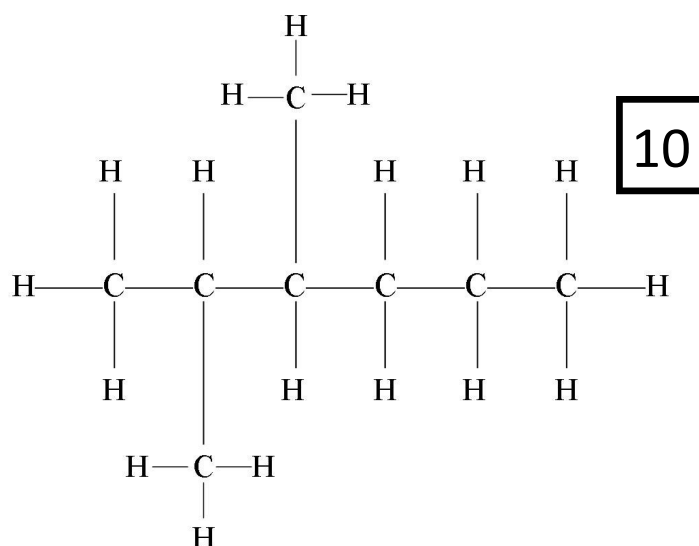
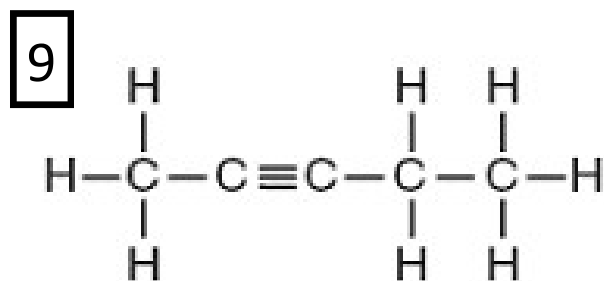
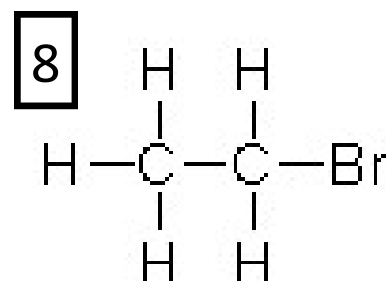
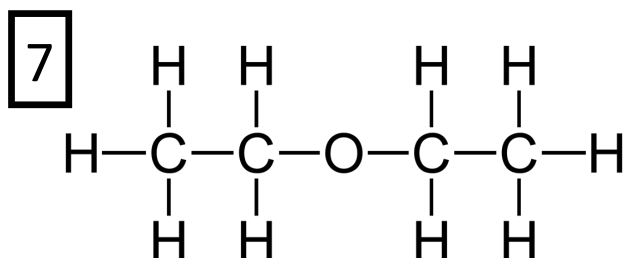
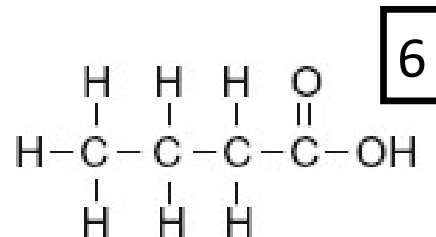
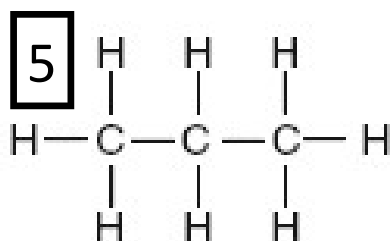
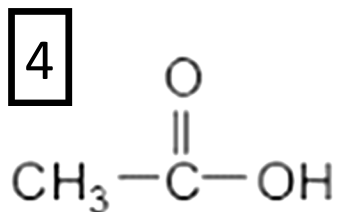
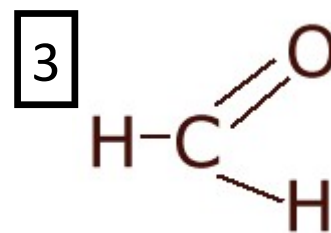
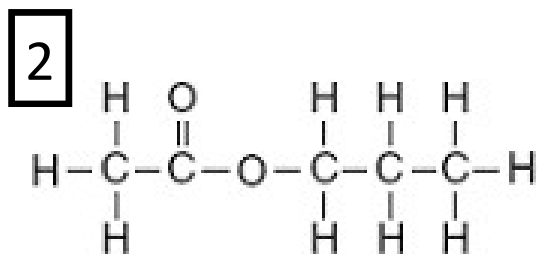
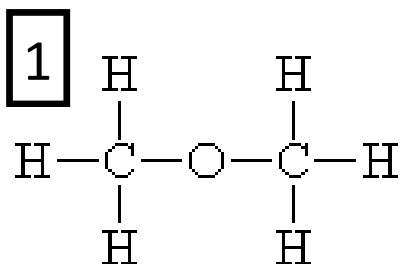


## Organic Chem Review 100 Questions

- In a saturated hydrocarbon, the carbon to carbon bonds are  
A. all single      B. have a double bond      C. have a triple bond      D. have no open bonds
- An example of an unsaturated hydrocarbon would be  
A. hexane      B. octane      C. 2,3 dichloropentane      D. 2-hexene
- All organic compounds contain the element      A. oxygen      B. hydrogen      C. carbon      D. nitrogen
- What is the chemical, or molecular formula for butane?  
A.  $\text{CH}_3\text{CH}_2\text{CH}_2\text{CH}_3$       B.  $\text{C}_4\text{H}_{10}$       C.  $\text{CH}_3(\text{CH}_2)_2\text{CH}_3$       D.  $\text{C}_4\text{H}_8$
- Which is an isomer of pentane?      A. butane      B. propane      C. methyl butane      D. methyl propane
- What is the IUPAC name for the compound with this formula:  $\text{CH}_3\text{CH}_2\text{COOH}$ ?  
A. chooch      B. ethanonic acid      C. propanoic acid      D. Propanal
- Which formula represents an unsaturated hydrocarbon?  
A.  $\text{C}_2\text{H}_6$       B.  $\text{C}_3\text{H}_8$       C.  $\text{C}_5\text{H}_8$       D.  $\text{C}_6\text{H}_{14}$
- Which is an alkene?      A.  $\text{CH}_4$       B.  $\text{C}_2\text{H}_4$       C.  $\text{C}_2\text{H}_2$       D.  $\text{C}_2\text{H}_6$
- The three isomers of pentane have different  
A. formula masses      B. molecular formulas      C. empirical formulas      D. structural formulas
- Identify the homologous series of hydrocarbons that  $\text{CH}_3\text{CHCH}_2$  belongs to.
- Which of these four is a hydrocarbon?      A. ethane      B. ethanol      C. chloroethane      D. ethanoic acid
- Which of these compounds is a alcohol?      A. methane      B. methanol      C. chloromethane      D. methanal
- skip this one
- Which of these compounds is an ester?  
A. ethyl methyl ether      B. methyl ethanoate      C. 2-butanamine      D. butanamide
- What is the molar mass of butanamide?
- Which of these compounds is an alcohol?      A. propanal      B. ethyne      C. butane      D. methanol
- Which can be an isomer for dimethyl ether?      A. ethanoic acid      B. ethanol      C. dimethanal      D. methane
- The functional group  $-\text{COOH}$  is closely associated with what type of reaction?  
A. neutralization      B. polymerization      C. fermentation      D. addition
- A compound that CANNOT be in addition reactions would be:      A.  $\text{C}_2\text{H}_6$       B.  $\text{C}_2\text{H}_4$       C.  $\text{C}_3\text{H}_6$       D.  $\text{C}_8\text{H}_{16}$



You may use some choices more than once, or not at all, or there may be more than one answer for some of the following questions. No mistakes allowed! Which of these compounds is...

20. a branched alkane

21. an organic acid

22. hydrocarbon

23. halide

24. an ether

25. an aldehyde

26. an amine

27. an alcohol

28. an amide

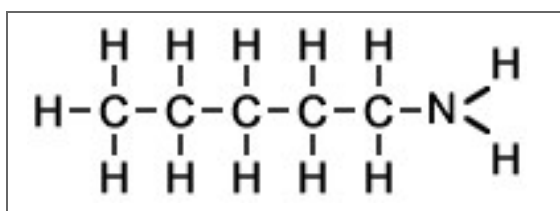
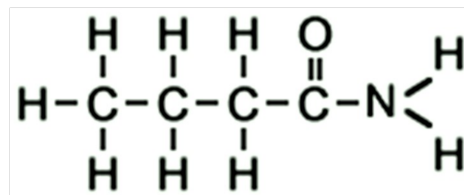
29. saturated hydrocarbon

30. unsaturated hydrocarbon

31. an ester

32. a ketone

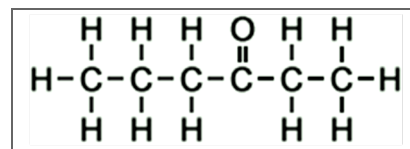
33. Which chemical reaction produces  $C_2H_5OH$ ?  
 A. esterification      B. saponification      C. addition      D. fermentation
34. The process of joining together many small molecules into long chains is called  
 A. polymerization      B. saponification      C. addition      D. fermentation
35. Which are the products of an addition reaction between ethene and chlorine?  
 A.  $CH_2Cl_2$       B.  $CH_3CH_2Cl$       C.  $C_2H_4Cl_2$       D.  $C_2H_5Cl + HCl$
36. In which reaction is soap a product?  
 A. esterification      B. saponification      C. addition      D. substitution
37. Give the equation:  $C_2H_6 + Br_2 \rightarrow C_2H_5Br + HBr$ , this reaction is best described as  
 A. addition involving a saturated hydrocarbon      B. substitution involving a saturated hydrocarbon  
 C. addition involving an unsaturated hydrocarbon      D. substitution involving an unsaturated hydrocarbon
38. Draw ethyl methyl ether
39. Draw and name an isomer to this compound
40. What is the molar mass of each of these compounds?
41. Draw the molecule with the condensed structural formula of:  $CH_3CH_2CHCH_2$
42. Name that molecule
43. Draw and name the molecule with the condensed structural formula of:  $CH_3(CH_2)_5CH_2NH_2$
44. Name that molecule
45. Draw a six carbon aldehyde and name it.
46. Draw a five carbon ketone and name it
47. Draw a different five carbon ketone, and name it as well
48. Name the compound at right with proper IUPAC naming rules.
49. Would this molecule be aqueous in water?
50. Name the compound below.



51. the reaction between  $C_4H_8 + F_2 \rightarrow C_4H_8F_2$  represents what sort of chemical reaction?
52. Draw the structural formula of the product of this reaction.
53. What sort of organic molecule is the product?
54. Why can't the compound  $C_4H_{10}$  react with fluorine the same way that  $C_4H_8$  does?
55. When an organic acid and an alcohol are catalyzed to react, water is removed, and the other product is  
 A. a ketone    B. an aldehyde    C. an ester    D. an amide
56. When you add bromine, chlorine and fluorine to decane, which name could be correct?  
 A. bromo-chloro-fluoro-decane                      B. 1-chloro, 2-bromo, 3-fluorodecane  
 C. 2 bromo, 1 chloro, 3 fluoro decane              D.  $BrClF-C_{10}H_{22}$
57. Name a branched hydrocarbon that has six total carbons and includes two different methyl groups.
58. Name the one other isomer that you could also name for question 57.
59. To which homologous series of hydrocarbons does the waxy compound  $C_{45}H_{88}$  belong.

60. Name the compound at right.

61. Name, and draw an isomer of this compound.



62. Draw, and name:  $CH_3CH_2CH_2CH_2CH_2OCH_2CH_3$

63. Draw and name an isomer of the molecule in question 62 that is in a different class of organic molecules.

64. Draw and name a 5 carbon alcohol molecule.

65. Draw and name a different 5 carbon alcohol molecule.

66. Draw and name ANOTHER 5 carbon alcohol molecule.

67. Draw and name a 4 carbon amine molecule.

68. Draw and name a different 4 carbon amine molecule.

69. Draw and name a three carbon amide.

70. Draw and name a three carbon ester.

71. Draw and name a different three carbon ester.

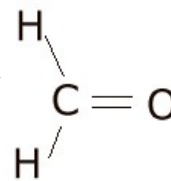
72. Draw and name a seven carbon organic acid.

73. Name any two different compounds that could neutralize that seven carbon acid in a neutralization reaction.

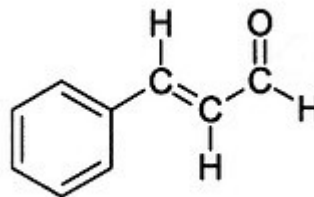
74. When you have a waxy solid hydrocarbon with chains of 36 carbons and each chain has 72 hydrogen atoms attached, what homologous series of hydrocarbons are these members of?

75. What class of molecules is the molecule at right?

76. Name that molecule with proper IUPAC naming rules.

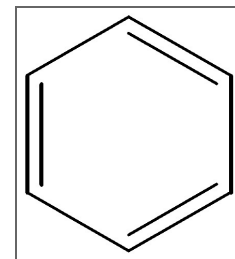


77. The ringed molecule gives cinnamon its smell. What class of compounds does this belong to on Table R?



78. Which formula shows the atoms of the "ring" at right?

- A.  $\text{C}_6\text{H}_6$     B.  $\text{C}_6\text{H}_3$     C.  $\text{C}_6\text{H}_{12}$     D.  $\text{C}_3\text{H}_3$



79. Why can't an ether have a single carbon atom, say, methyl ether?

80. Why can't there be a 1-butanone?

81. Why can't there be a pentachloromethane?

82. Draw the products of trichloromethane gas + chlorine gas.

83. What are the 2 products of propanoic acid and 1-hexanol?

84. What are the 2 products of hexanoic acid and 1-propanol?

85. When a fat and strong base are combined, you get glycerol and what second product?

86. Glycerol has three carbons connected in a short, straight chain. What is also attached that makes it "different" from an alcohol that we'd find on table R?

87. Draw a three carbon alkene with one bromine atom on each carbon. Name this compound.

88. Draw a three carbon alkene with three bromine atoms on one carbon. Name this compound.

89. Draw an amine containing five carbons in a chain, with the amine group on the third carbon. Name this compound.

90. Draw a 1 carbon organic acid. Name it.

91. Draw a 2 carbon organic acid, name it two different ways.

92. Write the condensed structural formulas for hexane

93. Write the condensed structural formula for 1-pentanamine

94. Draw the molecule 3,4,5,6 tetrafluoro-1-octyne

95. Define isomer. Give some examples.

96. Define allotrope. Give some examples.

97. Define isotope. Give some examples.

98. What is the first word in the organic chemistry textbook?

99.  $n(\text{C}_2\text{H}_2\text{Cl}_2) \rightarrow (\text{C}_2\text{H}_2\text{Cl}_2)_n$  represents what chemical reaction type?

100. Methyl hexanoate smells like bananas. What class of organic compounds is this stuff in?