1. How many hydrogens does an alkane with 17 carbons have? How many carbons does an alkane with 74 hydrogens have?

2. Draw the structure of octane and 2-methylheptane.

3. Draw the structure of C_5H_{12} that has a) one tertiary carbon b) no secondary carbons.

4. Draw the structures and name the four constitutional isomers for C_4H_9Br.

5. Draw the structure for each of the following:
   a) 2,3-dimethylhexane

   b) 4,4-diethyldecane

   c) 2,4,5-trimethyl-4-(1-methylethyl) heptane

6. Convert the following structures to skeletal structures:
   a) $CH_3CH_2CH_2CH_2CH_2CH_2OH$

   b) $CH_3CH_2CH_2CH_2CH_2CH_3$

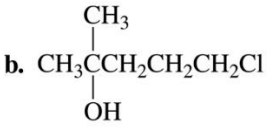
   c) $CH_3CH_2CH_2CH_2OCH_3$

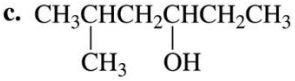
   d) 3,4-diethyl-2-methylheptane

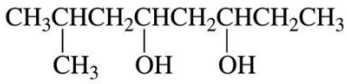
   e) 2,2,5-trimethylhexane

7. Give the IUPAC name and indicate whether each is a primary, secondary or tertiary alcohol.

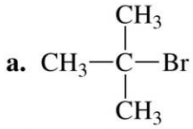
a. $CH_3CH_2CH_2CH_2CH_2OH$

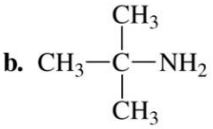
b. 

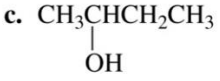
c. 

d. 

8. Are the following compounds primary, secondary or tertiary?

a. 

b. 

c. 

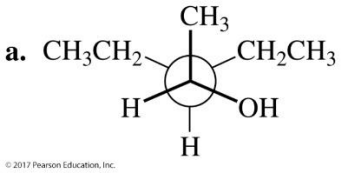
d. $CH_3NHCH_2CH_3$

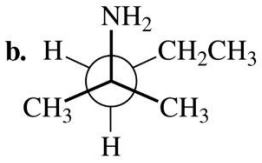
9. Predict the approximate size of the following bond angles?
   a) the C-O-C bond angle in an ether
   b) The C-O-H bond angle in an alcohol
   c) the C-N-C bond angle in a secondary amine

10. Which of the following compounds from hydrogen bonds between the molecules?

   a) $CH_3CH_3CH_2OH$ b) $CH_3CH_2CH_2F$ c) $CH_3OCH_2CH_3$

11. Convert the following Newman projections to skeletal structures and name them





12. Draw the more stable conformer of cis-1-ethyl-2-methylcyclohexane and trans-1-ethyl-2-methylcyclohexane.

13. Which is more stable: cis-1-ethyl-2-methylcyclohexane or trans-1-ethyl-2-methylcyclohexane?