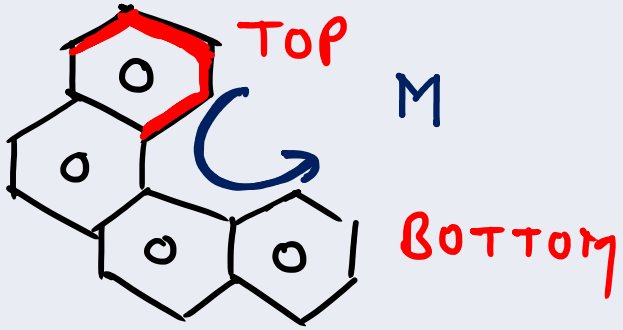
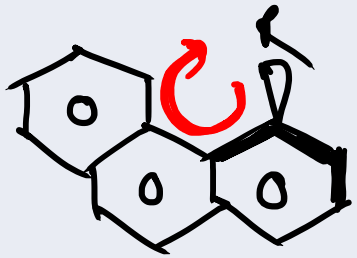
Helical molecules (Helical-chirality)





Top ⟹ Bottom

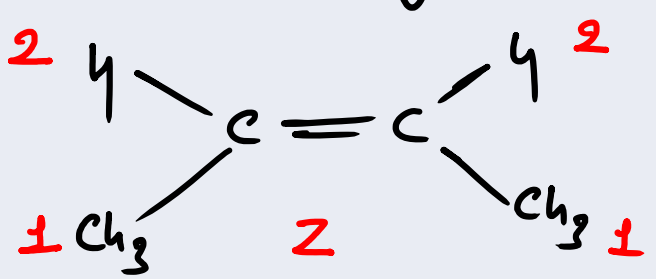
⇓ ⇓

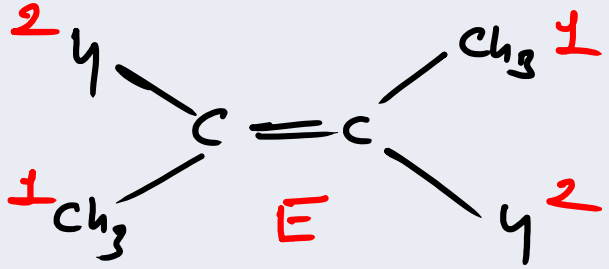
Wedge Dash

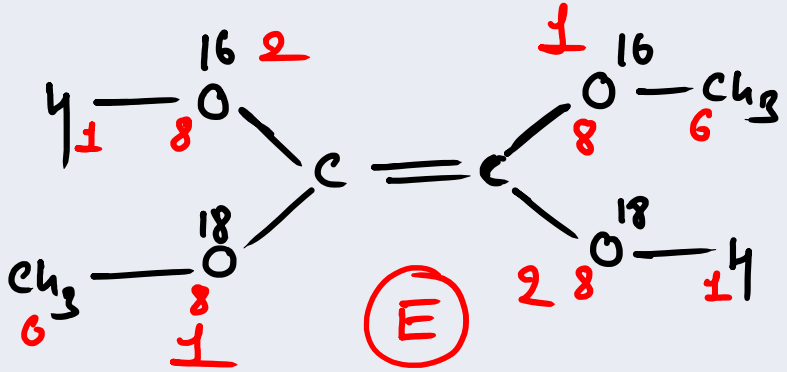
Clockwise ⇒ (P)*

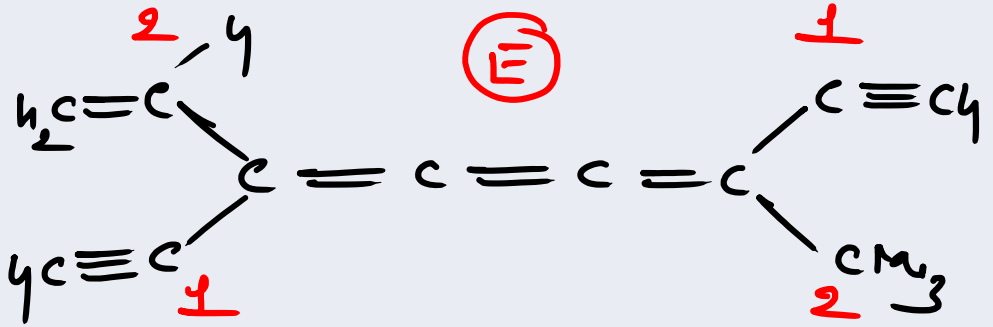
Anticlockwise ⇒ (M)*

E/Z Configuration

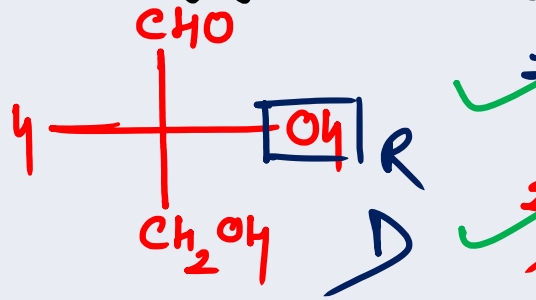








D/L Configuration

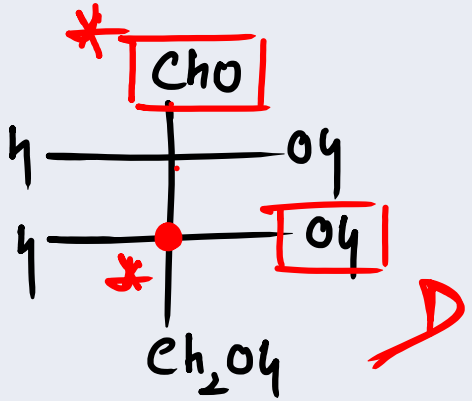


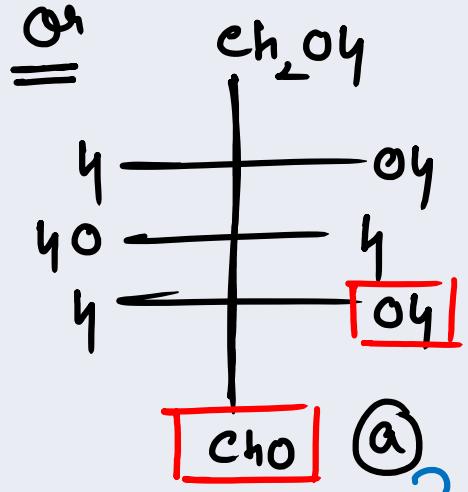
1) Most oxidised group would be on Top

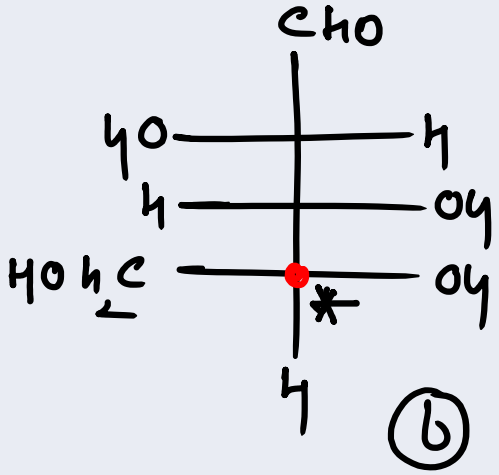
2) Max. no. of carbons should be on vertical

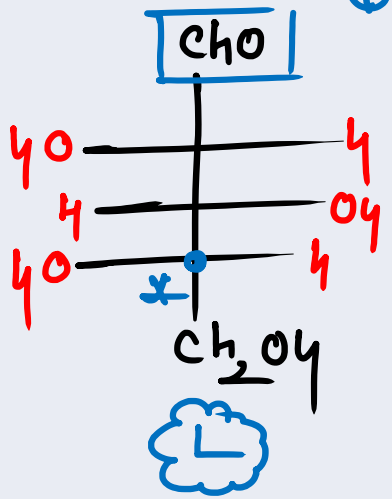
Right — OH D

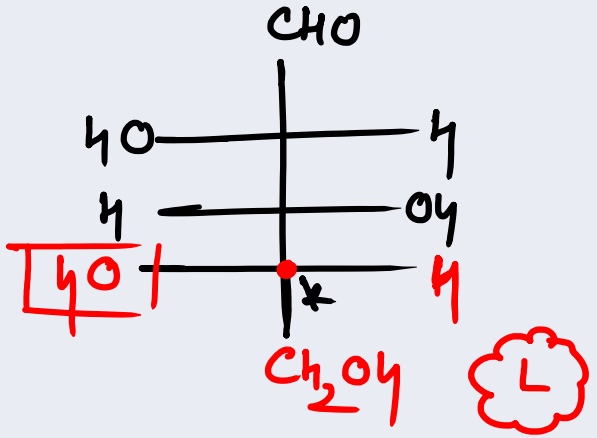
Left — OH L

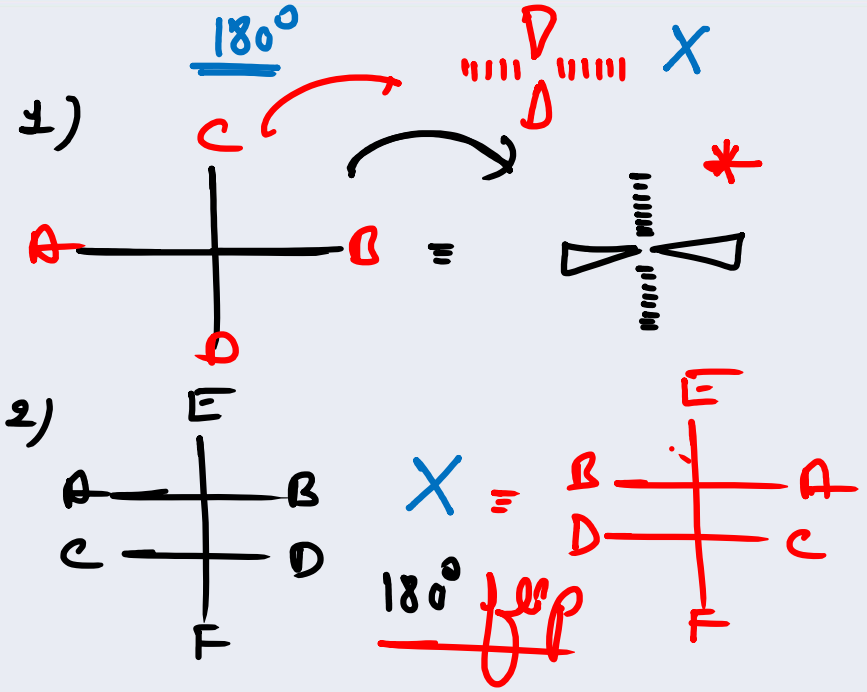



CH2OH
H
OH
H
OH
OH
CHO
a

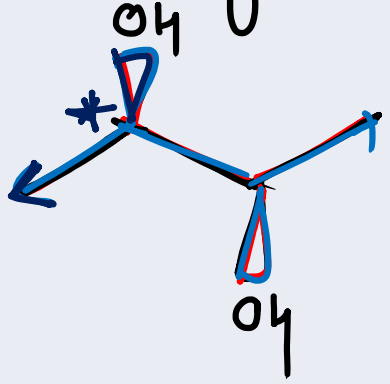

CHO
HO
H
H
OH
HOH2C
OH
H
b


CHO
HO
H
H
OH
HO
H
CH2OH
L

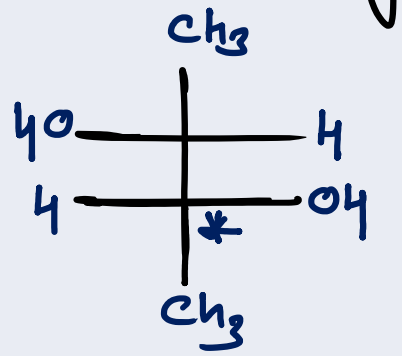

CHO
HO
H
H
OH
HO
H
CH2OH
L


1)
180°
C
D
D
X
A
B
D
*
2)
E
A
B
C
D
F
X =
180°
flip
E
B
A
D
C
F

Conversion of wedge – dash to fisher



≡

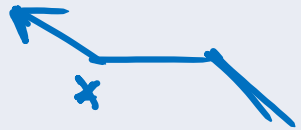


(1) Backbone

(2)


downward


upward

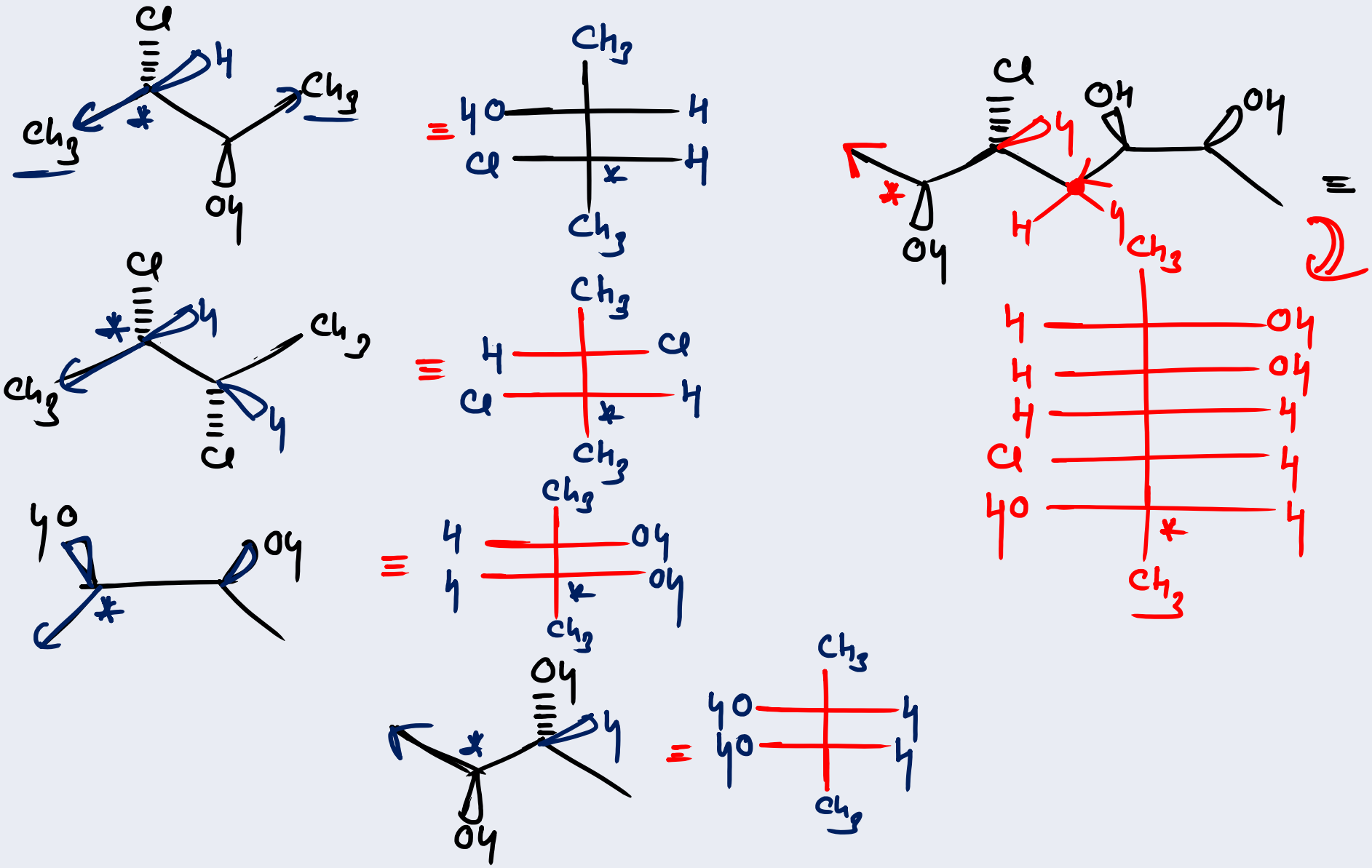

"

⇒ *(downward) ◁ wedge will go Right

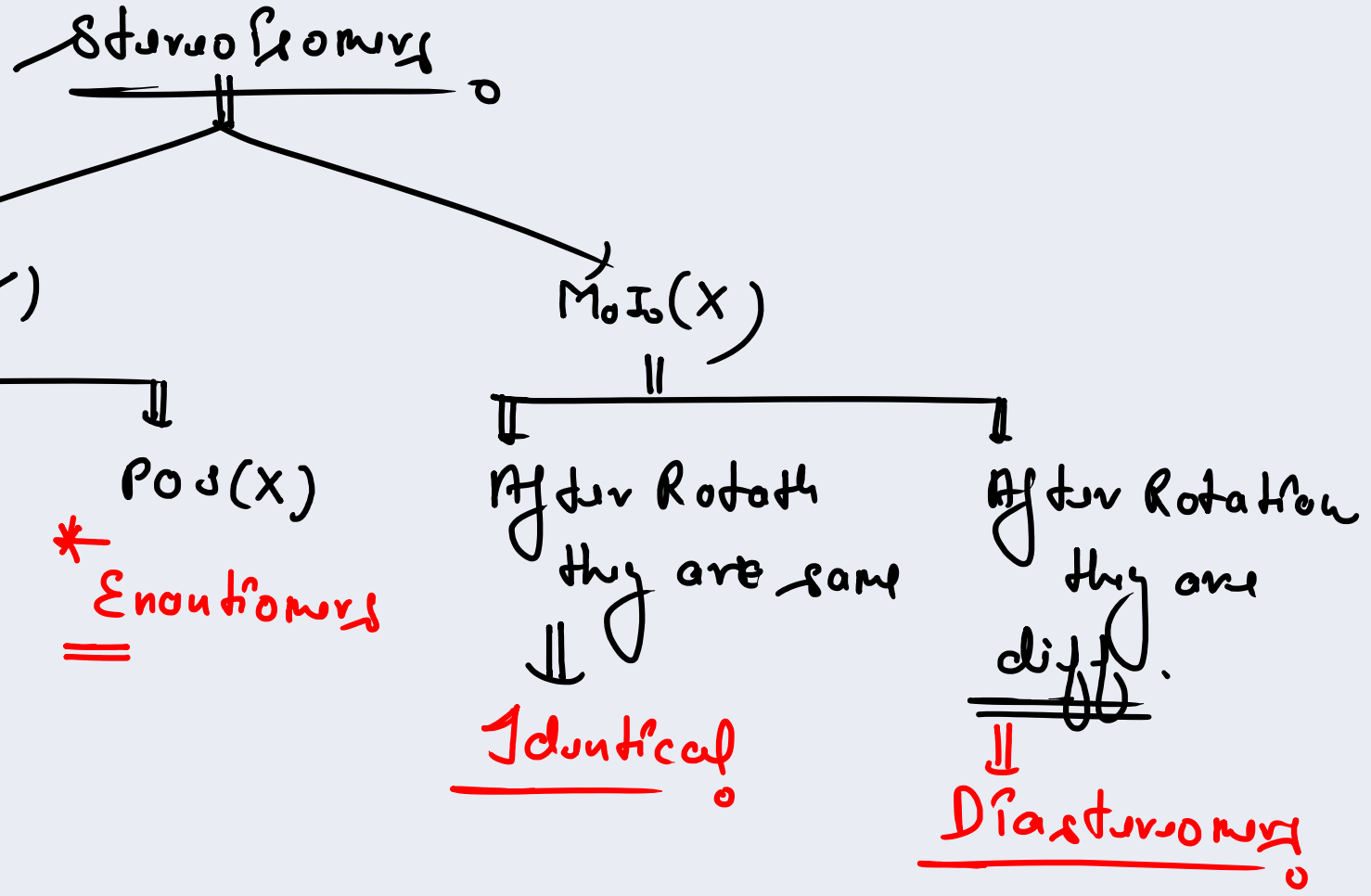
*(anti) OR *(syn)

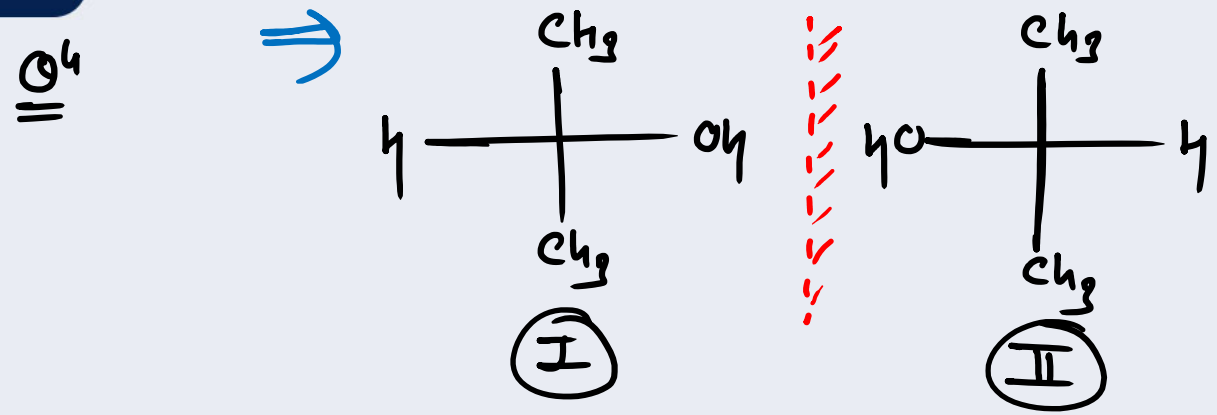
(Anti) ◁ (wedge) valency would go "opposite"

(syn) ◁ (wedge) " " " "same".



Relationship b/w molecules*:



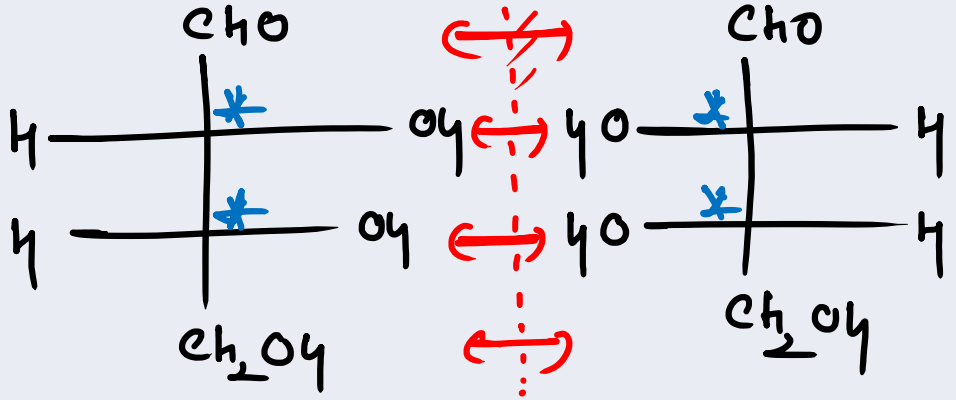


MoI ✓

Pos ✓

Identical *

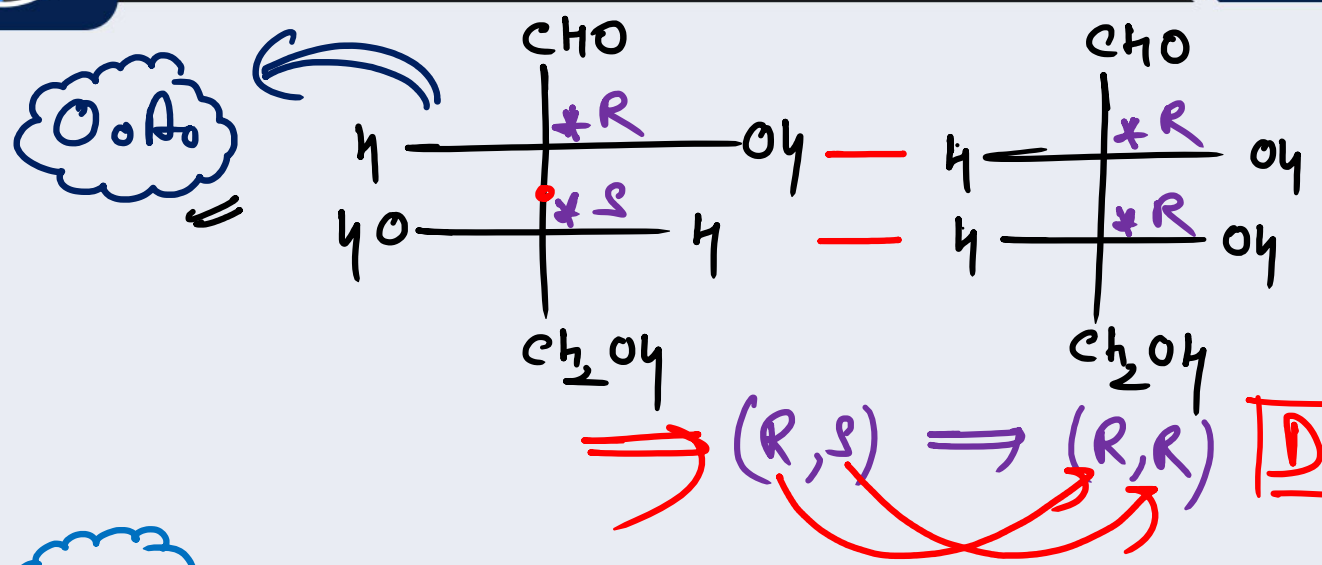
A ≡ B



MoI ✓

Pos ✗

Enantiomers



O.A.

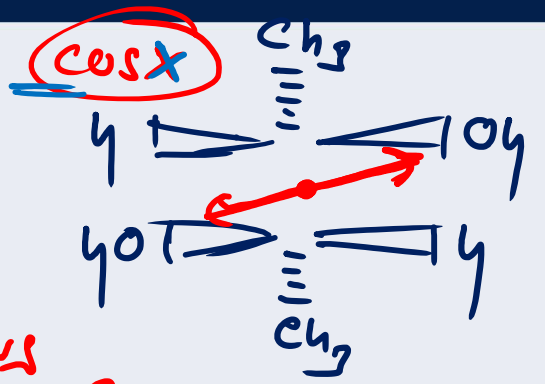
(R,S) ⇒ (R,R)

Dia

* Mol. X

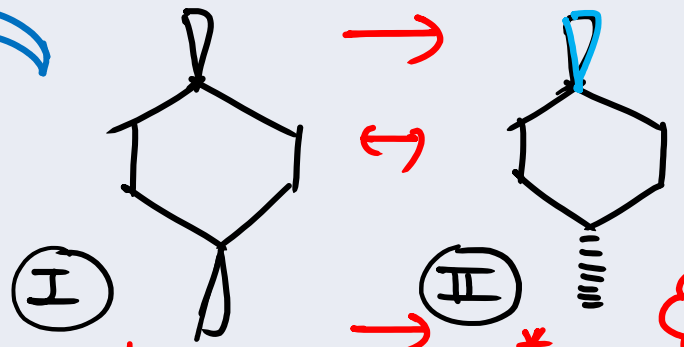
Rotation X

Diastereomers



cosX

O.I.



* cis

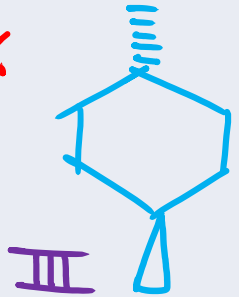
* trans

Dia

Dia

Mol. X

Rotation X



II ≡ III

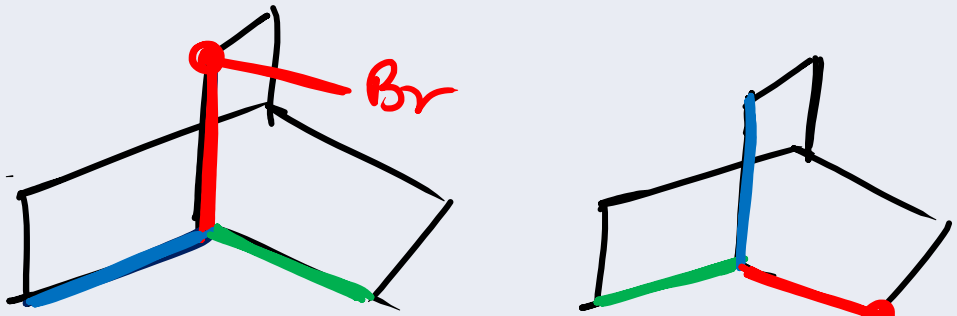
Identical

(1) Molecules can be OoA / OoI if they are Dia.

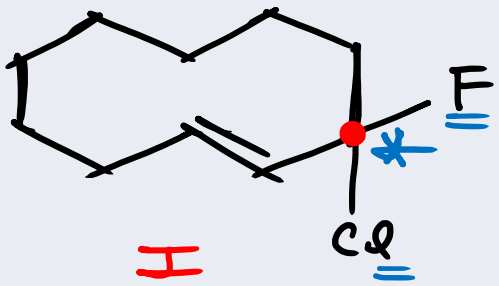
(2) * All GoI are Diastereomers. True

* All Diastereomers are GoI . false

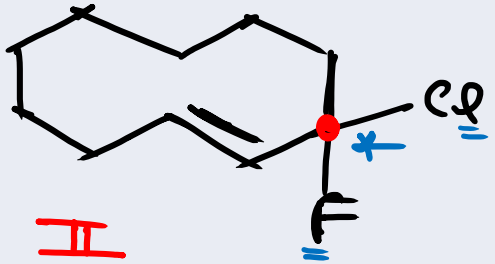
Or



Q9



I



II

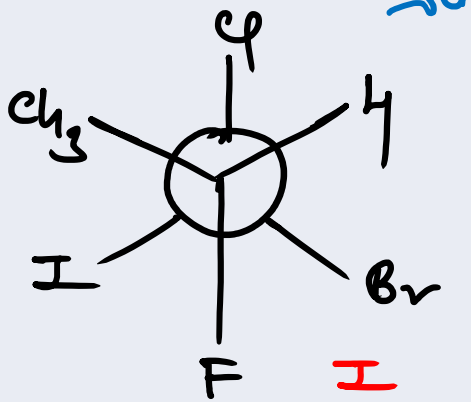
Dia

(trans, —) (trans, —)

change

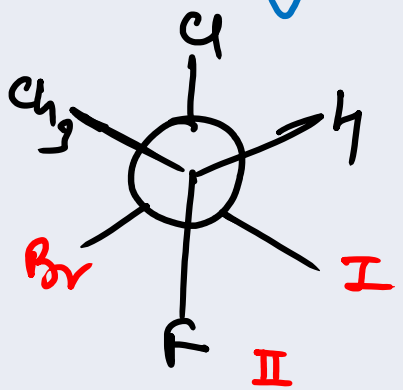
same

Q9

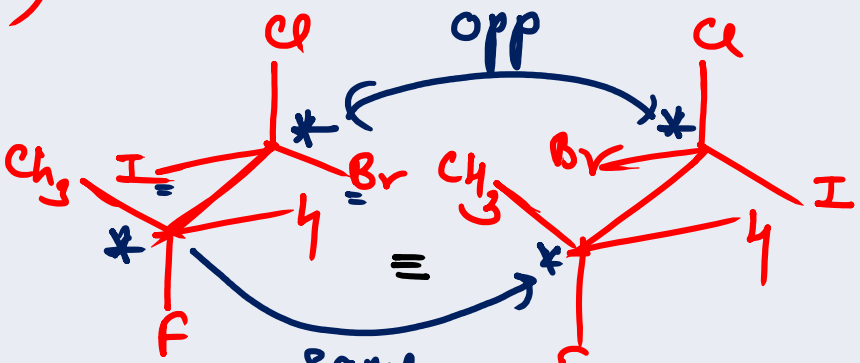


I

≡

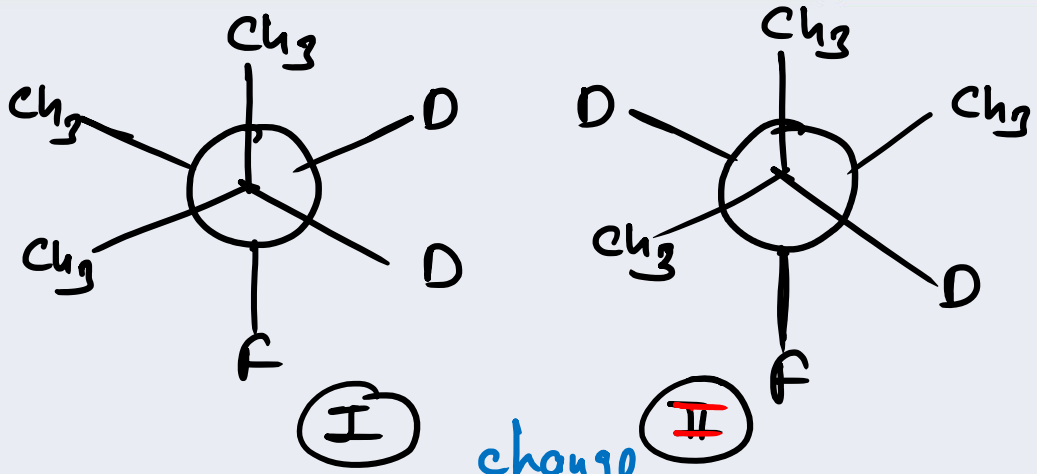


II

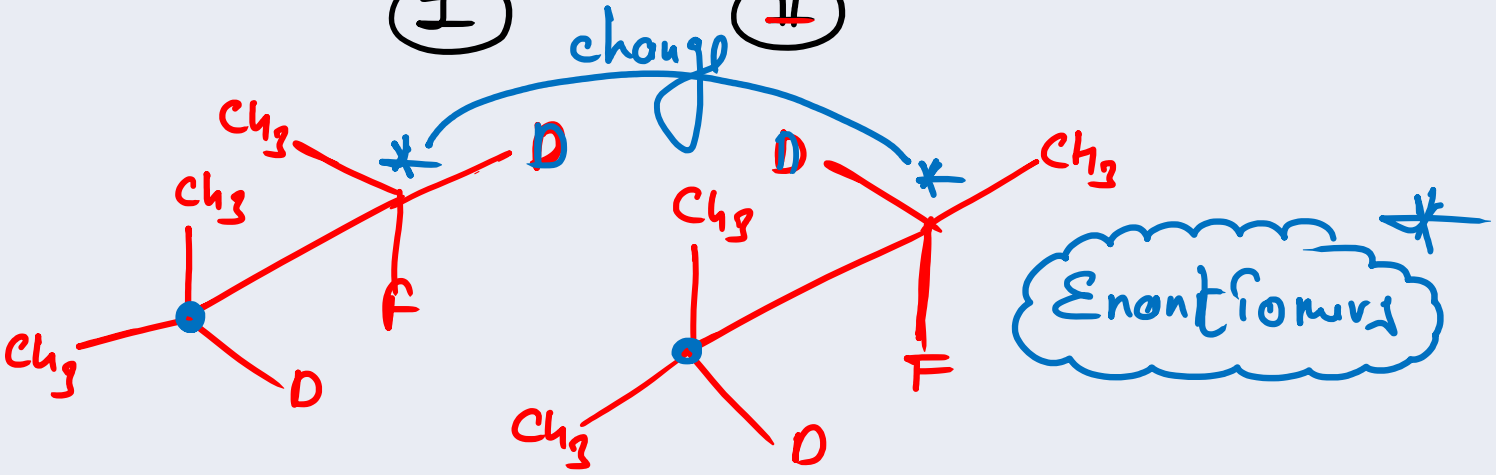


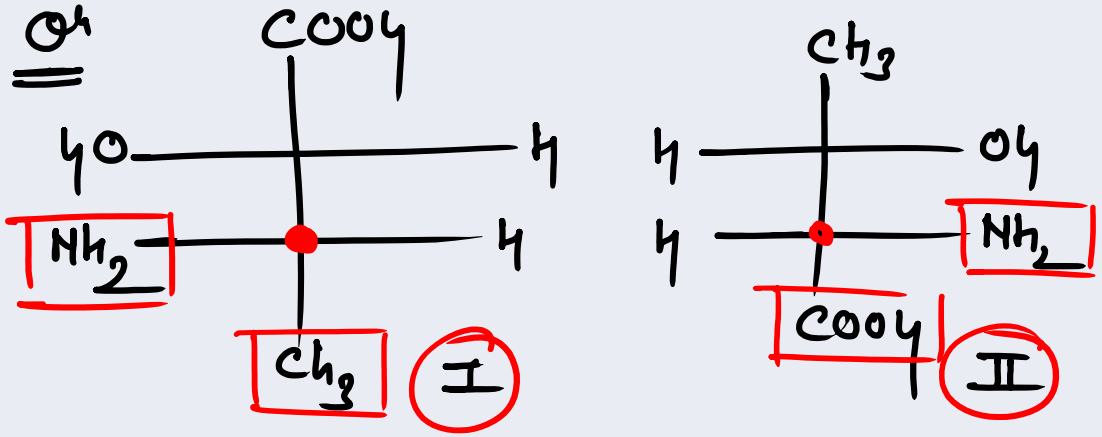
same

Dia


CH3
CH3
D
CH3
D
F
I
CH3
D
CH3
CH3
D
F
II

R	S
S	R

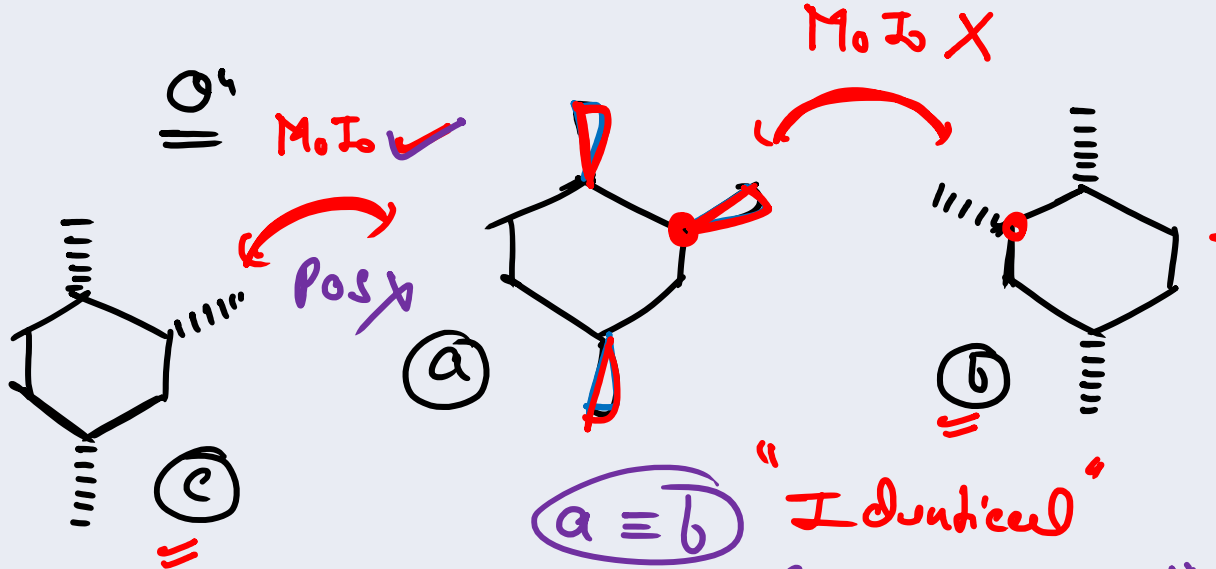

change
CH3
*
D
CH3
F
CH3
D
D
*
CH3
CH3
F
CH3
D
Enantiomers
*



* Atom - to - Atom connectivity

⇓

"Constitutional"

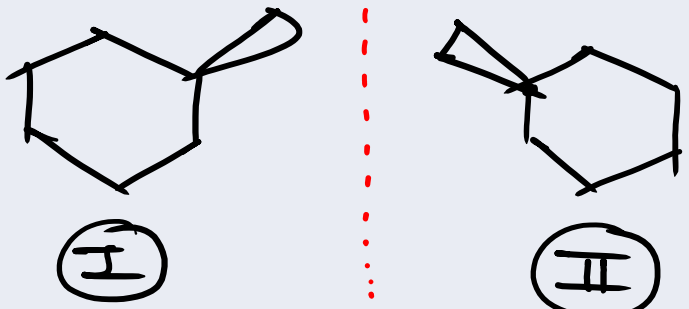


Rotate same

a ≡ b "Identical"

a ≡ c (Enantiomers) *

Q



Identical.

$M_0 I_0$

* POS ✓

Thank you