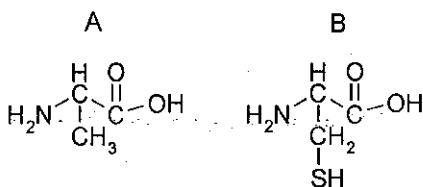


Intro to Organic Chemistry

Name _____

1. Write the structural formulas and names for all of the isomers of pentane.
2. Which of the isomers you showed above would have the lowest boiling point? Explain.
3. Write the structural formula and name for all members of the homologous series containing pentane that have lower boiling points.
4. Consider the combustion of octane.
 - a. Write a balanced equation.
 - b. Is the combustion of hydrocarbons an exothermic or endothermic process?
 - c. What are the products of incomplete combustion of octane?
5. Consider the following amino acids.



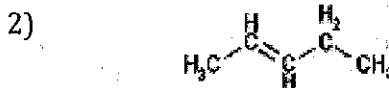
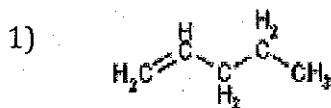
- a. Use the data booklet to name amino acids A and B.
- b. Identify the chiral carbon in each amino acid by circling it.
- c. Draw the enantiomer (optical isomer) for amino acid A.
- d. What device would allow one to identify the presence of optical isomers (enantiomers) in a sample?

6. Draw molecules containing two carbon atoms, each with a different one of the following functional groups: alcohol, aldehyde, ketone, carboxylic acid and halide. **Name** each molecule.
7. Draw one large molecule that contains ALL of the following functional groups: amine, amide, ester and nitrile.
8. Explain the differences between each of the following pairs of functional groups that are often mistaken for one another:
- Amines and amides
 - Alcohols and carboxylic acids
 - Esters and ketones
 - Aldehydes and ketones
 - Amines and nitriles
9. Explain what is meant by the term alkene and how that is different than an alkane.
10. Why is it necessary to include the prefix "di" in some names, such as dichloroethane or pent-1,3-diene?

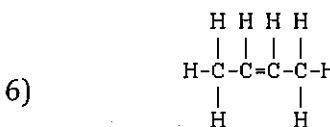
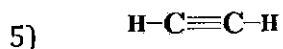
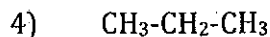
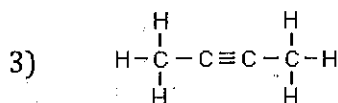
Organic Naming Practice

Name _____

Write the name of each of the following organic compounds:



Is this molecule cis or trans?



Is this molecule cis or trans?

Write the structures for the following organic molecules:

7) butane

8) 1-butene

9) 3-pentene

10) methane

11) 2-butyne

12) cyclopentane

For each molecule in 7-12, give the chemical formula (ex. C_2H_6)

7) _____

8) _____

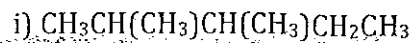
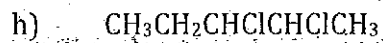
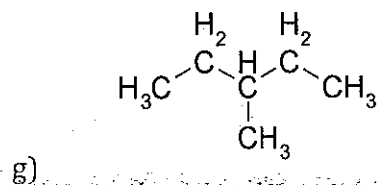
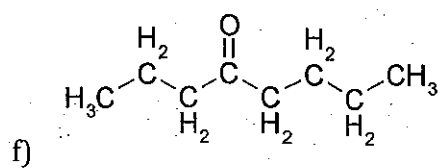
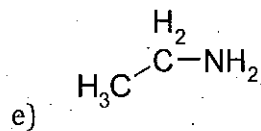
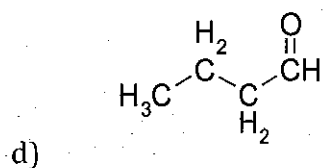
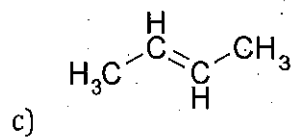
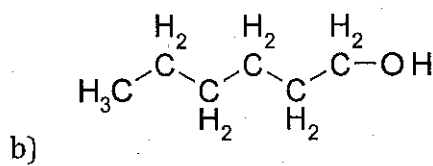
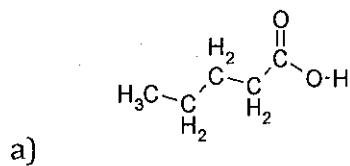
9) _____

10) _____

11) _____

12) _____

13. First identify the function group(s) present in each molecule. Then name the following compounds:



14. Draw structures, or write structural formulas, for:

a) 3-fluoro pentane

Bonus Challenge:

d) 1-hydroxy but-2-ene

b) propanamide

e) trans 1,2 dibromoethene

c) ethanoic acid

15. Write the structural formulas and names for all of the possible isomers of C_5H_{12} .