Week 5 Worksheet

1. Which of the following is an example of a hydrocarbon?
   A) Ethylene glycol
   B) 2,4-pentadiene
   C) Acetamide
   D) 3-methylpentanoic acid

2. Name the following functional groups.

   ![Functional Groups Diagram]

   A) I = amide, II = ester, III = ether, IV = acid bromide, V = ketone
   B) I = amine, II = carboxylic acid, III = ether, IV = carboxylic acid, V = aldehyde
   C) I = amide, II = ester, III = carboxylic acid, IV = acid bromide, V = aldehyde
   D) I = amide, II = ether, III = carboxylic acid, IV = acid bromide, V = ketone

3. Name the functional groups and determine whether they are primary, secondary, or tertiary.

   ![Functional Groups Diagram]

   A) I = 1° amine, II = 2° amine, III = 2° amide, IV = 2° amide, V = 1° amine
   B) I = 2° amine, II = 1° amine, III = 3° amide, IV = 1° amide, V = 2° amine
   C) I = 2° amide, II = 1° amide, III = 3° amine, IV = 1° amine, V = 2° amide
   D) I = 1° amide, II = 2° amide, III = 2° amine, IV = 2° amine, V = 1° amide

4. R-O-H is an alcohol.
   A) True
   B) False

5. R-O-R is an ester.
   A) True
   B) False
6. R-X is an alkyl halide, where X = Cl and Br.
   A) True
   B) False

7. Choose the correct statement below.
   A) R-S-H is a sulfide, and R-S-R is a thiol.
   B) RC(=O)H is a ketone, and RC(=O)R is an aldehyde.
   C) RC(=O)OH is a carboxylic acid, and RC(=O)OR is an ether.
   D) 2 of the above are correct.
   E) None of the above are correct.

8. Give the IUPAC name for each compound.

   ![Chemical structures]
9. Draw the structure corresponding to the IUPAC name.

1-sec-butyl-3,3-dimethylcyclopentane

4-ethyl-2,5-dimethylheptane

10. Rank the alkanes in increasing boiling point.