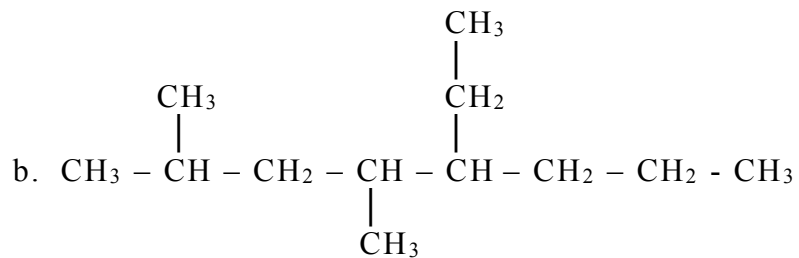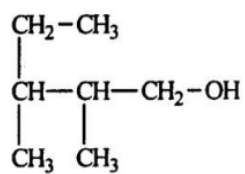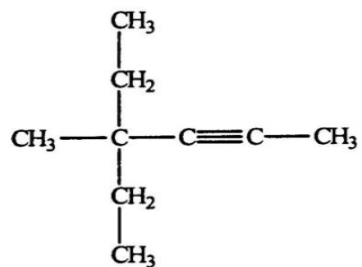*CH1020*
Organic Chemistry Naming

1. Give the name, molecular and structural formula of a hydrocarbon containing *five* carbon atoms that is

   a. an alkane

   b. a cycloalkane

   c. an alkene

   d. an alkyne

2. Based on the molecular formula, determine whether each compound is an alkane, alkene, or alkyne. (assume that the hydrocarbons are noncyclical and there is no more than one multiple bond.)
   a. C_8H_{16}
   b. C_4H_6
   c. C_7H_{16}
   d. C_2H_2

3. Write the ***structural formula*** for the following alkanes:
   a. butane

   b. nonane

   c. hexane

   d. octane

4. What is ***wrong*** with the condensed structural formula? $CH_3=CHCH_2CH_3$

5. Name the following:
   a. $CH_3 - CH - CH_3$
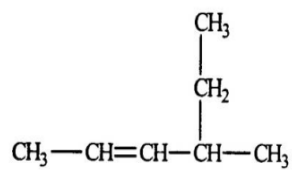 |
                 CH_3

b.

$$
\begin{array}{ccccccccc}
 & & & & & CH_3 & & & \\
 & & & & & | & & & \\
 & CH_3 & & & CH_2 & & & \\
 & | & & & | & & & \\
CH_3 - & CH & - CH_2 - & CH & - & CH & - CH_2 - CH_2 - CH_3 \\
 & & & | & & & \\
 & & & CH_3 & & & \\
\end{array}
$$

c.

$$
\begin{array}{l}
CH_2{-}CH_3 \\
| \\
CH{-}CH{-}CH_2{-}OH \\
| \quad\; | \\
CH_3 \;\; CH_3
\end{array}
$$

d.

$$
\begin{array}{c}
CH_3 \\
| \\
CH_2 \\
| \\
CH_3 {-} C {-} C \equiv C {-} CH_3 \\
| \\
CH_2 \\
| \\
CH_3
\end{array}
$$

e.

$$
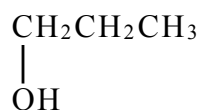\begin{array}{c}
CH_3 \\
| \\
CH_2 \\
| \\
CH_3 {-} CH = CH {-} CH {-} CH_3
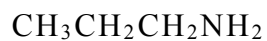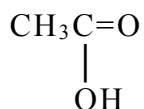\end{array}
$$

f.
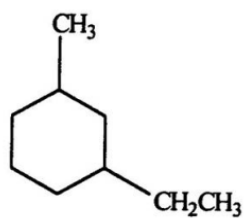
6. Name each disubstituted benzene:
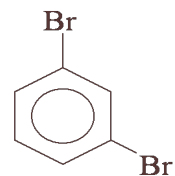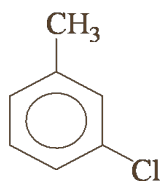

7. Name each of the following functional groups:

(a)   (b)   (c)

(d)   (e)   (f)
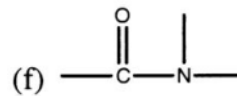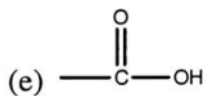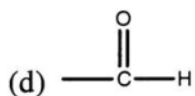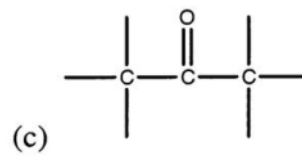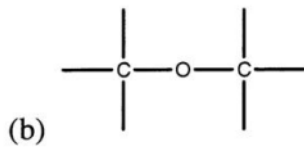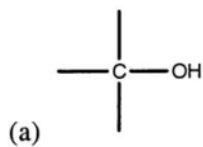
8. Identify the *functional groups* and name each of the following compounds:

$CH_3CCH_2CH_3$
$\parallel$
O

$CH_3C=O$
$\vert$
OH

$CH_3CH_2CH_2NH_2$

CH_3I

$CH_2CH_2CH_3$
$\vert$
OH

$CH_3OCH_2CH_3$

CH_3
$\vert$
$CH_3C=O$

O
$\parallel$
$HCCH_2CH_3$

NH_2
$\vert$
$CH_3C=O$

$CH_3CH_2C\equiv N$

O
$\parallel$
CH_3COCH_3
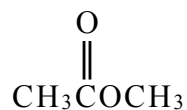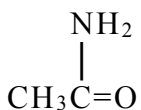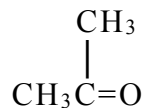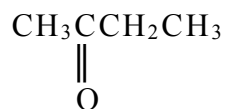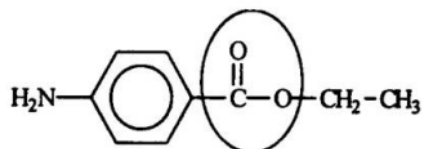
9. Identify the *functional group* circled in each of the following compounds:
   a. Urea:
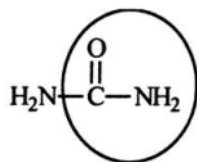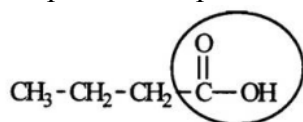

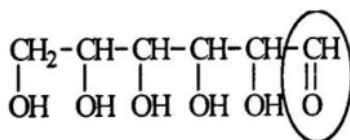   b. Seratonin (transmits nerve impulses through body)
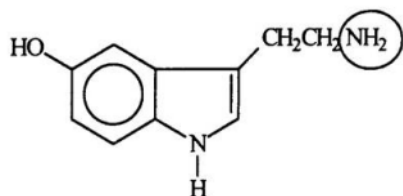
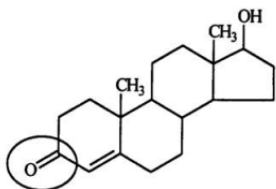   c. Benzocaine is from a family of chemicals that are good local anesthetics.
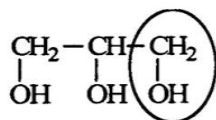

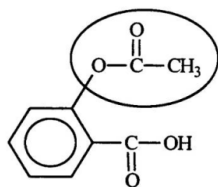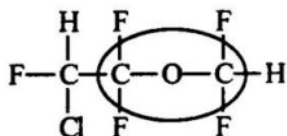   d. Compound responsible for odor in rancid butter

   e. Glucose

   f. Testosterone (male harmone)

   g. Glycerin (used in moisturizers)
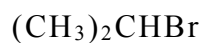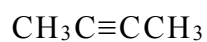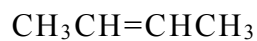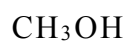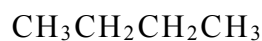
h. Aspirin

i. Enflurane is an effective gaseous anesthetic with relatively low flammability.

10. ***Name*** the following compounds:

$CH_3CH_2CH_2CH_3$

CH_3OH

CH_3CH_2Cl

CH_3CH_2OH

$CH_3CH_2CH_2CH_2CH_2C{\equiv}CH$

$CH_3CH{=}CHCH_3$

$CH_3C{\equiv}CCH_3$

$(CH_3)_2CHBr$

CH_3COOH

CH_3NH_2

Read Chapter 21 from Textbook (Tro; 2ⁿᵈ edition)

Additional Practice Exercises from Chapter 21: 35, 37, 43, 45, 51, 53, 55, 57, 63, 67, 73, 77, 81, 85, 87, 95, 97