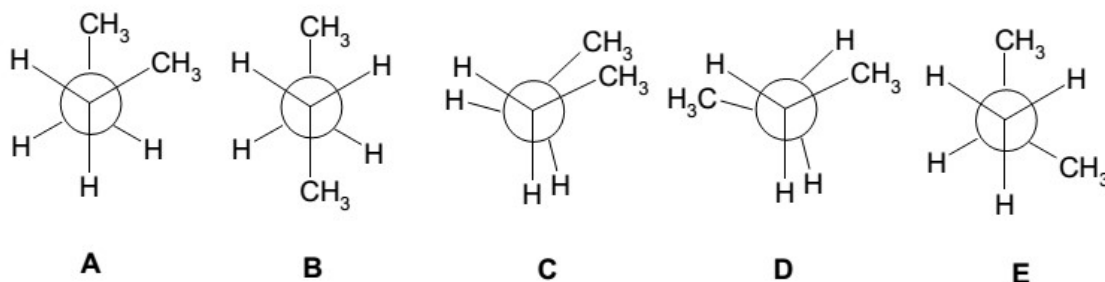
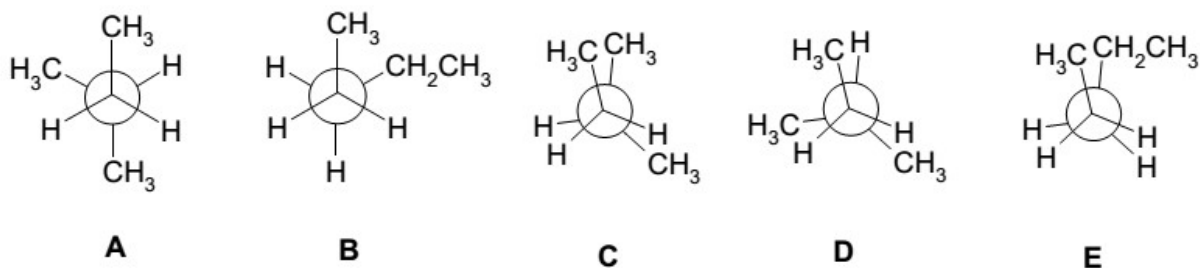


## 5 Structure & Conformations

5.1 Which of the following conformers of butane is the most stable and will be the most populated at any given time?

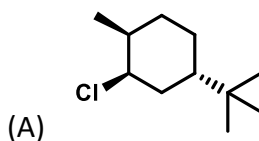


5.2 On an energy diagram showing the conformations of *n*-pentane, which of the following would be an energy maximum, which would be the energy minimum?

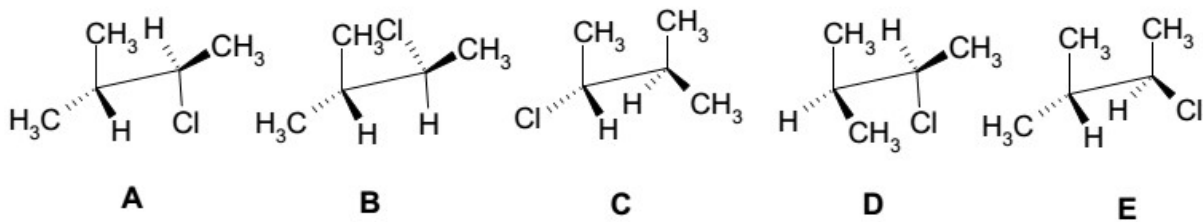
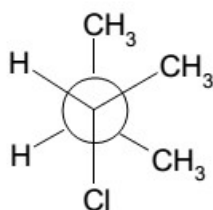


5.3 Provide the line angle structure, and most stable chair conformation for *trans* 1,3-dimethylcyclohexane.

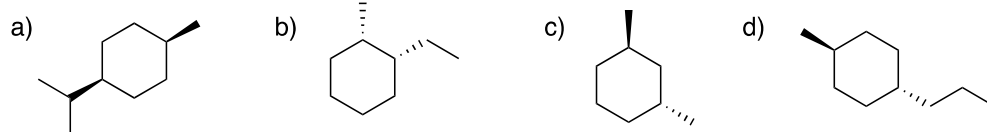
5.4 Draw the two chair conformations of compound (A). Which way does the chair-flip equilibrium lie? Why?



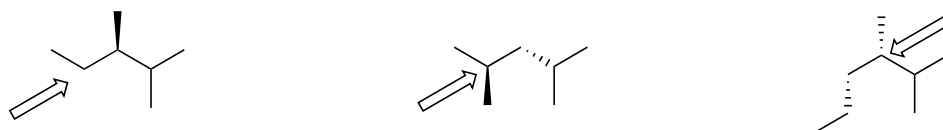
5.5 Which of the following molecules has the same conformation as the 2-chloro-3-methylbutane isomer shown in the Newman projection below.



5.6 Draw both chair conformations of the following molecules, identify the lowest energy conformation, and name the molecule.



5.7 Provide the most stable conformation as a Newman Projection for the following molecules, looking down the bond identified by the arrow.



5.8 Provide all of the Newman Projections and the energy diagram for the rotation of the following molecule about the bond identified with an arrow.

