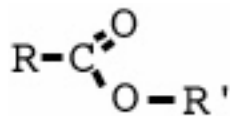


## 24 • Organic Chemistry

### PRACTICE TEST

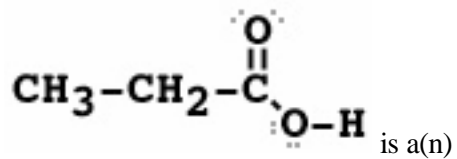
- A molecule named propene has the formula:
  - $C_2H_2$
  - $C_3H_6$
  - $C_4H_3$
  - $C_3H_8$
  - $C_3H_4$
- What is the name of a molecule with the formula,  $C_5H_8$ ?
  - pentane
  - hexene
  - butyne
  - butene
  - pentyne
- A molecule that fits the pattern,  $C_nH_{2n+2}$ , is a(n)
  - alkane
  - alkene
  - cyclic compound
  - alkyne
  - need more info
- The general formula of the alkyne series is:
  - $C_nH_{2n}$
  - $C_nH_{2n-4}$
  - $C_nH_{2n-2}$
  - $C_nH_{2n-6}$
- The hydrocarbon series that has a double bond between carbon atoms is the
  - alkane family
  - alkene family
  - alkyne family
  - alkadiene family
- Organic chemistry is the branch of chemistry that is the study of
  - carbon compounds
  - nonmetals
  - once-living things
  - compounds produced by living things
- The properties of carboxylic acids include all of the following *except*:
  - they can be neutralized by bases
  - the molecule has some polarity
  - they ionize completely in water solution
  - they react with alcohols to form esters
- The compound
 



The diagram shows a central carbon atom double-bonded to an oxygen atom above and to the right, and single-bonded to an oxygen atom below and to the right. The carbon atom is also single-bonded to an R group on the left. The single-bonded oxygen atom is further single-bonded to an R' group on the right.

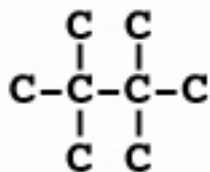
 is classified as a
  - alcohol
  - ester
  - acid
  - ketone
  - aldehyde
- An amine is characterized by what functional group?
  - ROH
  - RCO<sub>2</sub>H
  - RCO<sub>2</sub>R'
  - RNH<sub>2</sub>
- Compounds with the same molecular formulas but different structural formulas are called
  - isotopes
  - variations
  - conformations
  - anomalies
  - isomers
- The least chemically reactive of the hydrocarbon families are the
  - alkanes
  - alkenes
  - alkynes

12. The compound represented by



- a) acid
- b) ester
- c) ketone
- d) aldehyde
- e) amide

13. Draw the structural formula of  
3,5-dimethyl-3-ethyloctane



14. The IUPAC name of \_\_\_\_\_ is:

\_\_\_\_\_

15. Draw and name the three isomers of pentane.

**Answers:**  
1.A 2.B 3.A 4.C 5.B 6.A  
7.C 8.B 9.D 10.E 11.A 12.A

13.  $\begin{array}{ccccccc} & & & \text{C} & & & \\ & & & | & & & \\ \text{C} & - & \text{C} & - & \text{C} & - & \text{C} & - & \text{C} & - & \text{C} \\ & & & | & & & | & & & & \\ & & & \text{C} & & & \text{C} & & & & \end{array}$

14. 2,2,3,3-tetramethylbutane

15. Three isomers of pentane:  
C-C-C-C-C n-pentane  
C-C-C-C  $\begin{array}{c} \text{C} \\ | \end{array}$  2-methylbutane  
C-C-C  $\begin{array}{c} \text{C} \\ | \\ \text{C} \end{array}$  2,2-dimethylpropane