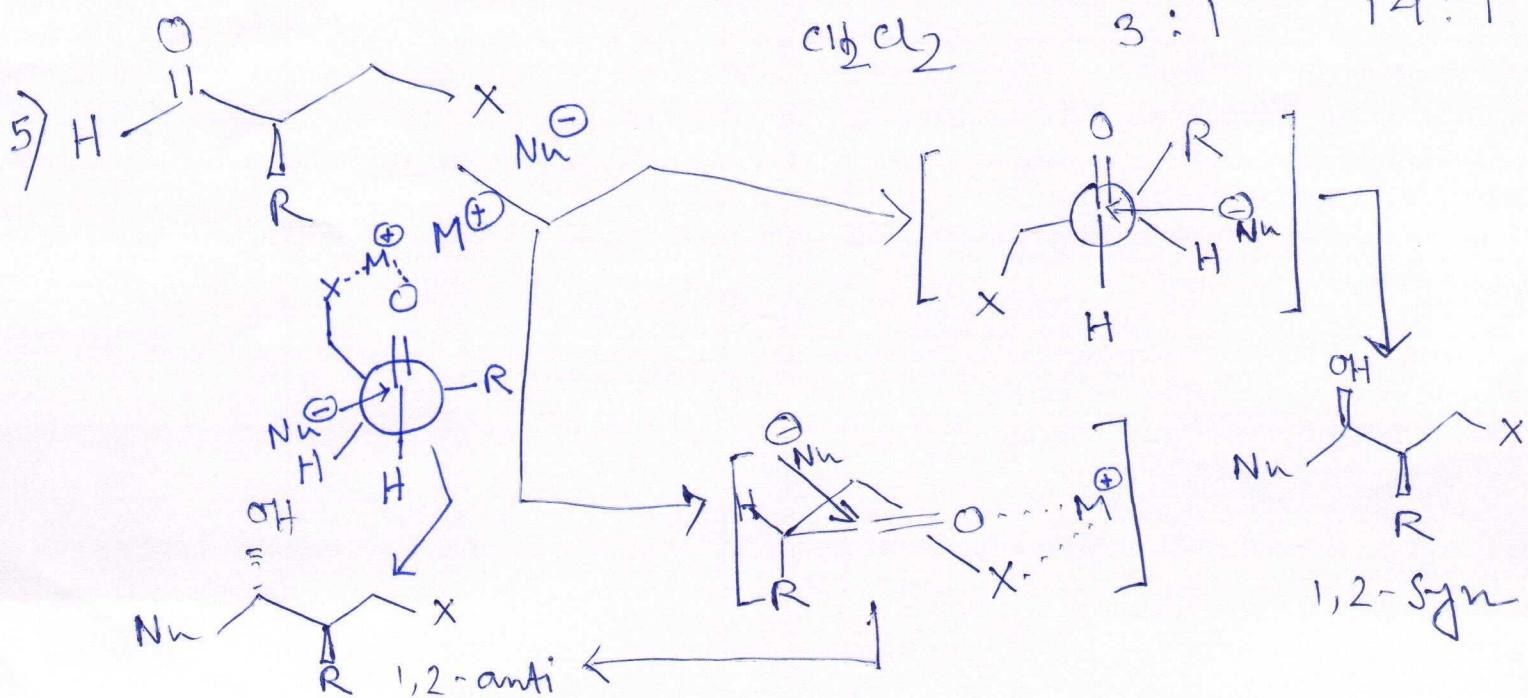
1:1

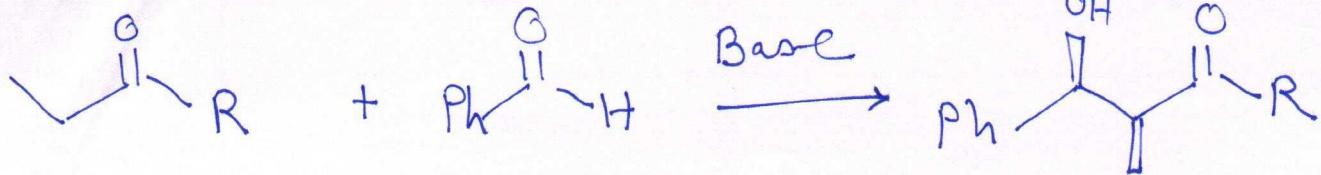
9:1



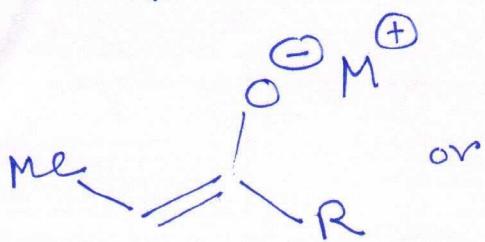
3:1

14:1

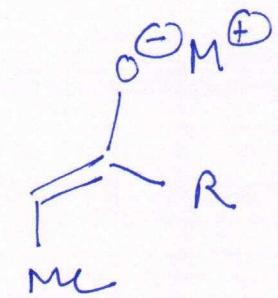




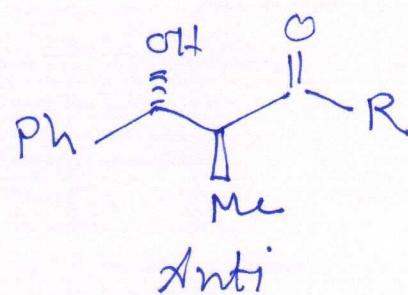
↓ Base



Z-enolate

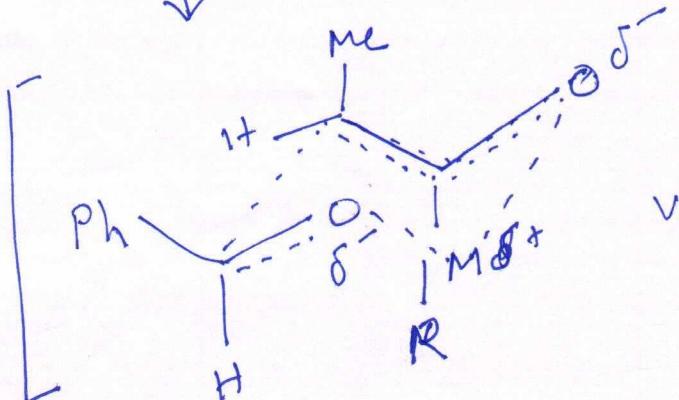


E-enolate



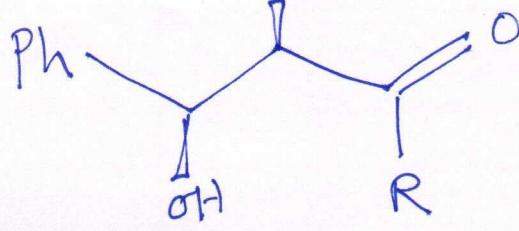
Anti

↓ Ph-C(=O)O

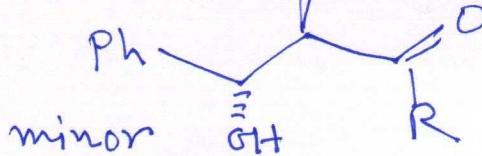
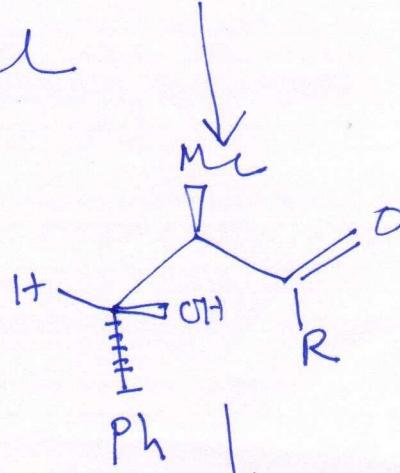


favored

Zimmerman-Tranler
Model



1,2-Syn
major



minor