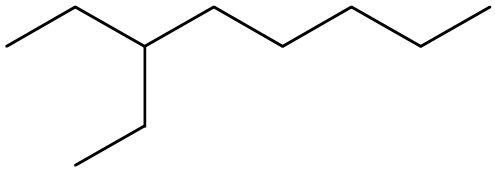
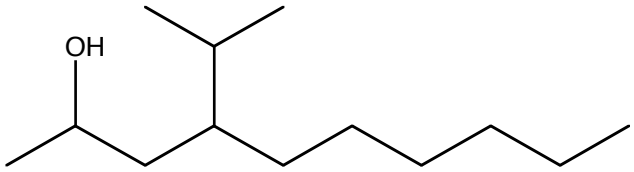
Pre-Test 2 Name_____
PHYS 0201
(Organic)

1. Draw the structure (skeletal) for each of the following compounds.

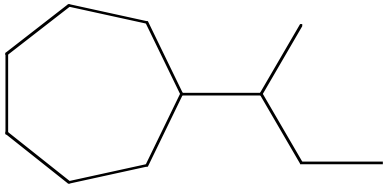
a. 3-ethyloctane



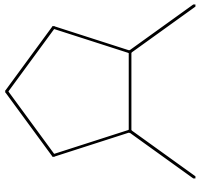
b. 4-isopropyl-2-decanol



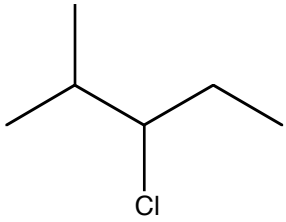
c. *sec*-butylcycloheptane



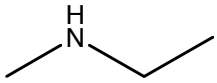
d. 1,2-dimethylcylcopentane



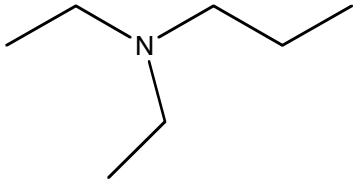
e. 3-chloro-2-methylpentane



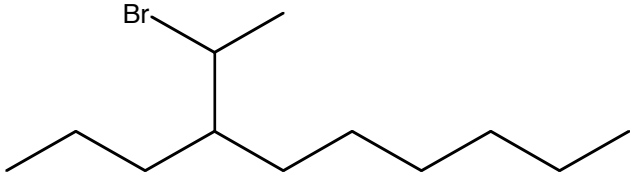
f. *N*-methyl-1-ethanamine



g. *N*,*N*-diethyl-1-propanamine



h. 4-(1-bromoethyl)decane

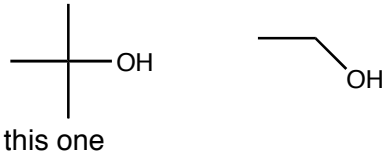


2. List the following alcohols in order of decreasing solubility in water.
octanol, methanol, ethanol, 2-methyl-2-butanol

methanol = ethanol > 2-methyl-2-butanol > octanol

3. For each pair of molecules circle the molecule with the higher boiling point.

a.



this one

b.

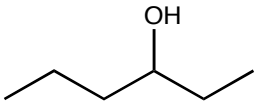
CH_3CH_2Cl CH_3CH_2I
this one

c.

$HOCH_2CH_2OH$ CH_3CH_2OH
this one

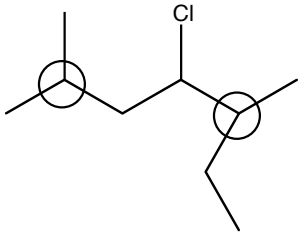
4. Provide IUPAC names for the following molecules.

a. 3-hexanol



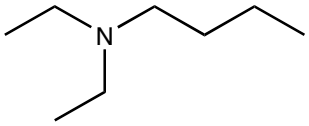
1°, **2°**, or 3° alcohol

b. 4-chloro-2,5-dimethylheptane



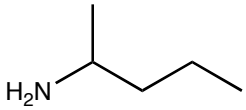
circle all tertiary carbon atoms

c. *N*,*N*-diethyl-1-butanamine

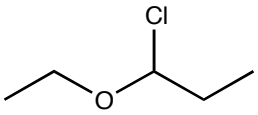


1°, 2°, or **3°** amine

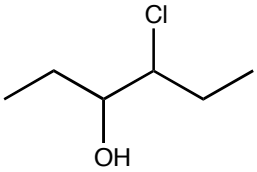
d. 2-pentanamine



e. 1-chloro-1-ethoxypropane



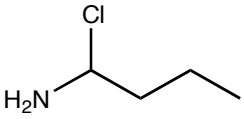
f. 4-chloro-3-hexanol



1°, **2°**, or 3° alcohol

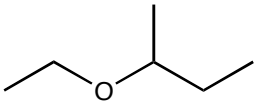
1°, **2°**, or 3° halide

g. 1-chloro-1-butanamine

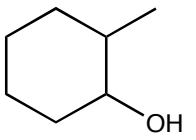


1°, 2°, or 3° amine

h. 2-ethoxybutane

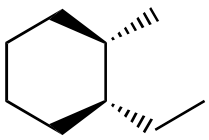


i. 2-methylcyclohexanol



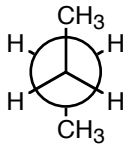
1°, 2°, or 3° alcohol

i. *cis*-1-ethyl-2-methylcyclohexane

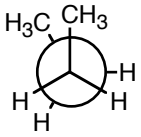


don't forget, *cis* or *trans*

6. Draw a Newman projection that best shows the lowest energy conformation of butane.

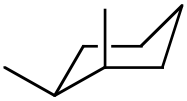


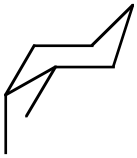
7. Draw a Newman projection that best shows the highest energy conformation of butane



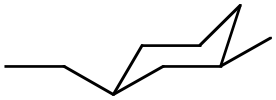
8. Use perspective drawings to show the lowest energy conformations of the following molecules

cis-1,2-dimethylcylcohexane

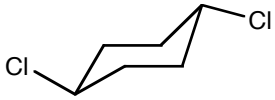




cis-1-ethyl-3-methylcyclohexane



trans-1,4-dichlorocyclohexane



trans-1-methyl-2-ethylcyclohexane