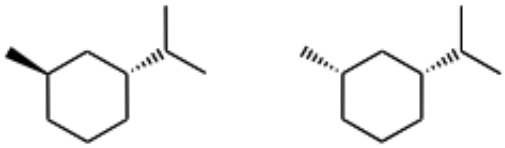
Q1) Complete these sentences:

1- Stereochemistry is the part of science that deals with structure in three dimensión
2- A right-hand glove is different than a left-hand glove, the property is commonly called **"handedness"**
3- Two compounds that are nonsuperimposable mirror images of each other are called Enantiomers
4- **Alkanes that contain three or fewer Carbon atoms have no constitutional isomers**
5- **Constitutional isomers** are also called **structural or positional isomers.**
6- **The two compounds shown below are: Stereoisomers**



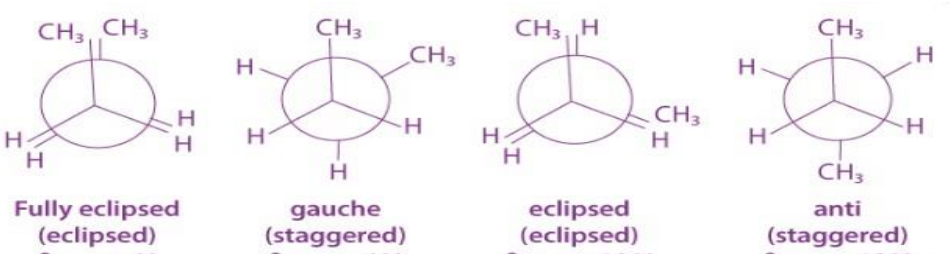
7- **In general, a molecule with no stereogenic centers will not be chiral**.
8- **A plane of symmetry is a mirror plane** that cuts the molecule in two halves, so that one half of the molecule is a (reflection or mirror image) of the other half.
9-

Q2) What are the different possible conformational isomers for Butane?

Which one is more stable, and which one less stable conformer?

Conformers of Butane

Generally, Butane has four conformation isomers which are fully eclipsed, gauche, eclipsed, and anti butane conformational isomers.



Least stable **More stable**

Q3) which of the following compounds exhibit geometric isomerism? Explain and show the isomers

(A) CH_2-CH=CH_2

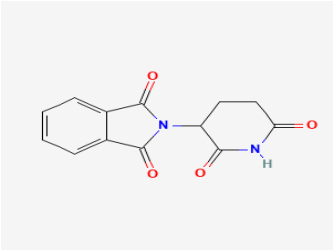
A) No Exhibit a geometric isomer, because of the present of two hydrogen atom (two same group on one of the double bond carbons.
Have Geometric isomer, Cis and trans isomers which must be drawn here.

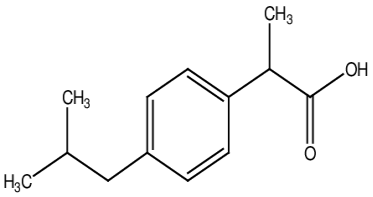
B)

(B) $CH_3 - CH = CH - CH_3$

Q4) Show the chiral carbon in the following molecules:

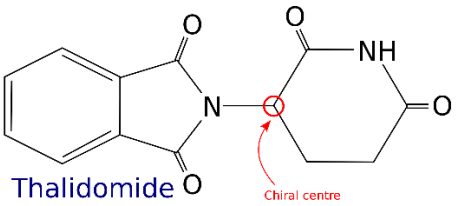
1- Thalidomide **2- Iboprofine**



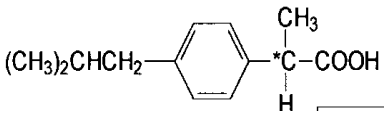


Ibuprofen

1- Have one chiral carbon



2- Have one Chiral center



Ibuprofen