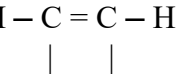
Chemistry

Chapters 20 Study Questions

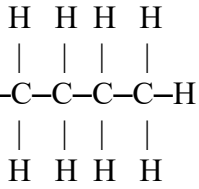
1. Identify each of the following as alkane, alkene, alkyne, or aromatic hydrocarbon. Indicate for each whether it is a saturated or unsaturated hydrocarbon.

a) 

b) $C_{12}H_{26}$

c) C_5H_8

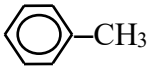
d) C_6H_6

e) 

f) propane

g) C_2H_2

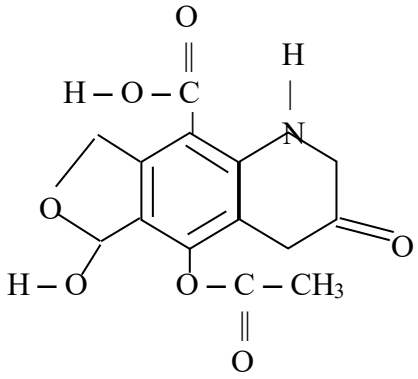
h) C_4H_8

i) 

2. Draw 3 isomers of C_5H_{12}.

3. Complete a balanced equation for each of the following reactions and classify the type of reaction as combustion, substitution or dehydrogenation. (Use your text, if needed.)
   a) $C_4H_{10} + O_2 \rightarrow$
   b) $CH_3{-}CH_2{-}CH_3 \rightarrow CH_2{=}CH{-}CH_3 +$
   c) $CH_4 + F_2 \rightarrow$

4. Label at least 3 functional groups on the following molecule:



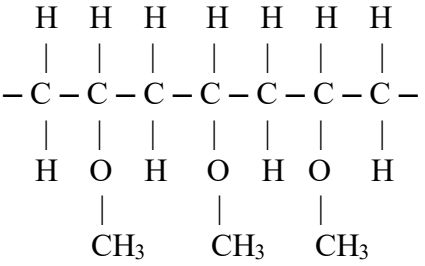
5. Draw the structure of
   a) 2,3,3-trimethyl,4-ethylhexane
   b) methyl alcohol
   c) formic acid
   d) 1-pentyne
   e) a carboxylic acid with 4 carbon atoms
   f) an amine with 5 hydrogen atoms

6. Draw an isomer of *5e* above and indicate what class of compound the isomer is.

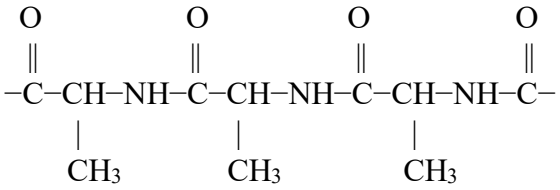
7. Draw *and* name the ester formed by the reaction of propyl alcohol and acetic acid.

8. For each of the following polymers, indicate the type of polymer *and* draw the monomer(s) from which the polymers are made.

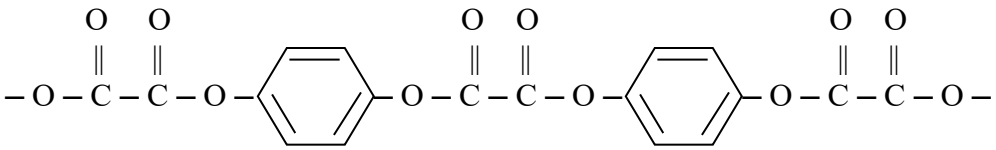
a)



c)



b)



Summary of Chapter 20: Organic Chemistry

properties of organic compounds
saturated and unsaturated hydrocarbons
alkanes
draw alkanes from their names
    prefixes for 1-10 carbons
isomers
petroleum
combustion, substitution, and dehydrogenation reactions
alkenes, alkynes
aromatic hydrocarbons
    benzene
functional groups
    alcohols, carboxylic acids, esters,
    amines, amides
formic acid & acetic acid
names and formation of esters
saturated and unsaturated fatty acids
polymers
    addition polymers
    condensation polymers
        polyesters and polyamides
draw monomer from polymer and vice versa