1. Name the following molecular skeleton structures. Follow naming rules in Section 3.4. (2 pts)



2. Draw the skeletal structures for 4-(1,2-dimethylpropyl)-2,2,3,5,6-pentamethylheptane and 4-ethyl-2,2,5-trimethyloctane. Follow naming rules in Section 3.4 of McMurry. (1 pt)

3. Describe the difference between torsional and steric strains of conformational isomers (conformers). Use Newman projections of anti, gauche, and eclipsed butane molecules to show which of these strains are present. (2 pts)

4. Draw Newman projections for all six conformers along the C2/C3 bond of 2-methylbutane. Be sure to count your carbons carefully, there is a total of five. Keep either the front or back set of substituents in the same place, while you rotate the other side only. Then, identify each strain component, along with its energy cost, for each conformation. Review Section 3.7 and Figure 3.9 for butane conformers and their energy costs. (3 pts)

5. Review Figures 3.7 and 3.9 in McMurry. Make an energy diagram for the 2-methylbutane conformers that you drew the exercise above. (2 pts)