Homework - Chapter 2 Chem 2310

Name

I. Ways to Represent Organic Molecules

1. Give the molecular formula for each of the following compounds.



2. Draw a line structure for each of the following Lewis structures. Then tell what functional group it contains.





3. Write the condensed structure for each of the following line structures. Then give the functional group each contains.



HW Ch 2 p 2



4. Draw a line structure for each of the following condensed structures. Then give the functional group each contains.



5. Give the geometry of the C, N, and O atoms in each of the following compounds. Remember, most of the H's are not shown!



6. Give the hybridization of the C, N, and O atoms in each of the following compounds.





7. Label the partial positive and negative charges on the polar bonds in the compounds below.



II. Classification of Organic Molecules

8. Identify the functional group(s) in each of the following compounds.



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9. Label the following as aromatic or aliphatic.



10. Label the following compounds as saturated or unsaturated.



11. Circle the name of any compound in the list which fits (or could fit) the description given.

a) alkane	3-ethyl-2-pentene	3-ethylpentane	3-chloro-1-pentane
b) aromatic	bromobenzene cyc	lopentyl bromide b	enzoic acid
c) alcohol	2-hydroxypentanoic a	cid 2-ethoxycyclop	pentanone 2-ethyl-2-pentanol
d) nitrile	2-aminopentanal 2-	-cyanopentanal 2-h	ydroxypentanenitrile
e) ketone	benzophenone 3-	oxopentanoic acid	methyl benzoate
f) ester	ethyl acetate meth	yl acrylate benzyl	benzoate
g) alkyne	2-pentylcyclopentanor	ne 2-ethynylbenzene	2-ethyl-1-pentyne
h) anhydride	pentanoic acid b	utyric anhydride	benzyl chloride
i) ether	ethyl methyl ether	2-methoxypropane	2-hydroxybutanal
j) aldehyde	2-bromo-1-pentanol	2-bromopentanal	5-oxopentanoic acid
k) amine	2-amino-1-cyclobutan	ol acetamide	cyclopentyl amine
l) acid chloride	benzyl chloride	2-chlorobenzoic acid	benzoyl chloride

III. Physical Properties of Organic Molecules





13. Circle the compound in each pair which you will have a higher boiling point and briefly explain your choice.



14. Which of the following will be most soluble in the solvent given? Explain your answer.



- 15. Mark the following statements as True or False.
 - a) _____ Amides contain both nitrogen and oxygen.
 - b) _____ Unsaturated compounds must be hydrocarbons.
 - c) _____ The most important intermolecular force for an alkyne would be dipole forces.
 - d) _____ A ketone is likely to be soluble in an ester.
 - e) _____ A compound which contains an OH is always an alcohol.
 - f) _____ A charged compound is likely to be soluble in water.
 - g) _____ A compound which ends in "al" is an alcohol.
 - h) _____ The higher a compound's molecular weight, the more likely it is to be a solid at room temperature.
 - i) _____ A hydrogen attached to the C=O bond of an aldehyde must be written out.
 - j) _____ An amine is likely to have a higher melting point than a nitrile if they have the same mass.