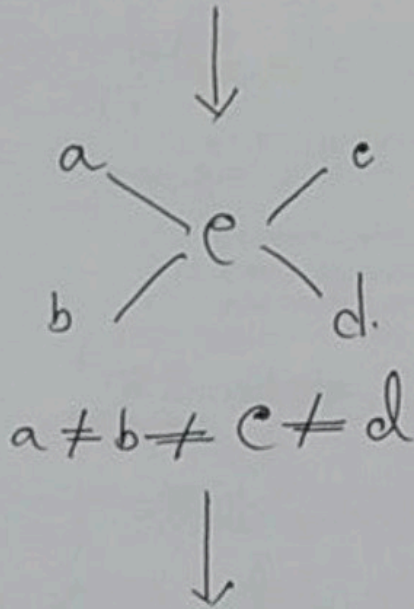
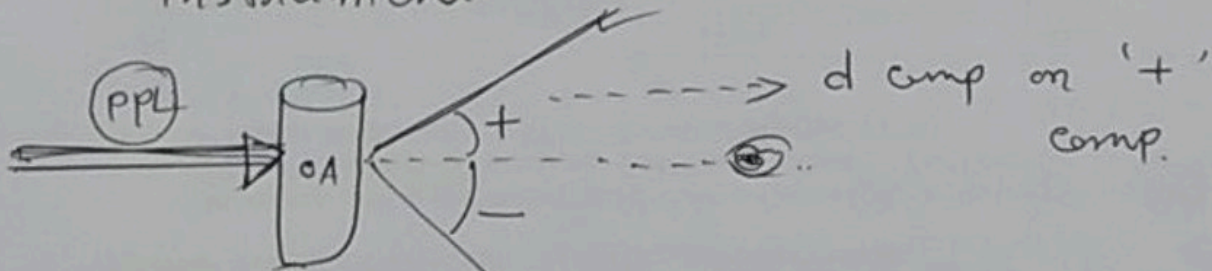


# Optically active compound.

With  $sp^3e$  chiral centre



Polarimeter instrument

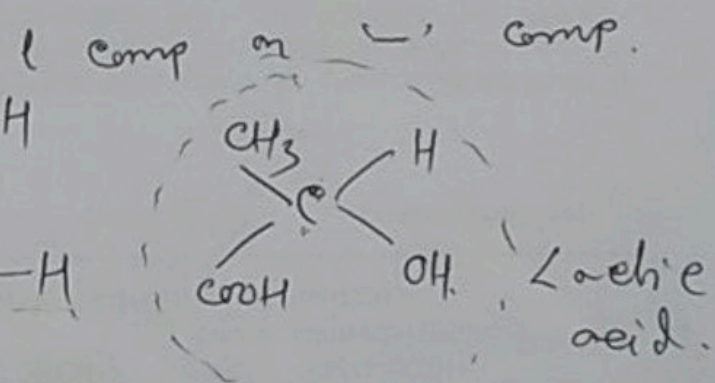
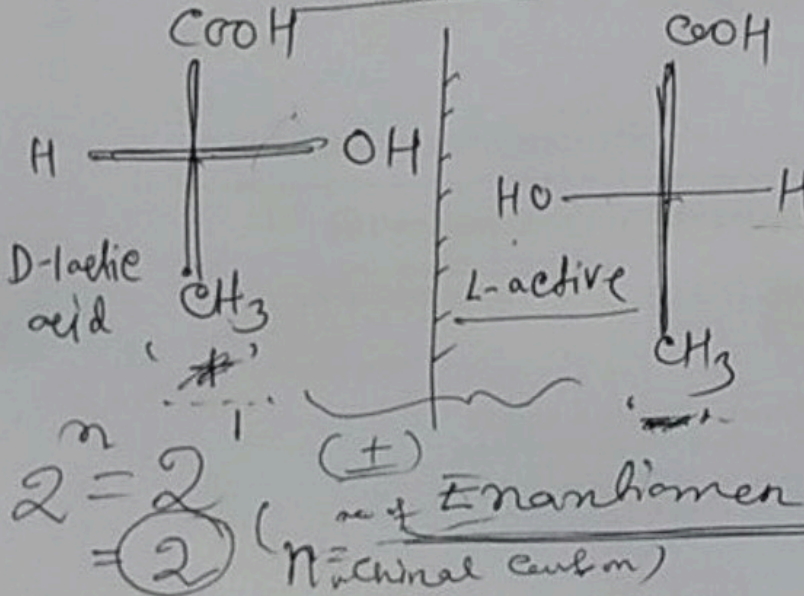


Without  $sp^3e$  chiral centre.

(chiral axis)  
(axial chirality)  
ex

- i) allene
- ii) biphenyl
- iii) spiro comp
- iv) hemispirane

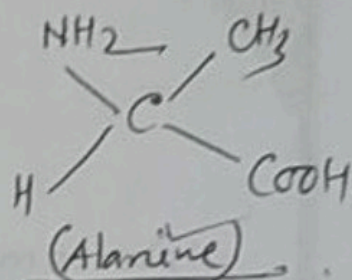
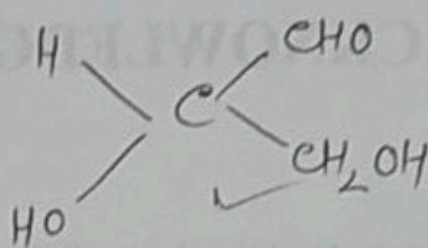
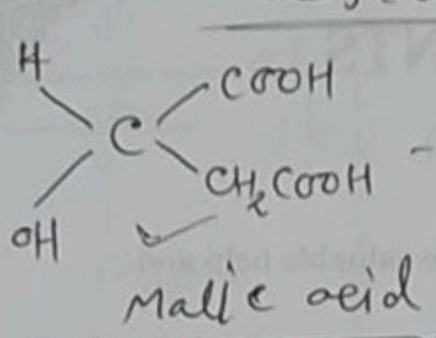
Standard Fischer projection



mirror image.  
non superimposable

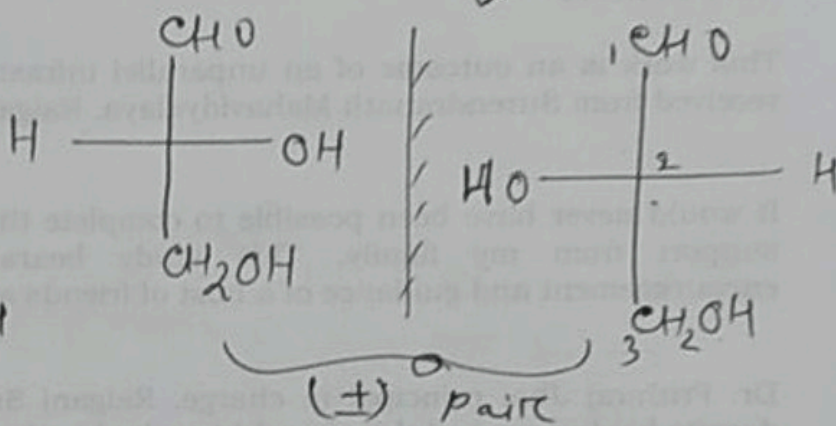
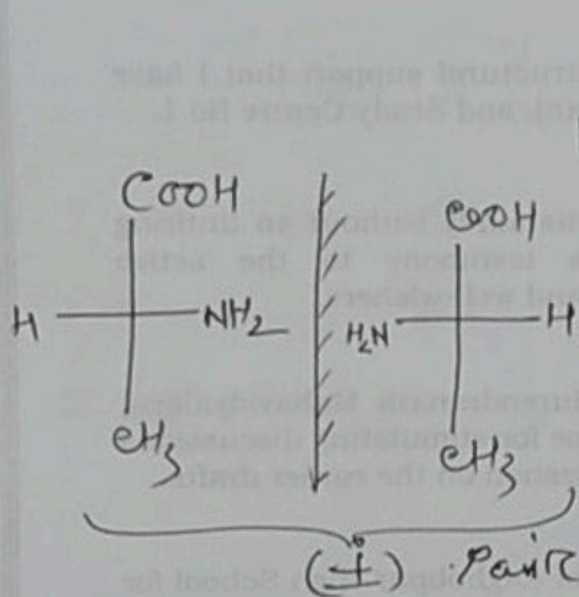


Draw optical isomer of following compounds in Fischer projection.



aldydehyde

2 (Enantiomer)

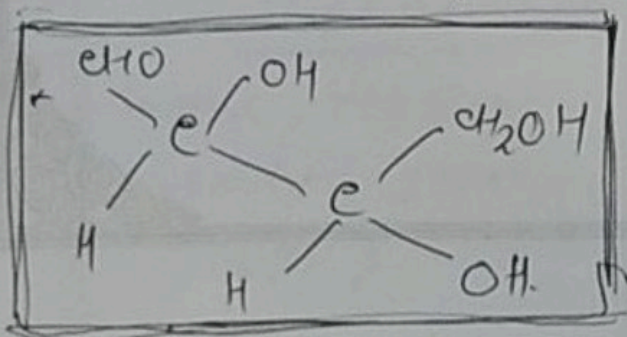


enantiomeric pair → { d → dextrorotatory  
or 'dl' pair. { l → levorotatory

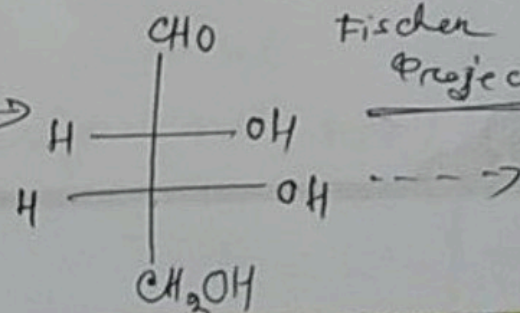
(D/L - nomenclature)

D = dexter → right

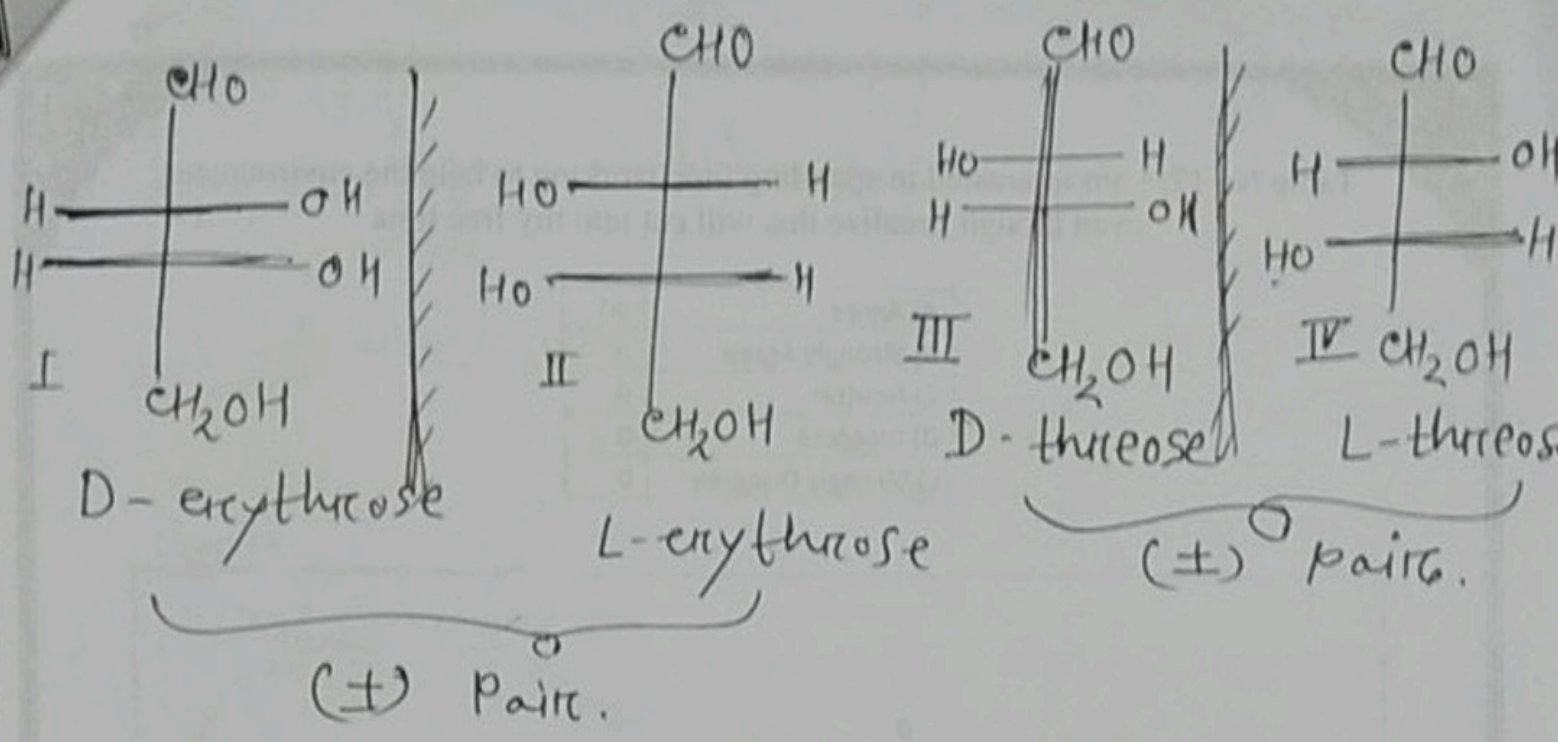
L = laevus → left



standard  
Fischer  
Projection

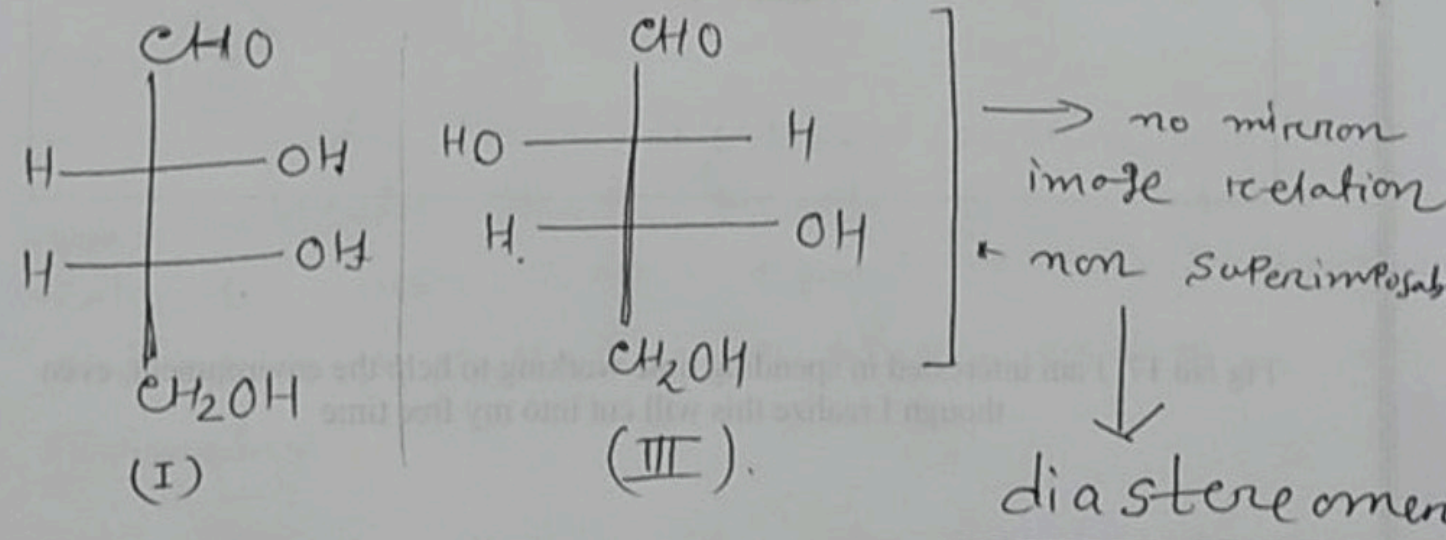






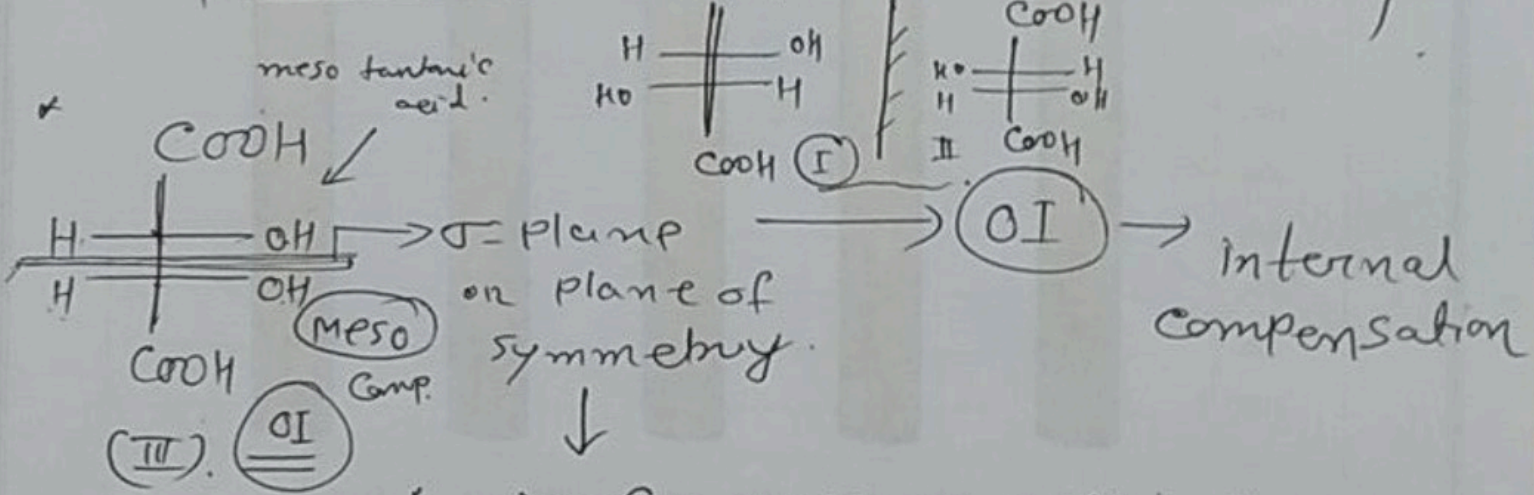
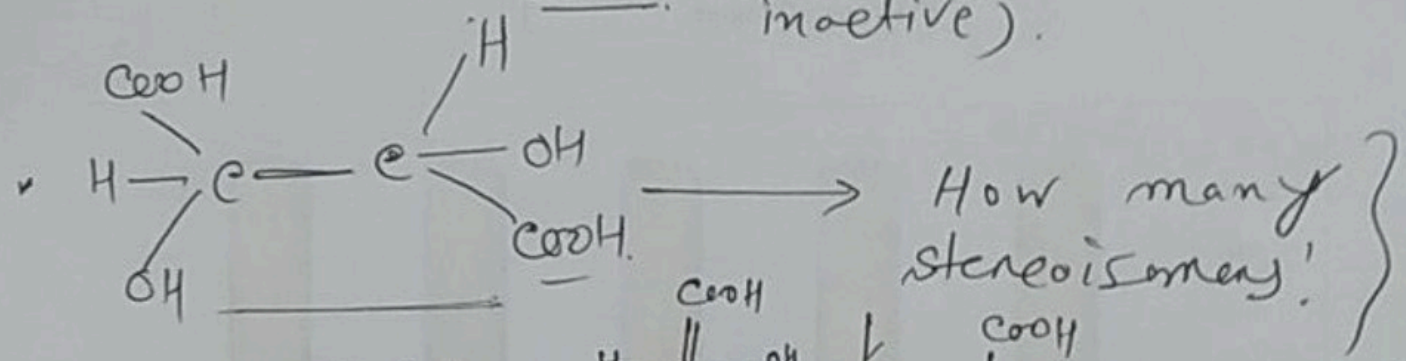
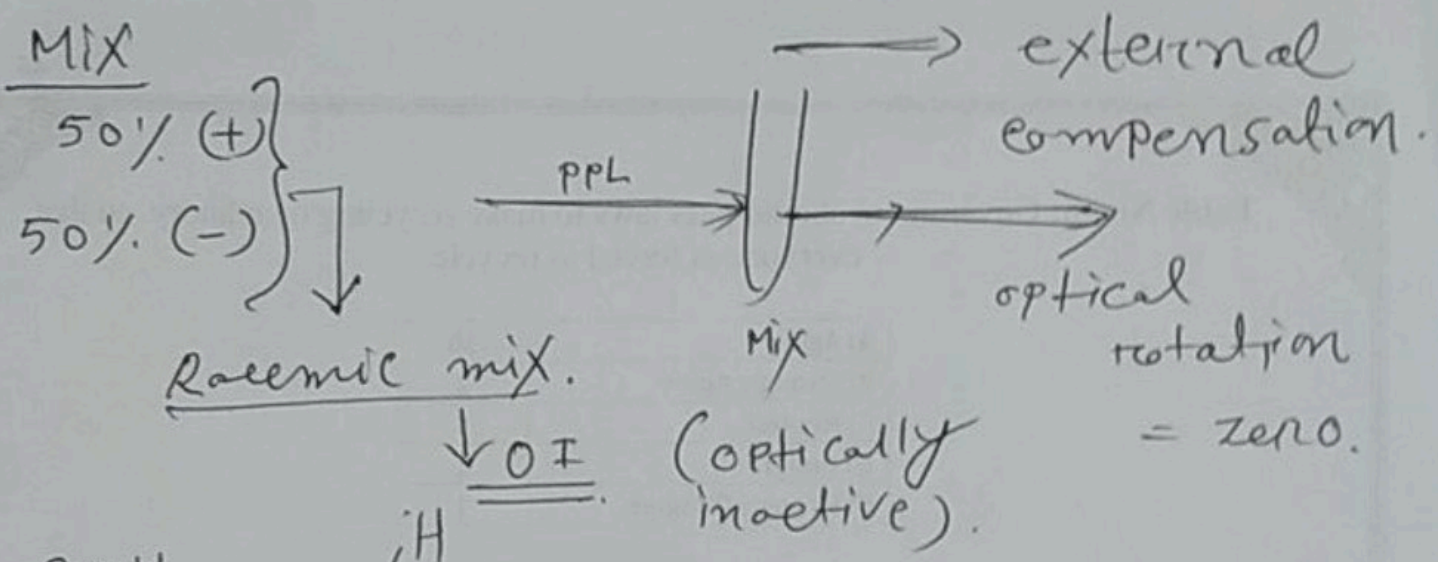
I, II, III, IV  $\longrightarrow$  OA  
 I/II  $\longrightarrow$  Enantiomen  
 III/IV  $\longrightarrow$  "

{ I/III  $\longrightarrow$   
 I/IV  $\longrightarrow$   
 II/III  $\longrightarrow$   
 II/IV  $\longrightarrow$



Enantiomen	Diastereomen
Same physical property (mpt, bpt).	Diff. physical property (mpt, bpt).





An imaginary plane within the molecule that bisects the entire molecule into two equal mirror image halves. → called σ plane or plane of symmetry

$2^n =$  total no. of stereoisomers. (when  $n =$  odd/even molecule do not have σ plane in any of its stereoisomers) and all isomers will be optically active (OA).

$n$  (even) molecule have σ plane in any of its stereoisomers

total no. stereoisomers =  $2^{n-1} + 2^{\frac{n-2}{2}}$  (OA)