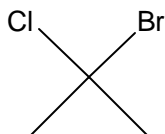


Chem 231: Problem Set #2 (on Chapter 2)

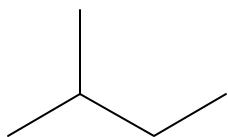
1. Name or draw structures for the following compounds. (Where appropriate, give both common and IUPAC names.)

A. chloromethane B. CH_2Br_2 C. methylene chloride

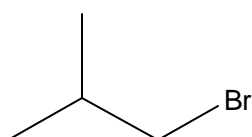
D. E. 1-chloro-2-ethylcyclobutane



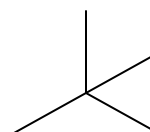
F.



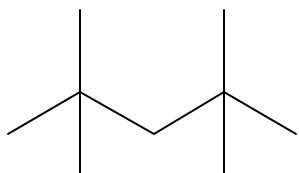
G.



H.



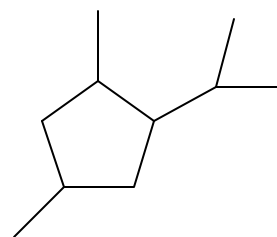
I.



J. 4-ethyl-4-methylheptane

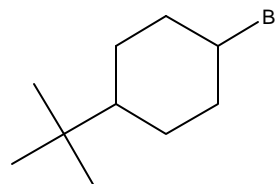
K. 2, 6-dimethyl-4-propyloctane

L.

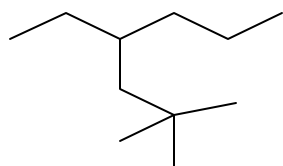


M. chloroform

N.

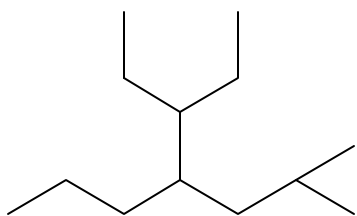


O.

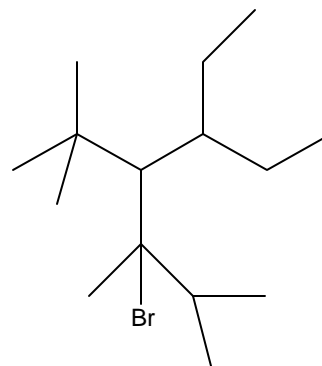


P. 4-chloro-5-isopropyl-6-methylnonane

Q.



R.



2. For the following sets of organic compounds, arrange in order from highest boiling point to lowest boiling point. Give a short explanation for the given boiling point order.

A. propane vs. hexane

B. 2,3,3-trimethylbutane vs. heptane vs. 3,3-dimethylpentane

Note: All have the chemical formula C_7H_{16} .

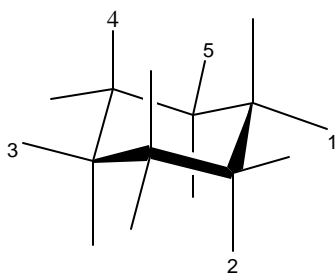
C. 2,3-dimethylbutane vs. 1-hexanol (struct. formula: $CH_3(CH_2)_4CH_2OH$) vs. hexane

3. Consider the alkane 2,3-dimethylbutane.

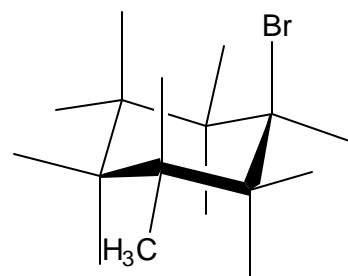
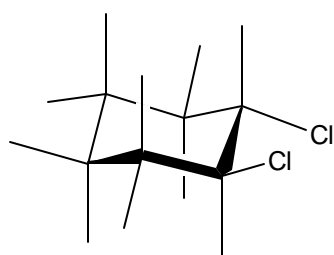
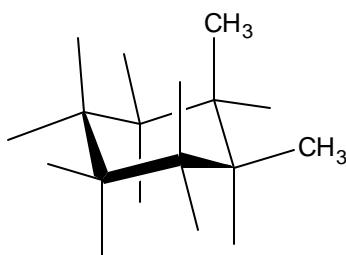
A. Draw a structural formula for 2,3-dimethylbutane.

B. Focusing on the C2-C3 bond, draw Newman projections for all possible staggered and eclipsed conformations. Rank the conformations in order of decreasing stability.

4. Label the numbered positions as axial or equatorial.



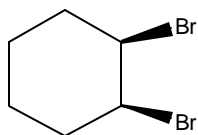
5. Label the following as cis or trans:



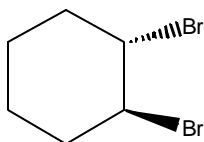
6. Draw both chair conformations for each of the following cyclohexanes. Indicate which chair conformation is more stable and why.

A. bromocyclohexane

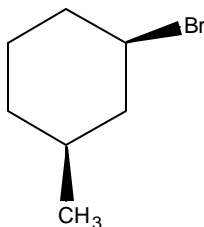
B. *cis*-1,2-dibromocyclohexane



C. *trans*-1,2-dibromocyclohexane



D. *cis*-1-bromo-3-methylcyclohexane

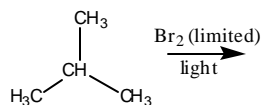


E. Are the molecules given in B and C conformational isomers of one another? Why or why not?

7. Give all possible products for the following reactions.



B.



C.

