

HW 05

Question 1

1 pts

The inline formula for an ingredient in certain types of nail polish remover is $\text{CH}_3\text{CO}_2\text{CH}_2\text{CH}_3$. What type of compound (classification) is this?

- a carboxylic acid
- an ester
- a ketone
- an ether
- an aldehyde

Question 2

1 pts

What is the name of C_6H_{14} ?

- heptane
- pentane
- propane
- hexene
- hexane

Question 3

1 pts

Which of the following has the greatest molar mass?

- butane
- hexane
- propane
- pentane
- octane
- nonane
- heptane

Question 4

1 pts

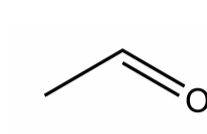
Which of the following has the greatest molar mass?

- butane
- butene
- pentane
- methane
- propane
- pentene

Question 5

1 pts

What is the carbon chain product of the elimination reaction beginning with the reactant shown below?



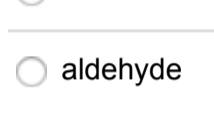
Hint: the eliminated product is HBr. What is left?

- $\text{HC}\equiv\text{CH}$
- $\text{H}_2\text{C}=\text{CH}_2$
- $\text{CHBr}=\text{CHBr}$
- $\text{CH}_2\text{Br}-\text{CH}_2\text{Br}$

Question 6

1 pts

What best describes the functional group on this molecule?

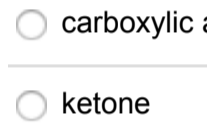


- primary alcohol
- secondary alcohol
- ether
- amine
- carboxylic acid

Question 7

1 pts

What is the functional group on this molecule?

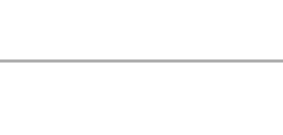


- aldehyde
- ketone
- alcohol
- amine

Question 8

1 pts

What is the functional group on this molecule?

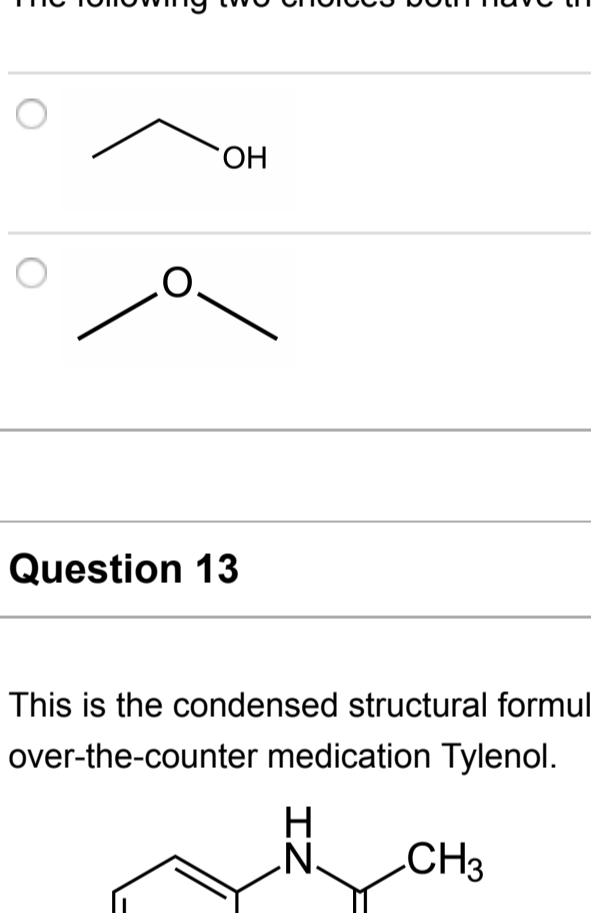


- alcohol
- ether
- ketone
- aldehyde

Question 9

1 pts

Look at this big molecule. What is the functional group on the top right?



- primary amine
- carboxylic acid
- ketone
- aldehyde
- secondary amine

Question 10

1 pts

You are asked to identify the ketone on a large organic molecule. What characteristics are you looking for?

- a carbon with a double bond to oxygen and a single bond to an alcohol group
- an oxygen bonded to carbon and hydrogen
- an oxygen double bonded to a terminal carbon
- an oxygen double bonded to a non-terminal carbon
- a carbon-carbon double bond

Question 11

1 pts

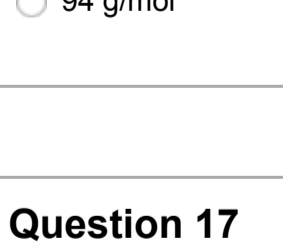
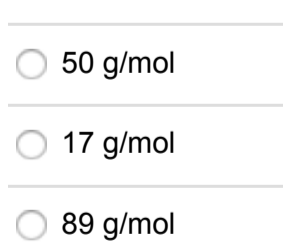
Which of the following is a carboxylic acid functional group?

- R-OH
- R-CO
- R-NH₃
- R-CHO
- R-COOH

Question 12

1 pts

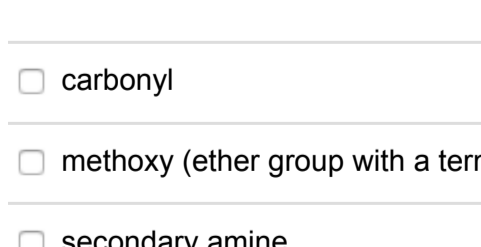
The following two choices both have the formula, $\text{C}_2\text{H}_6\text{O}$. Which is dimethyl ether?



Question 13

1 pts

This is the condensed structural formula for acetaminophen, the active ingredient in the over-the-counter medication Tylenol.



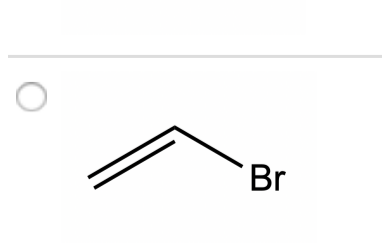
What is the molecular formula of acetaminophen?

- $\text{C}_8\text{H}_5\text{NO}_2$
- $\text{C}_8\text{H}_{11}\text{NO}_2$
- $\text{C}_8\text{H}_9\text{NO}$
- $\text{C}_8\text{H}_9\text{NO}_2$

Question 14

1 pts

The following structure is the carbon skeleton for a structural isomer of octane with most of the hydrogen and carbon atoms omitted.



What is the molecular formula of this structure?

- C_8H_{24}
- C_8H_8
- C_8H_{16}
- C_8H_{18}

Question 15

1 pts

Consider the following structure:

How many single bonds and double bonds (respectively) are represented by this condensed formula?

- 12, 14
- 15, 4
- 11, 7
- 15, 14
- 12, 4

Question 16

1 pts

Consider the structural formula of phenol.

The active ingredient in some oral anesthetics used in sore throat sprays. What is the molar mass of phenol?

- 50 g/mol
- 17 g/mol
- 89 g/mol
- 94 g/mol

Question 17

1 pts

What are three functional groups in the following molecule?

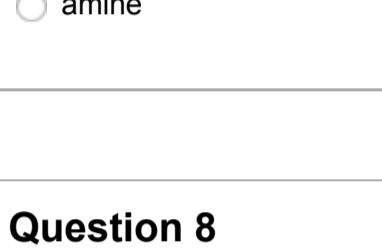
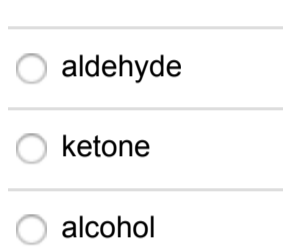
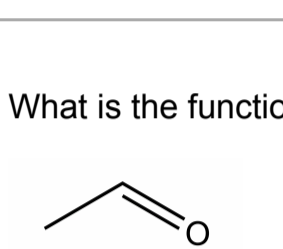
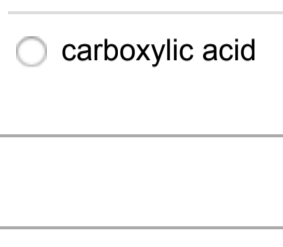
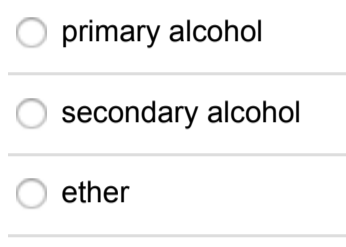


- carbonyl
- methoxy (ether group with a terminal methyl group)
- secondary amine
- alcohol
- aldehyde
- primary amine
- indole

Question 18

1 pts

The following addition reaction will proceed when bromine forms two radicals via homolytic cleavage. The radicals then react with ethene to form which product?



Question 19

1 pts

An alkyl halide is placed in solvent and breaks apart to form a carbocation and a halide anion. What type of process is this?

- heterolytic cleavage
- homolytic cleavage