

Optically pure sol'n		D	L	$\text{OP} = \text{EE}$	Improve part	$(\Delta \text{Obo})_{\text{min}}$
+	100%	100%	0%	100	0	+0d
	90%	10%	80	20	+0.80d	
	80%	20%	60	40	+0.60d	
	70%	30%	40	60	+0.40d	
	60%	40%	20	80	+0.20d	
	Racemic mix	50%	50%	0	100	0
	-	40%	60%	20	80	-0.20d
	-	30%	70%	40	60	-0.40d
	-	20%	80%	60	40	-0.60d
	-	10%	90%	80	20	-0.80d
optically pure	0%	0%	100	0	-0d	
	66%	14%	72% (D>L)	28%	+0.72d	
	18%	82%	64%	36% (L>d)	-0.64d	

39%	61%	22% (2d)	70%	-0.220d
70% 7m 70.88%	30% 3m 29.12%	40% 42.88%	60% 6m 57.12%	+0.40d +0.428d
EE = $\frac{7-3}{7+3} \times 100$				
X: $\frac{5-2}{5+2} \times 100$				

STEREOISOMERISM

$$\text{E}\epsilon = \frac{d - l}{d + l} \times 100$$

$$\begin{aligned} d + l &= 100 \\ d - l &= E\epsilon \end{aligned}$$

$$\therefore d = \frac{100 + E\epsilon}{2}$$

$$\% l = \frac{100 - E\epsilon}{2}$$

Lactamisation
Resolution
Calibration

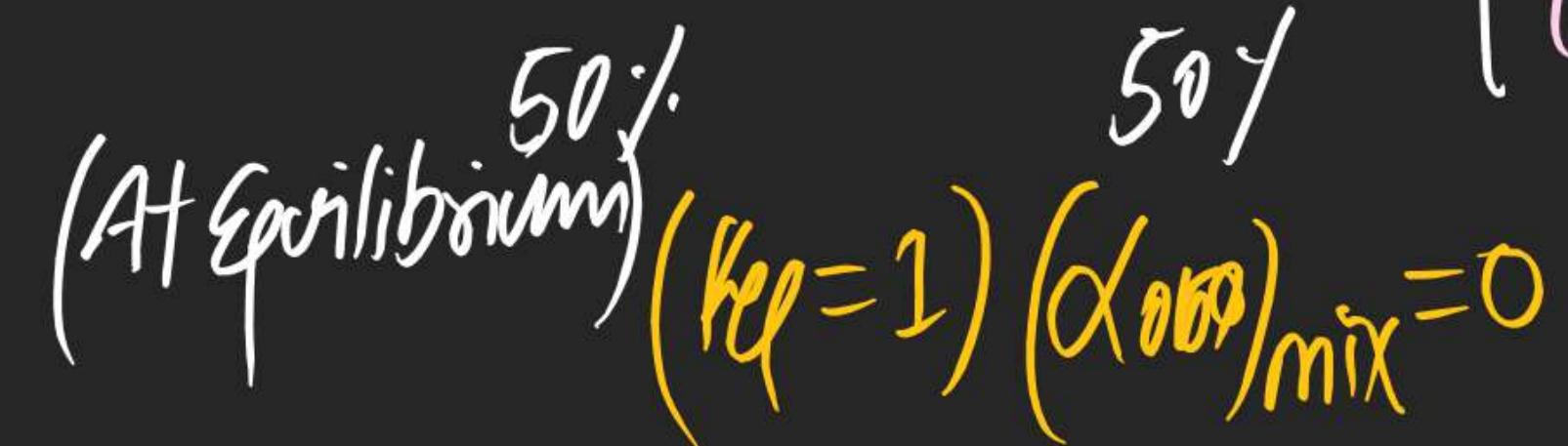
STEREOISOMERISM

Racemisation: A phenomenon in which half of any optically pure compound converted in to its own mirror image form is known as Racemisation.



$$\begin{array}{ll} \overline{\ell = 0} & 100\% \\ \overline{\ell = \ell} & 100 - x \% \end{array}$$

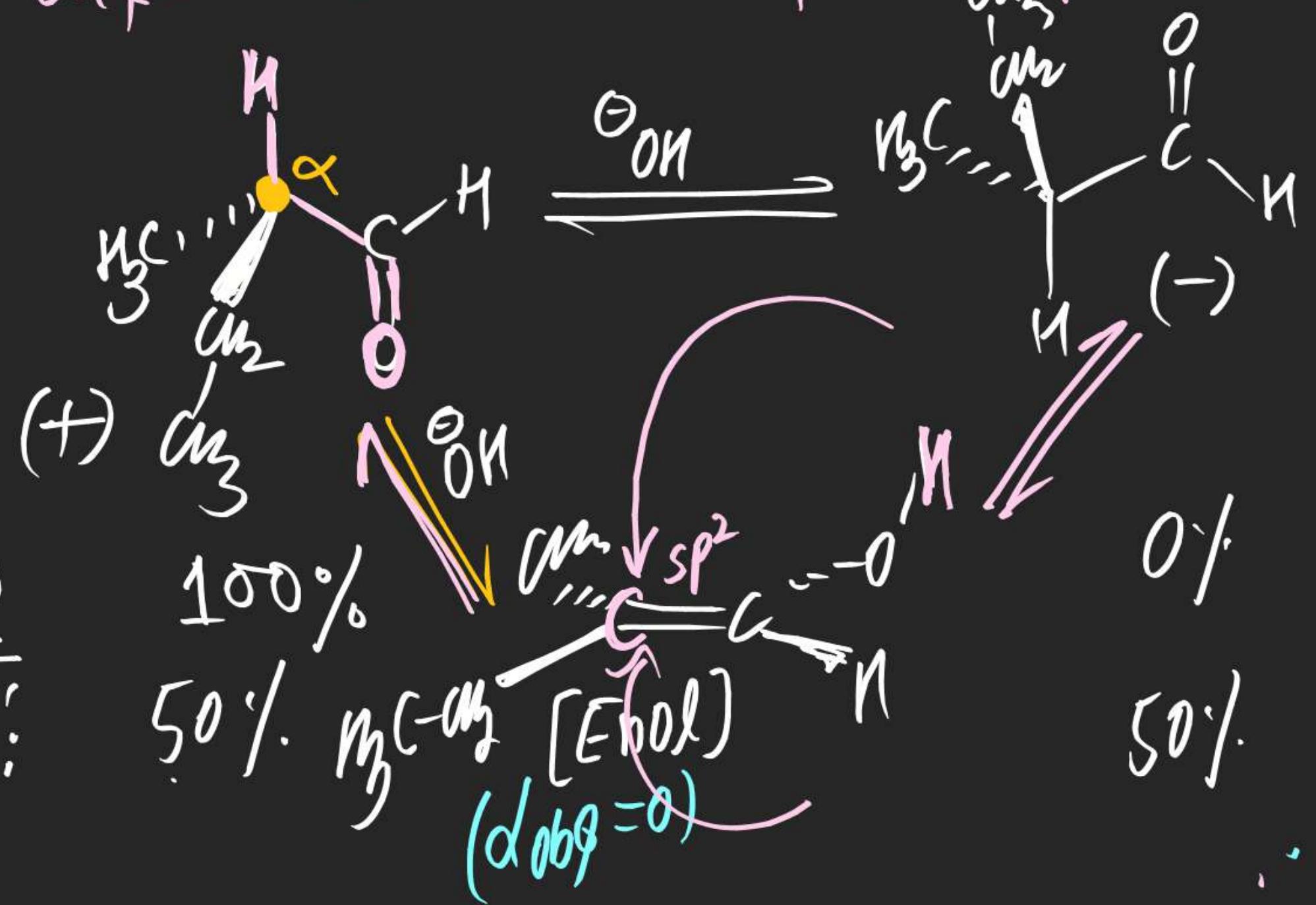
$$\begin{array}{ll} 0\% & \\ x\% & \left\{ \begin{array}{l} \text{EE} = \text{op} = 100 - 2x \\ \text{Racemised part} = 2x \\ (\text{Impure part}) \end{array} \right. \end{array}$$



STEREOISOMERISM

Ex-1: (+)-2-methyl Butanal slowly Racemizes in alkaline condition. Explain why?

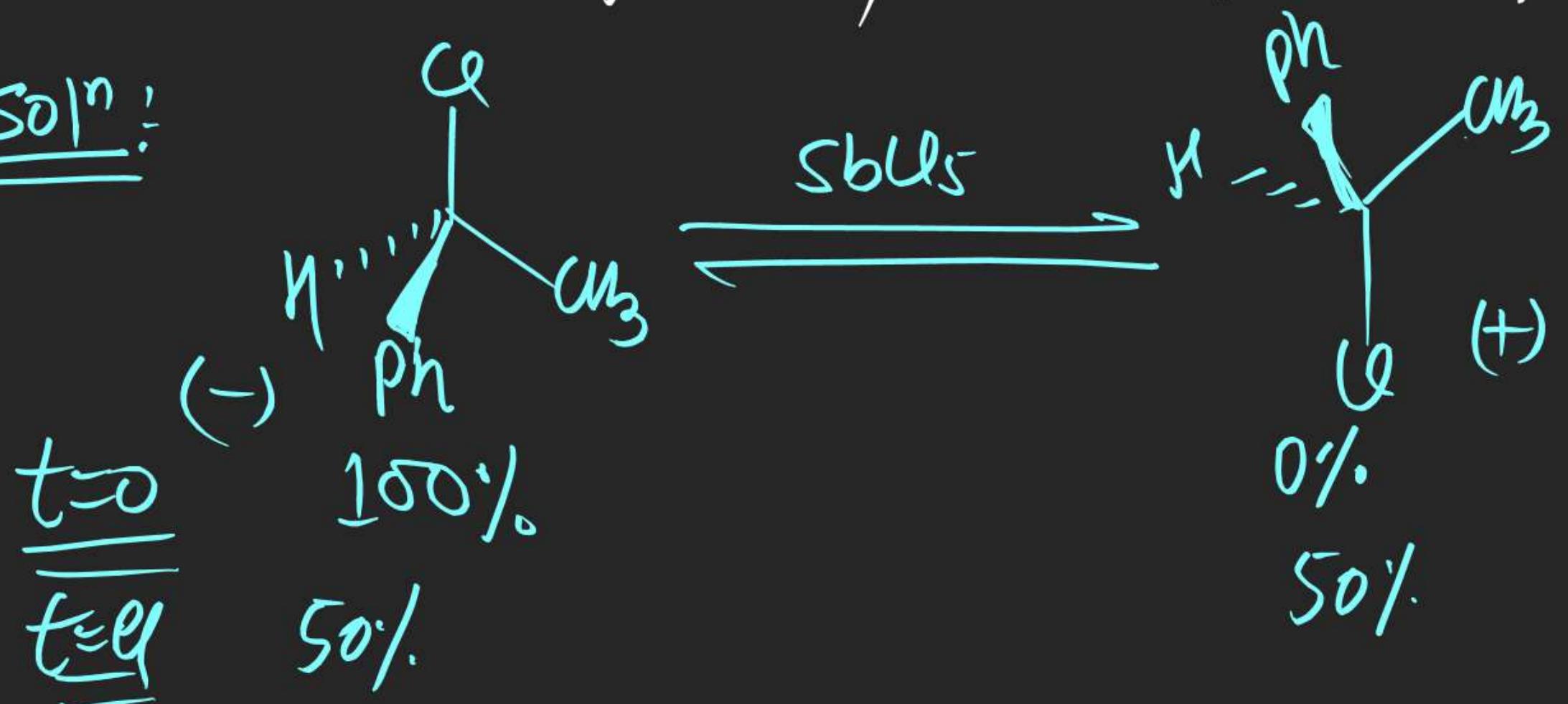
Soln.

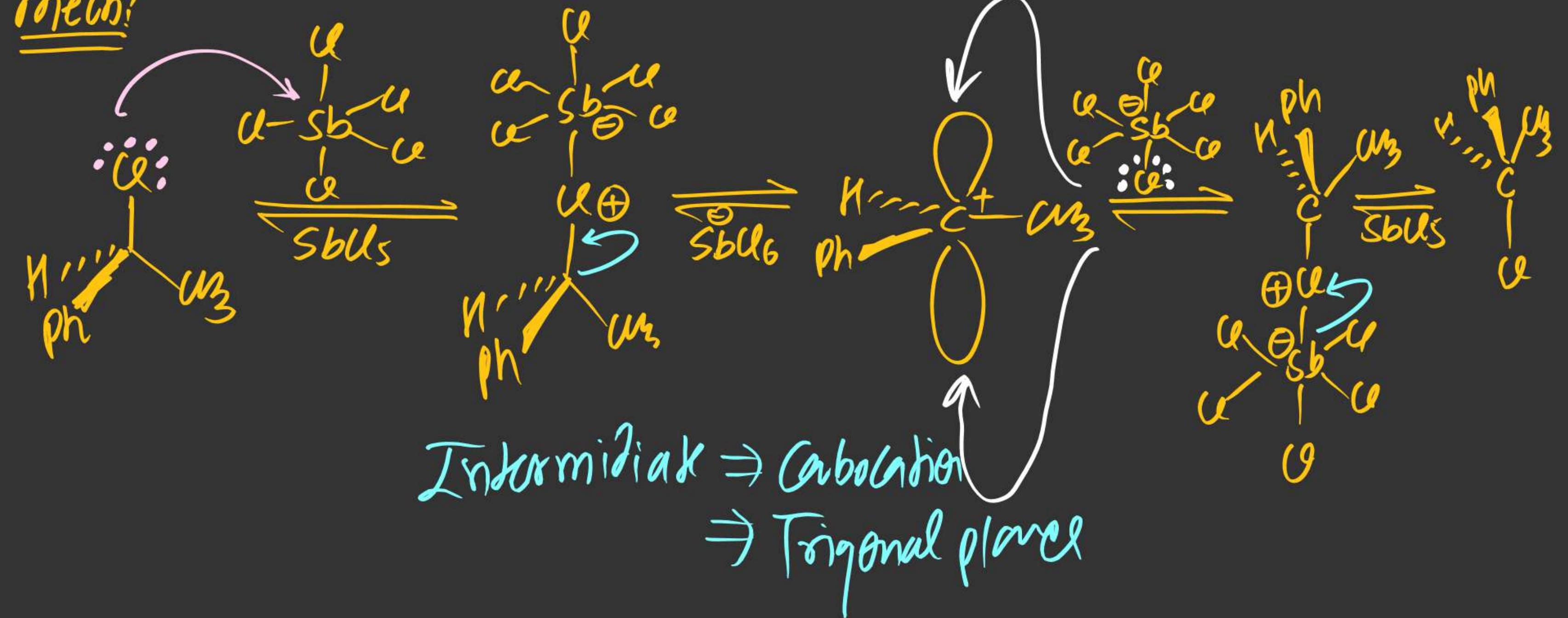


STEREOISOMERISM

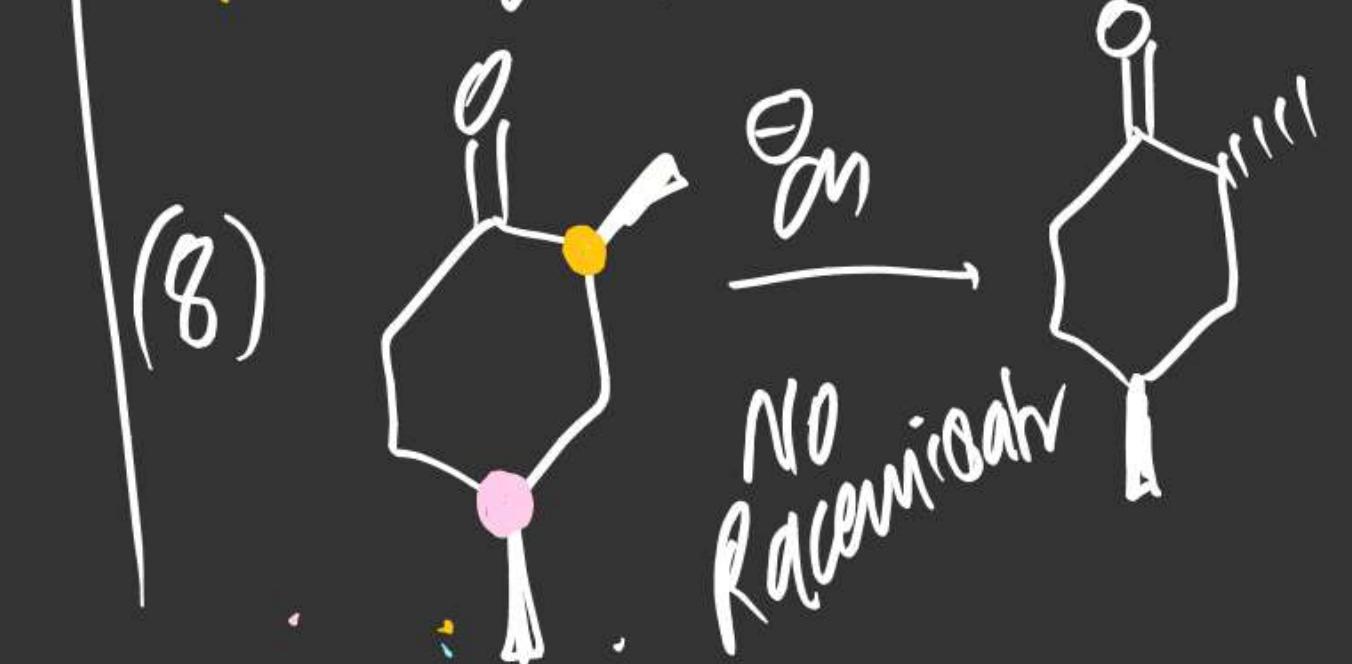
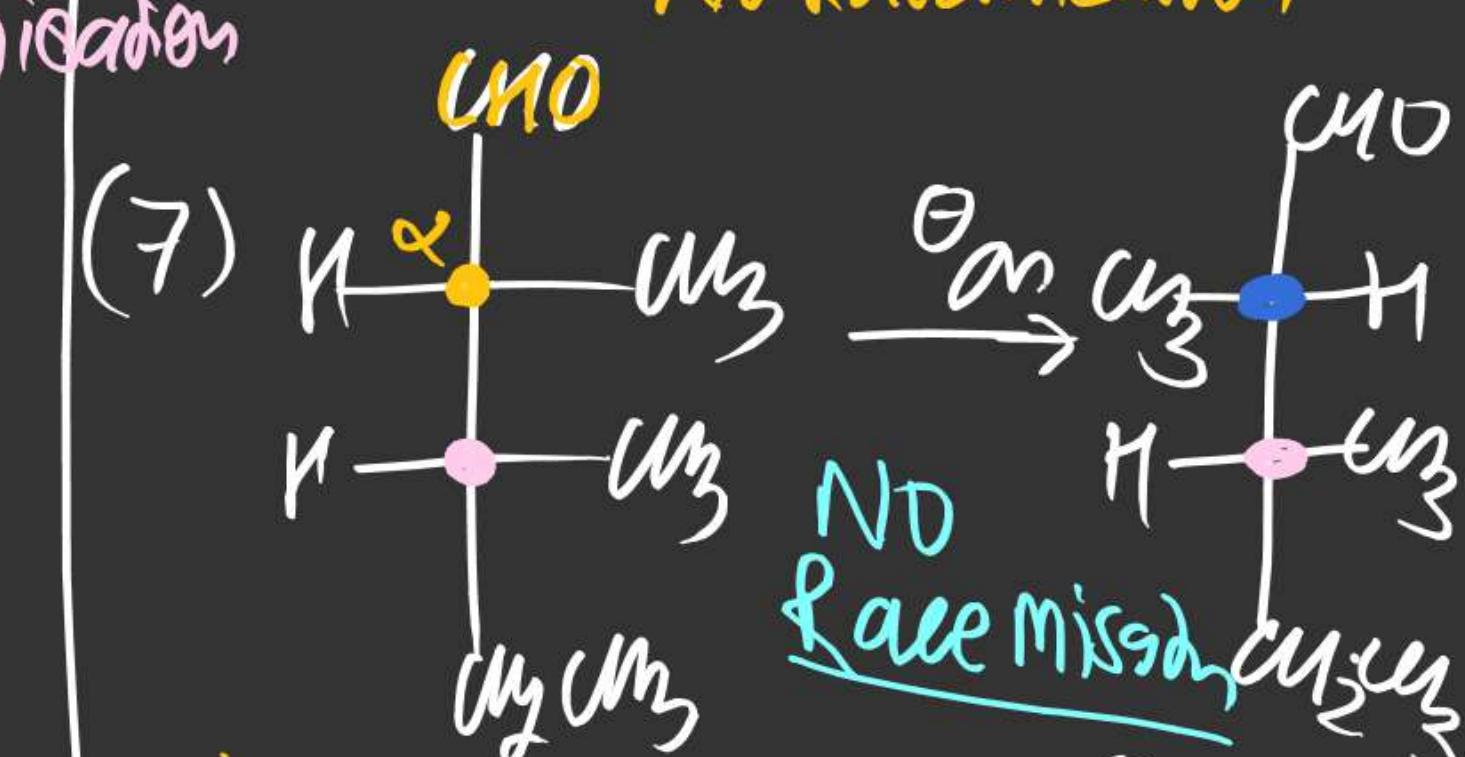
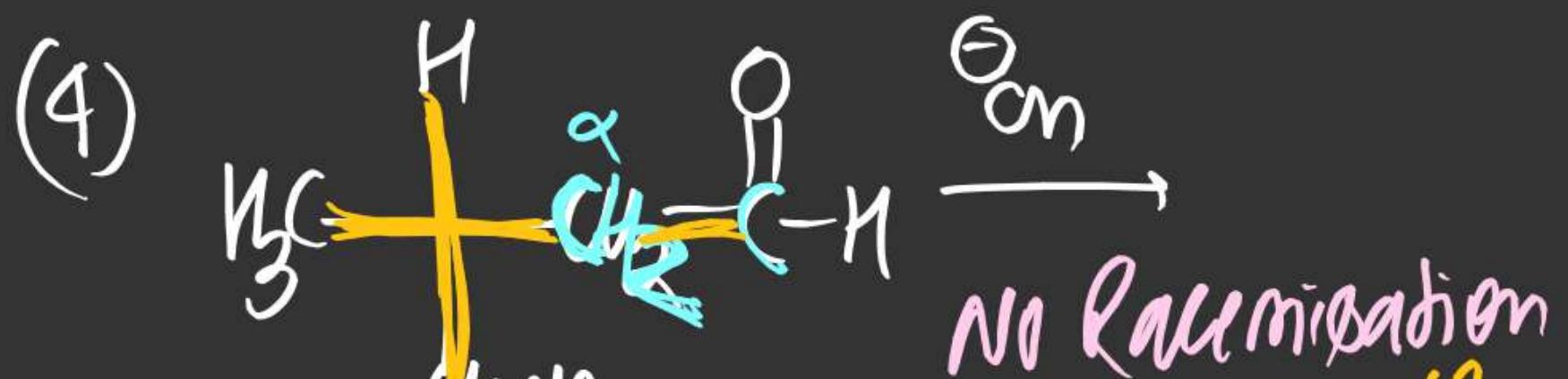
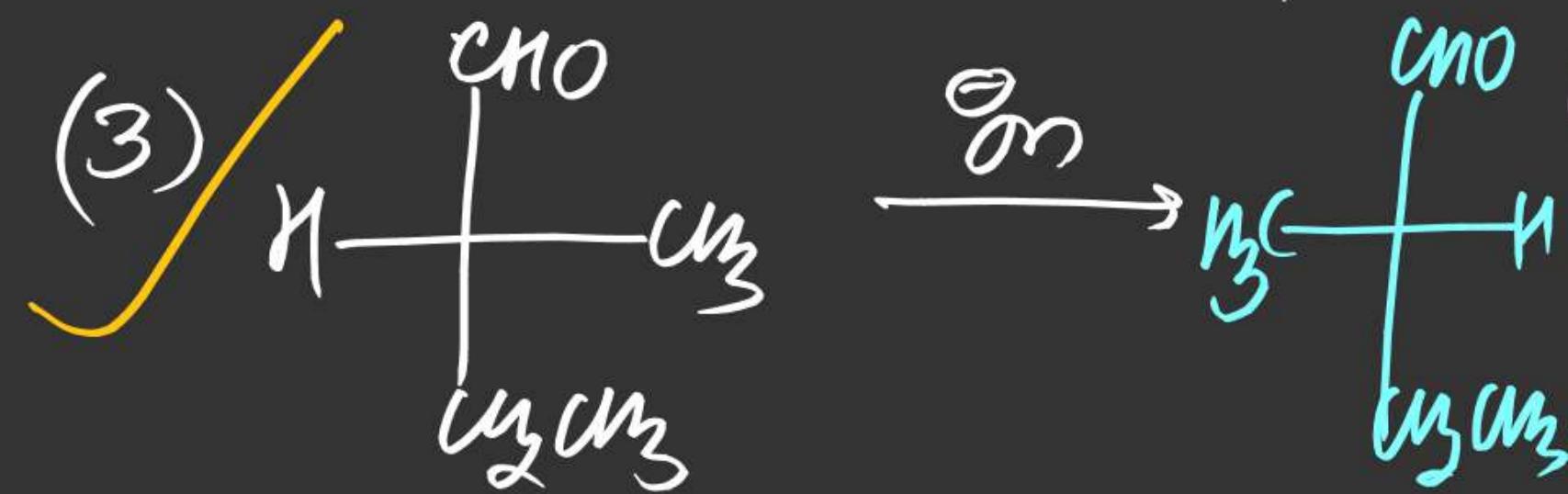
Ex-2: (-)-1-chloro-1-Phenyl Ethane gets slowly Racemised on addition of AlCl₃/Sb₂Os. Explain why?

Soln:



mech?

\Rightarrow Find Reactions in which Racemisation takes place

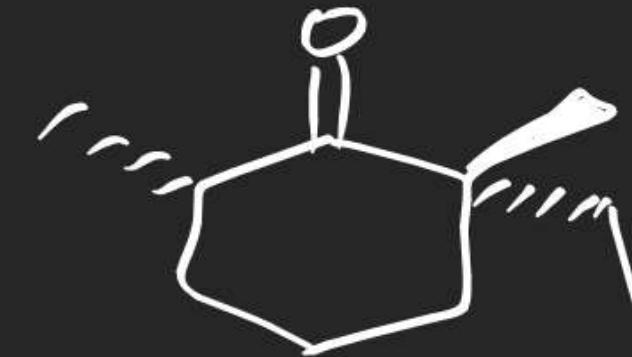


STEREOISOMERISM

(9)



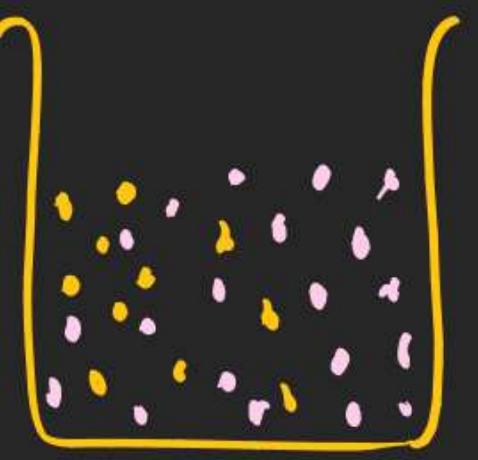
(10)



STEREOISOMERISM

(#) Separation of Enantiomeric mixture:

(1) Mechanical method: → It is a hand pick method possible when sample is in Crystalline form & geometry is asymmetric.



(2) Biological method: In this case mixture is added with an enzyme which is having affinity for a particular enantiomer.

(3) Chemical method (Resolution)

→ In this method Enantiomeric mixture is converted into Diastereomeric mixture by adding chemically & optically Active External Reagent.

