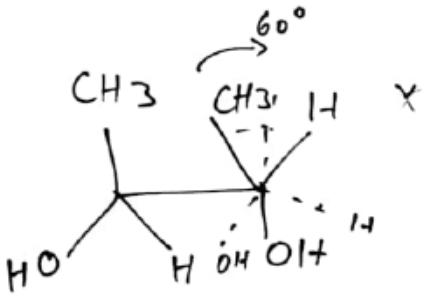
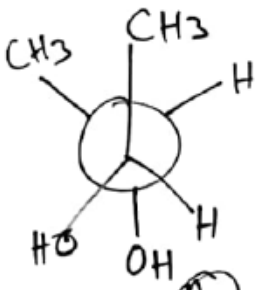
Optical Isomers

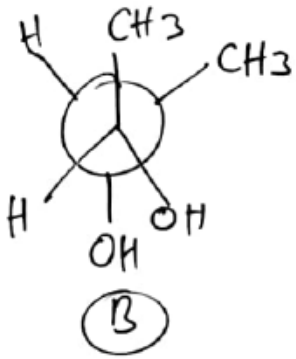
Find relation

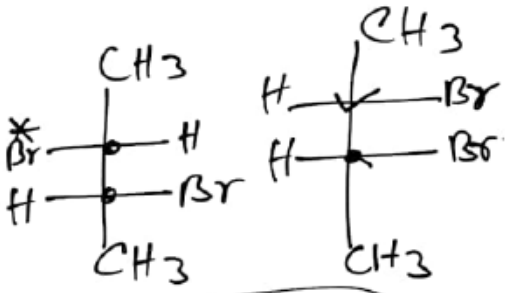


X

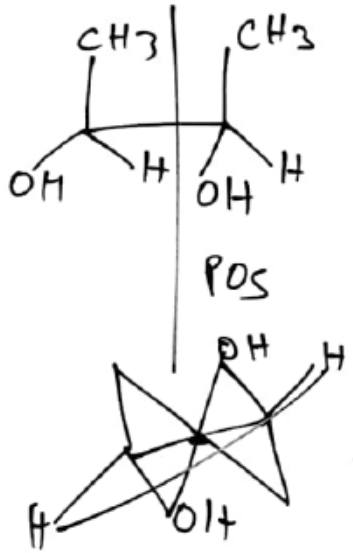


identical





diastereomers



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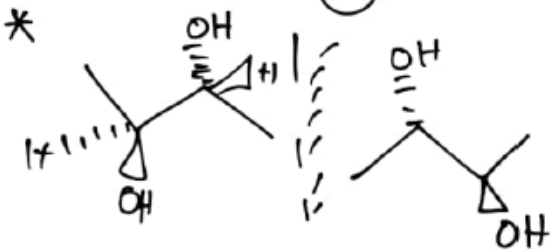
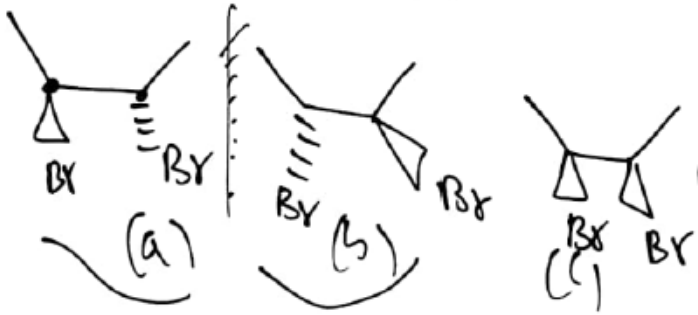


identical

*



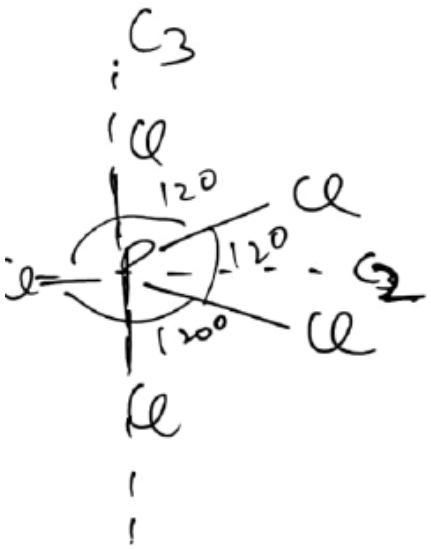
(a, c) (b, c)

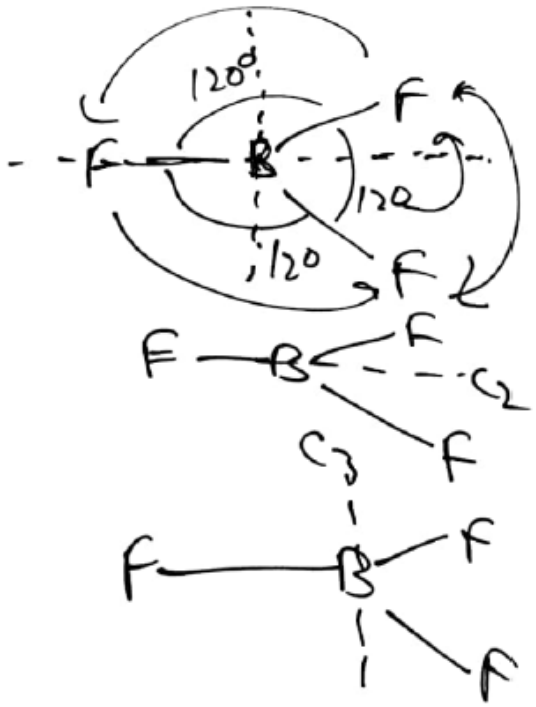
(a, b) enantiomers diastereomers

Optical Isomers

$\theta = \frac{360^\circ}{n}$ $n = \frac{360^\circ}{\theta}$

Axis of symmetry → If a compound is rotated by angle 'θ' $= \frac{360^\circ}{n}$ and if get exactly same compound then the compound is said to have C_n axis of symmetry

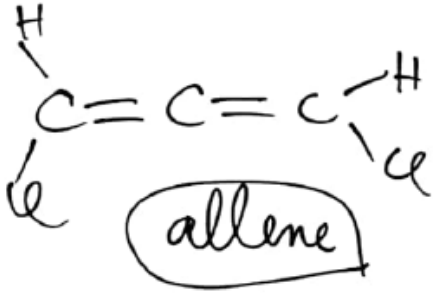


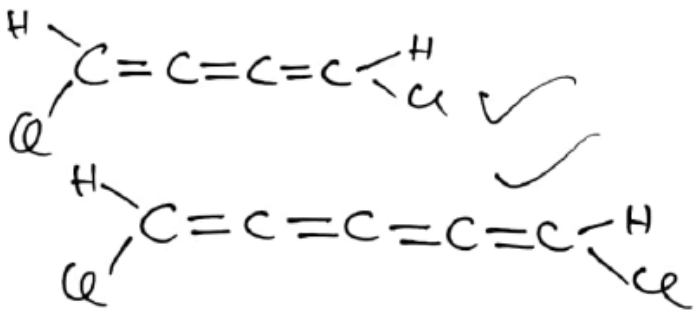


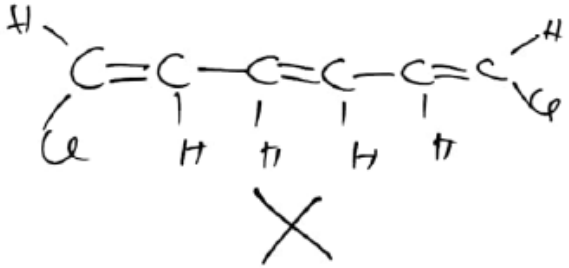
C_2 axis of symmetry

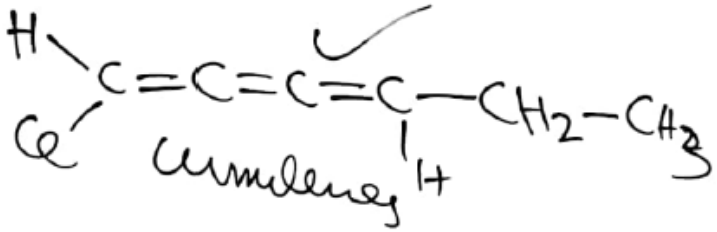
Optical Isomers

Cumulenes Stereochemistry ⇒ 3 or more consecutive π bond



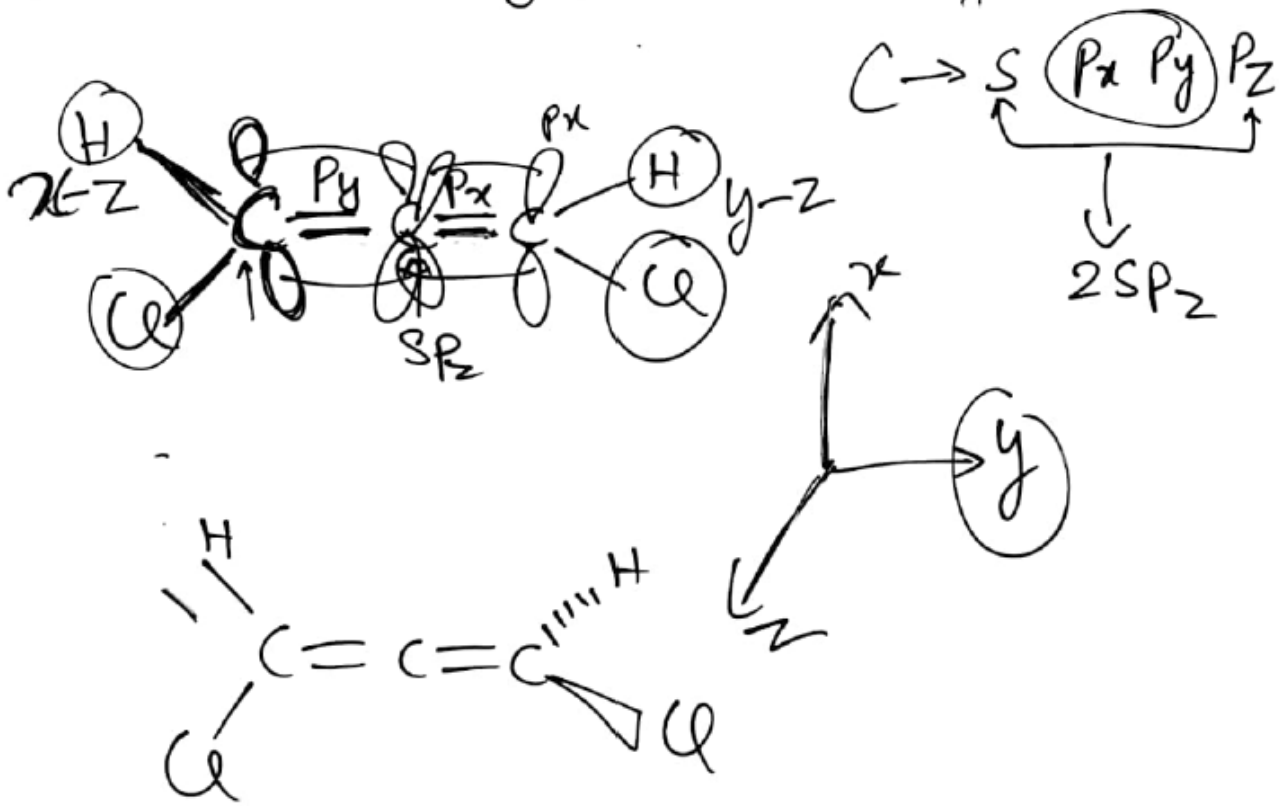






Optical Isomers

Cumulenes Stereochemistry ⇒ 3 or more consecutive π bond

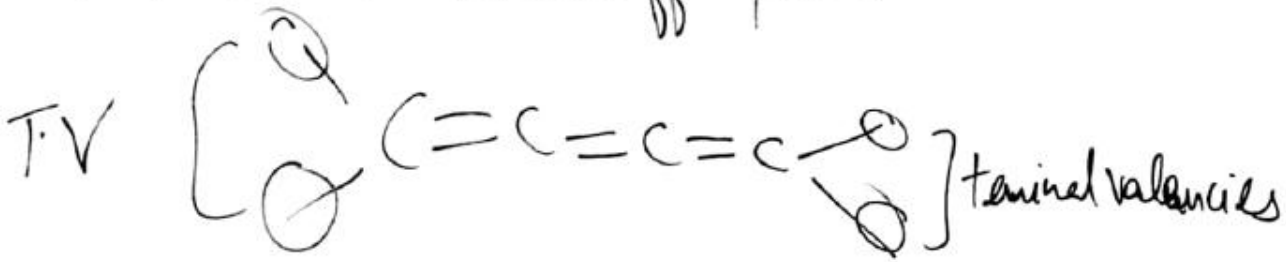


Optical Isomers

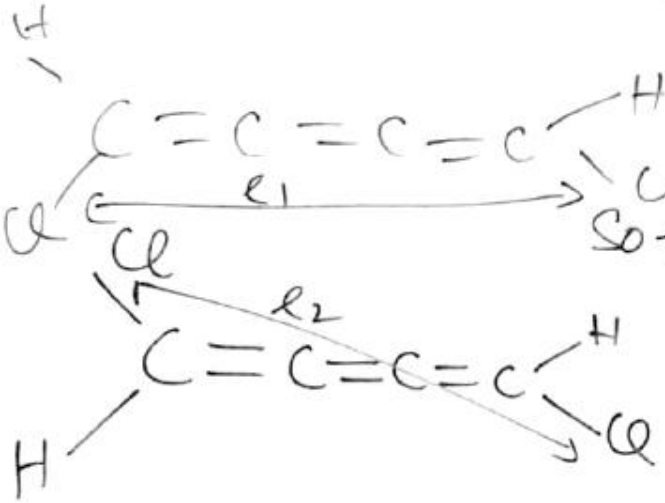
Cumulenes Stereochemistry ⇒ 3 or more consecutive π bond

* Cumulenes having odd no of π bond (3, 5, 7, 9- - -) have their terminal valencies in same plane.

* allenes & cumulenes having even no. of π bond (4, 6, 8- -) have their terminal valencies in diff. plane.



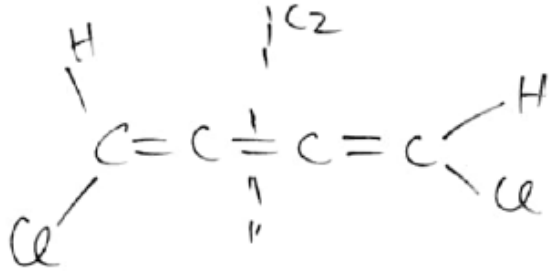
Optical Isomers

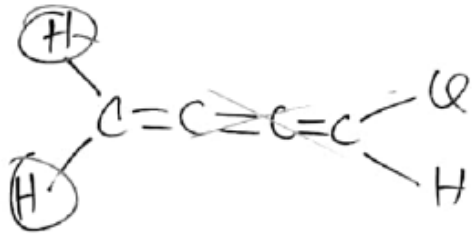


* In cumulene having odd no of π bond Molecular POS is always present So they Can never be chiral always optically inactive but can show G.I

* Allenes & cumulenes having even no. of π bond can show O.I but can never show G.I.

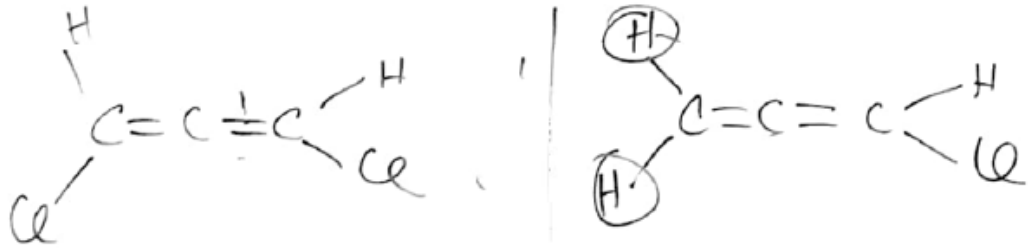
Optical Isomers





POS	✓	✓
COS	×	×
C_2	✓	×
C·Centre	×	×
Chiral Compound	×	×
G·I	✓	×
O·A	×	×

Optical Isomers



POS	X	✓
COS	X	X
C_2	X	X
C·Centre	X	X
Chiral Compound	✓	X
G·I	X	X
O·A	✓	X

Exist as pair of enetiomers