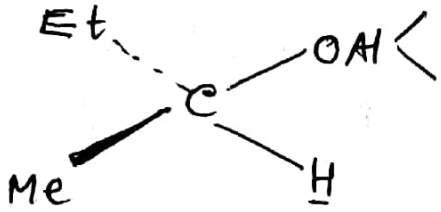
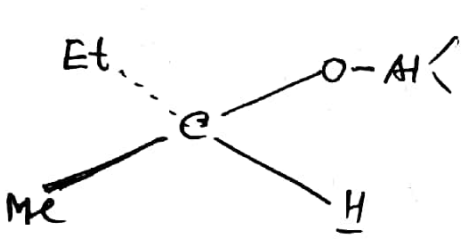
3rd Year

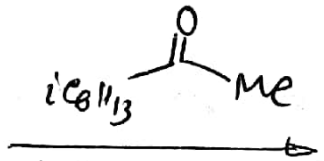
Stereochemistry Problem

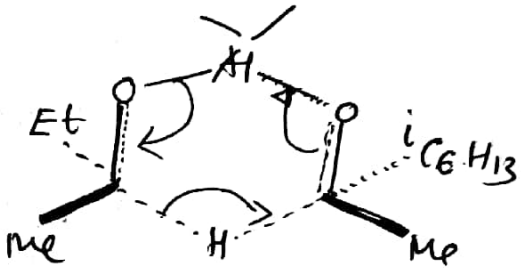


+ $i\text{-}C_6H_{13}COMe$ ⟶ ?

The above rexn is an example of kinetically controlled MPV reduction rexn. which is enantioselective synthesis.

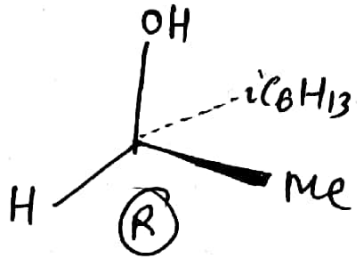




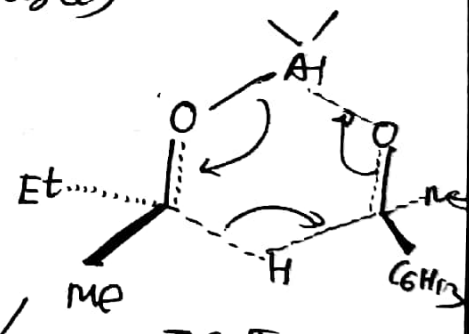


+

T.S-I
(less stable)

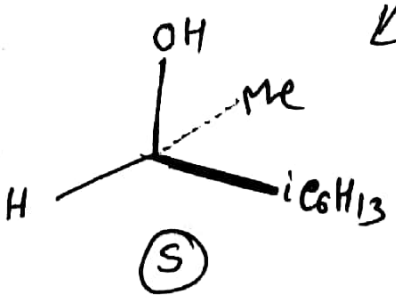


(Minor)



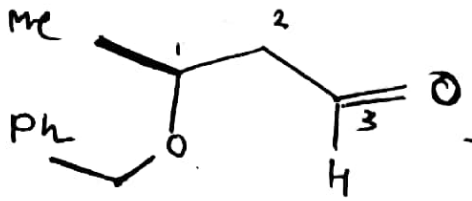
T.S-II
(more stable)

The rexn follows six-memb. Planar cyclic mechanism.

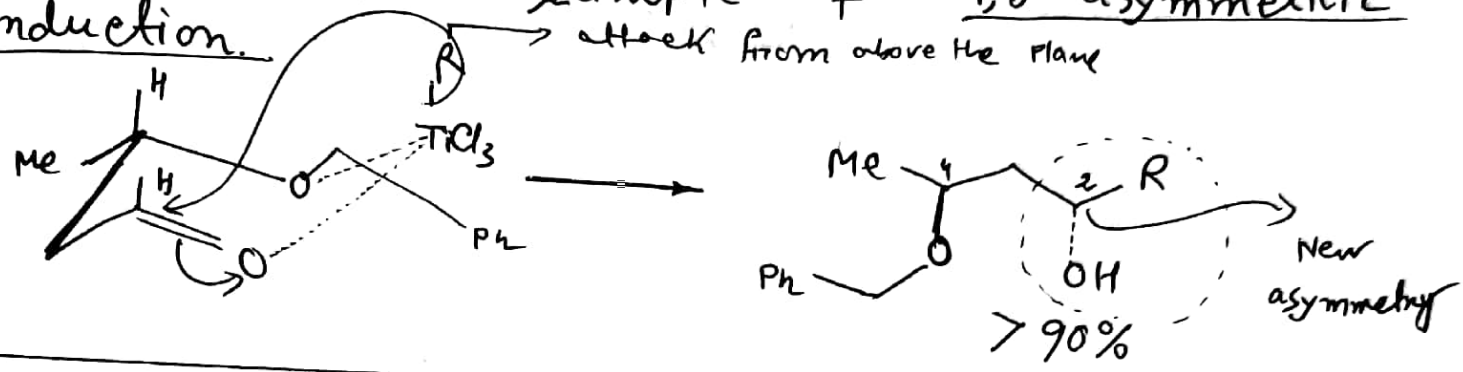


Major

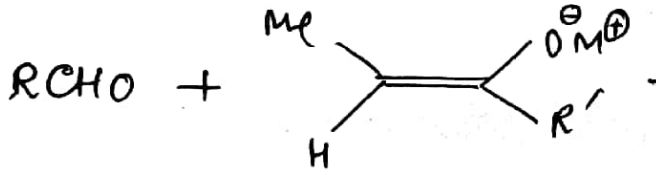
2.



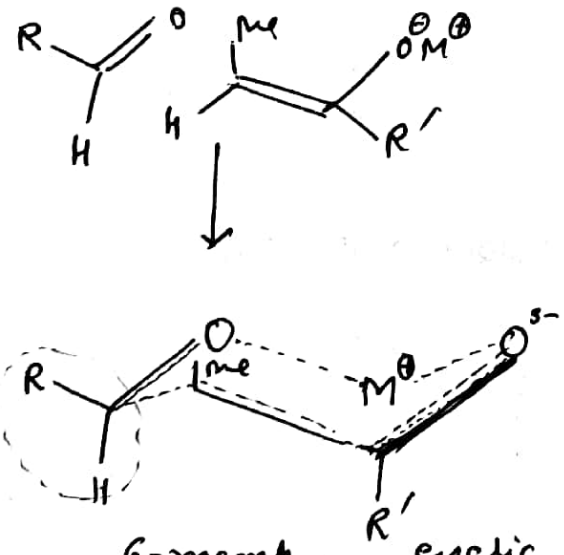
This is an example of 1,3-asymmetric induction.

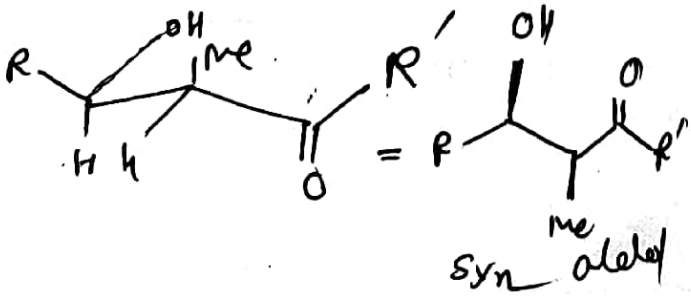


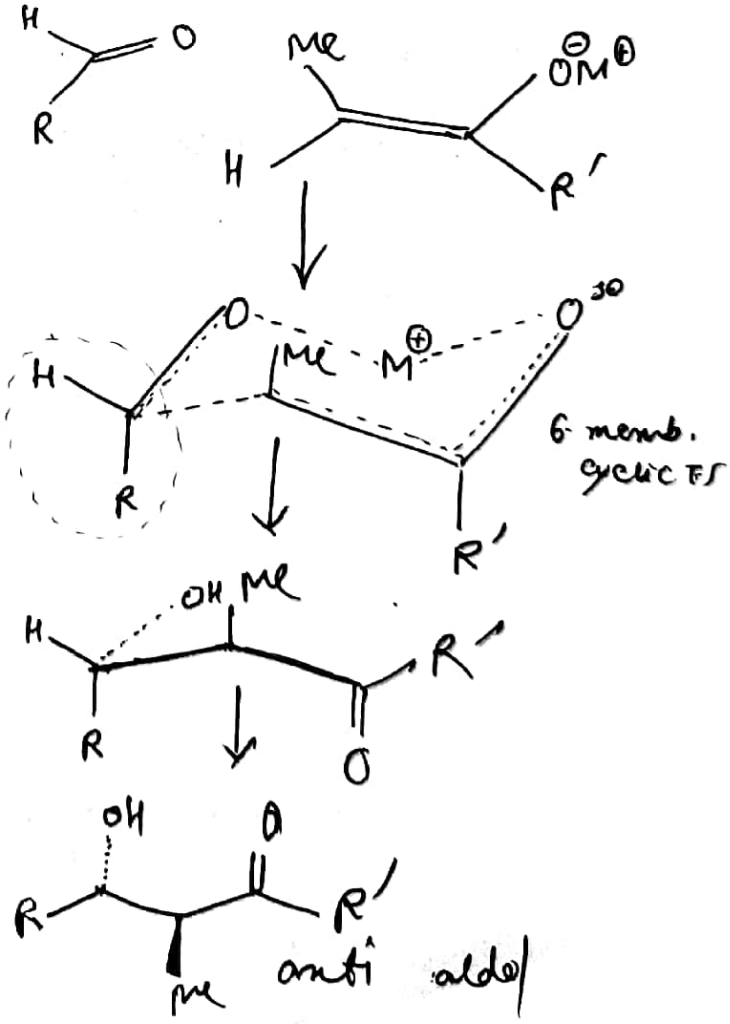
3. What are probable stereochemistry of the product in the following rexn.



This 6-memb. cyclic T.S known as Zimmerman-Traxler model.



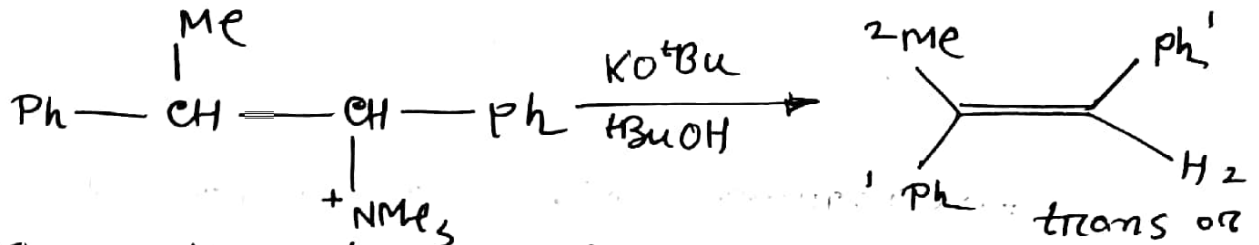




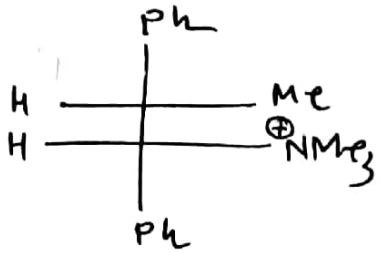
(4). **What is stereoconvergent elimⁿ rexn? Give example.**

there are few examples when both diastereomers of a compound give same Product and approximately at same rate. This is because of the formation of a common intermediate from both diastereomers at r/d step.

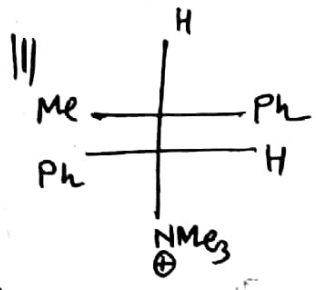
eg.

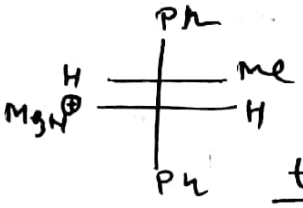


(Both threo/erythro)



erythro





threo

↓ normal mechanism