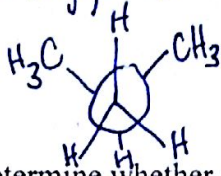


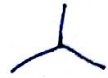
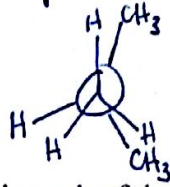
Newman Projections & Conformations Practice

1. How many *different* staggered conformations are there for 2-methylpropane? *Different* eclipsed?

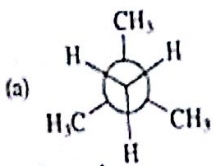
Staggered: one



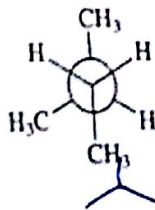
Eclipsed: one



2. Determine whether the two structures in each of the following pairs represent constitutional isomers, different conformations of the same compound, or stereoisomers:



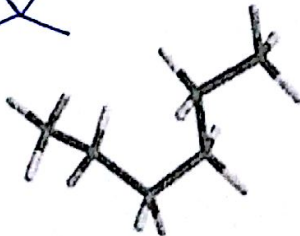
and



constitutional isomers



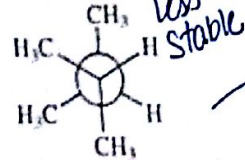
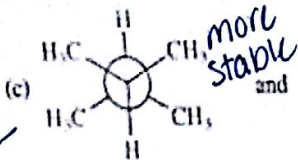
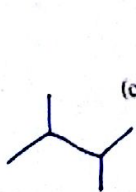
(b)



and



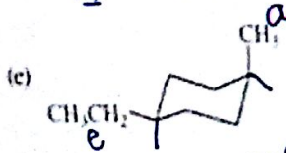
different conformations



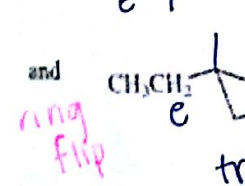
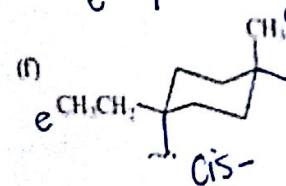
different conformations

(d) cis-1,2-Dimethylcyclopentane and trans-1,3-dimethylcyclopentane

constitutional isomers

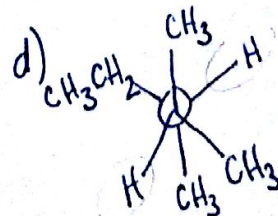
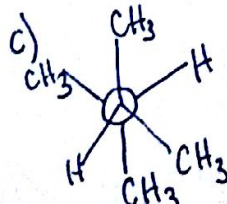
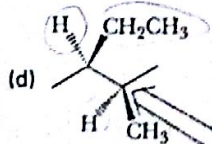
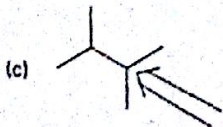
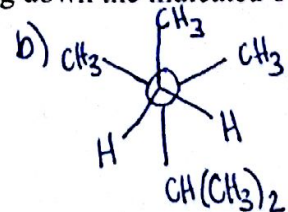
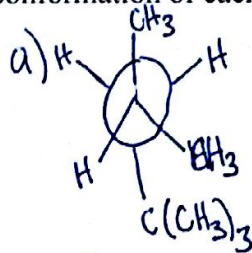
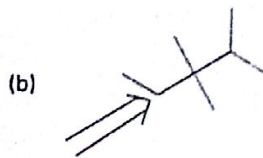
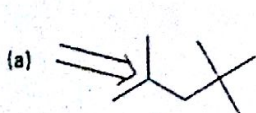


different conformations

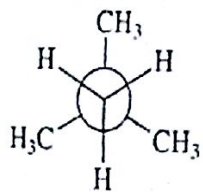


stereoisomers

3. Draw Newman Projections for the most stable conformation of each looking down the indicated bond:



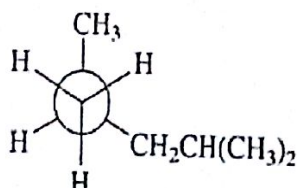
4. Give IUPAC names for each of the following alkanes:



(a)

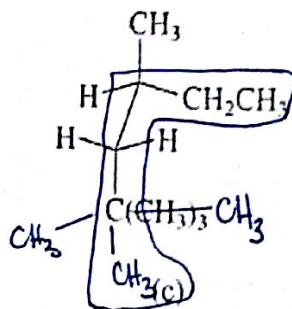
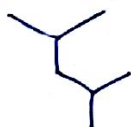


2,2-dimethylpropane



(b)

2,4-dimethylpentane



2,2,4-trimethylhexane

5. Draw the alternative chair conformations (Ring and Ring-Flip) for the *cis* and *trans* isomers of 1,3-dimethylcyclohexane, and 1,4-dimethylcyclohexane

a.) Indicate whether each methyl group is axial or equatorial by labeling.

b.) For which isomer(s) are the alternative chair conformations of equal stability?

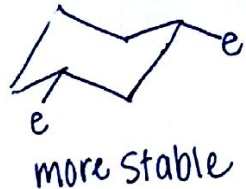
c.) For which isomer(s) is the one chair conformation more stable than the others?

*cis*-1,3-dimethylcyclohexane

least stable overall

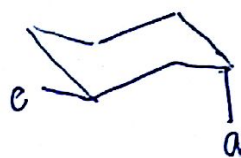


most stable overall



more stable

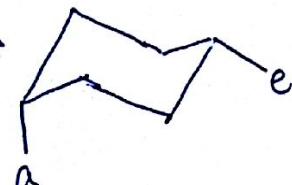
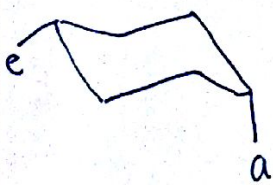
*trans*-1,3-dimethylcyclohexane



equal stability

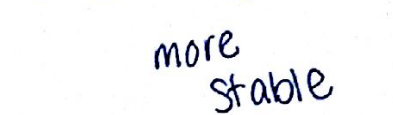
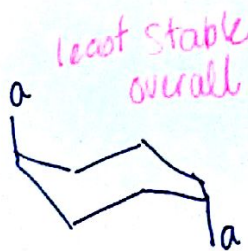


*cis*-1,4-dimethylcyclohexane



equal stability

*trans*-1,4-dimethylcyclohexane



more stable