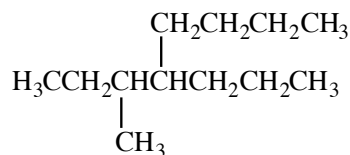


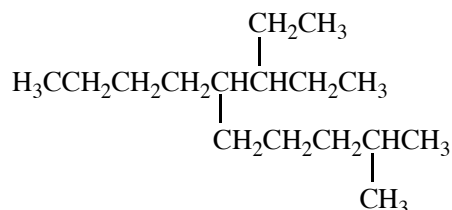
Problem Set 3

1. Use IUPAC nomenclature to write the systematic names of the following two (2) compounds.

A.

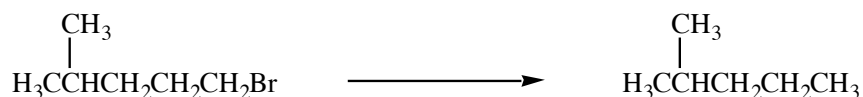


B.

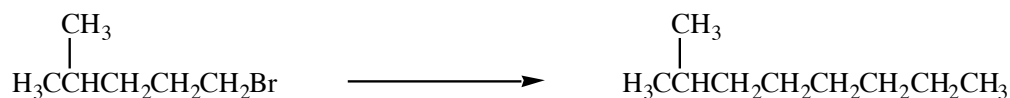


2. Draw the specific reagent(s) necessary to effect the following three (3) transformations. If more than one reaction is involved in an answer, be certain to distinguish the individual steps clearly. Include stoichiometric coefficients of reagents, as well. If a reagent is not commercially available, show how it could be prepared.

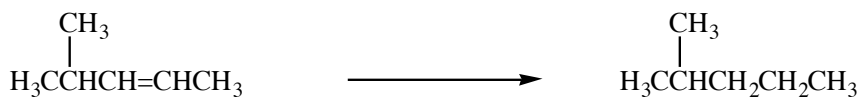
A.



B.



C.



3. Draw a graph of potential energy versus dihedral angle (0° to 360°) for both of the following two (2) rotations. Label both graphs with Newman projections for each staggered and eclipsed conformation. Clearly indicate the potential energy of each of these conformations, and show your calculations. In order to do the calculations, use the accepted values for torsional and steric strain that were presented in lecture.

A. rotation about the C1-C2 bond of 2-methylpropane

B. rotation about the C2-C3 bond of 2-methylbutane

Please bring your molecular models to class for the discussion of this problem set.