

Organic Chemistry Practice Test

Name:

Date:

Block:

Key

Multiple Choice.

D 1. Carbon...

- A. Has four valence electrons
- B. Forms chains and rings with carbon-carbon bonds
- C. Forms single, double and triple bonds
- D. All of the above

C 2. Carbon compounds that contain only single carbon-carbon bonds are said to be:

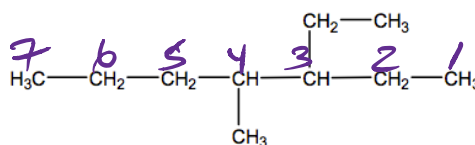
- A. Alkynes
- B. Aromatic
- C. Saturated
- D. Unsaturated

C 3. A hydrocarbon with a triple carbon-carbon bond is said to be an

- A. Alkane
- B. Alkene
- C. Alkyne
- D. Aromatic

C 4. Compounds with benzene rings in them are called:

- A. Additive
- B. Aliphatic
- C. Aromatic
- D. Anhydrous

C 5. Consider the following molecule:

The correct name for the given compound is:

- A. 3-methyl-4-ethylhexene
- B. 3-ethyl-4-methylhexane
- C. 3-ethyl-4-methylheptane
- D. decane

6. Explain your answer to the question above:

lowest #'s possible $\hat{=}$ alpha order

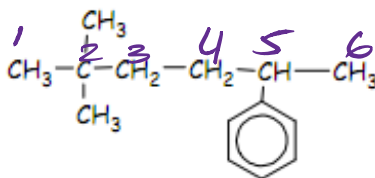
B 7. Carboxylic acids contain:

- A. A carbon double bond to an oxygen only.
- B. A carbon double bond to an oxygen and an -OH group.
- C. A carbon double bond to an oxygen and a nitrogen.
- D. A carbon double bond to an oxygen and a halogen.

C 8. Isomers

- A. Contain only carbons
- B. Have different structures but the same name
- C. Have different structures and different names, but the same molecular formula
- D. Are made up of structures with single bonds

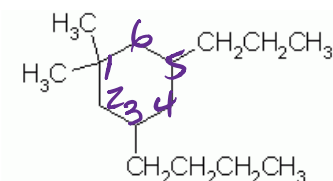
Use the following diagram for number 9:



C 9. The correct name for the given compound is:

- A. 5,5-dimethyl-2-phenylhexane
- B. 1-octylbenzene
- C. 2,2-dimethyl-5-phenylhexane
- D. 1-hexylbenzene

Use the following diagram for number 10:



C 10. The correct name for the given compound is:

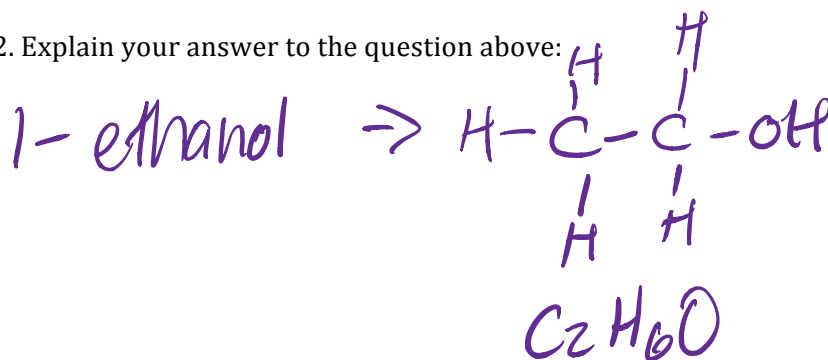
- A. 1-butyl-5,5-dimethyl-3-propylcyclohexane
- B. 5-butyl-1,1-dimethyl-3-propylcyclohexane
- C. 3-butyl-1,1-dimethyl-5-propylcyclohexane
- D. None of the above are correct

C 11. Consider the following molecules. Which of the following are isomers?

C_2H_6O	1-ethanol	$\begin{array}{c} H & H \\ & \\ H-C-O-C-H \\ & \\ H & H \end{array}$	$C_4H_{12}O_2$
I	II	III	IV

- A. I and II
- B. I and III
- C. I, II, and III
- D. I, II, III and IV

12. Explain your answer to the question above:

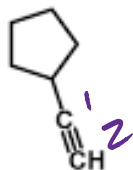


B 13. The following molecule has how many hydrogen atoms?



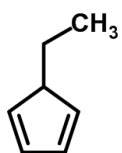
- A. 8
- B. 10
- C. 12
- D. 14

A 14. The name for the following compound is:



- A. 1-cyclopentyl-1-ethyne
- B. 1-cyclopentyl-2-ethyne
- C. 1-ethylcyclopentane
- D. 1-ethyne cyclopentane

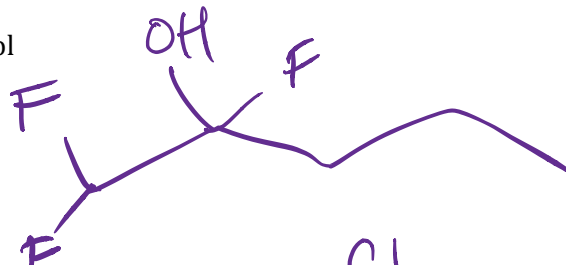
B 15. The molecular formula for the following compound is:



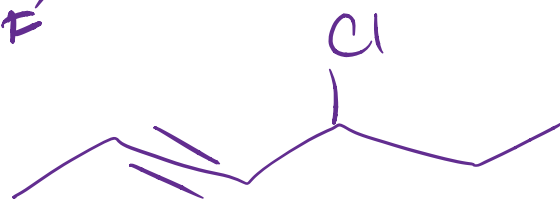
- A. C₆H₁₄
- B. C₇H₁₀ *C₇H₁₀*
- C. C₈H₁₂
- D. C₉H₉

Draw the following molecules. You may draw a structural formula, condensed structural formula or in carbon skeleton form:

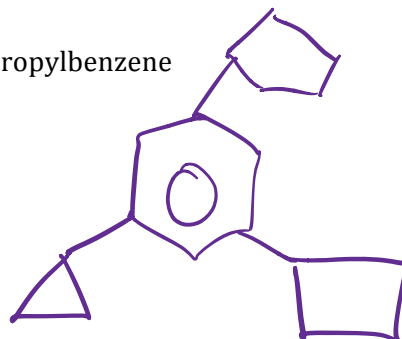
1,1,2-trifluoro-2-pentanol



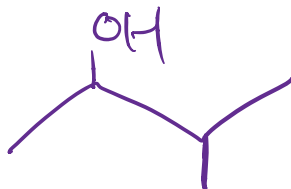
4-chloro-2-hexyne



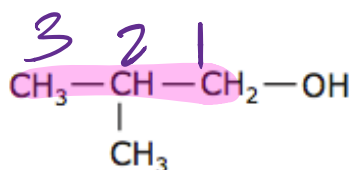
3-cyclobutyl-1-cyclopentyl-5-cyclopropylbenzene



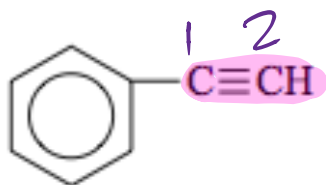
3-methyl-2-butanol



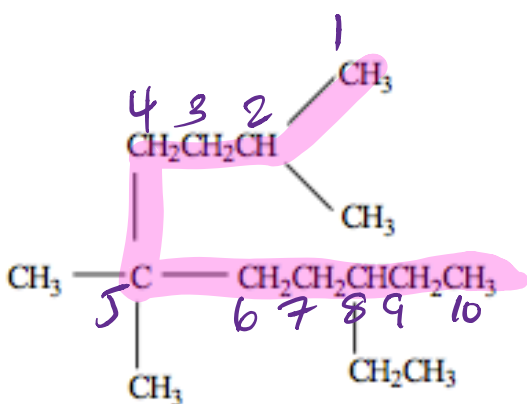
Name the following molecules:



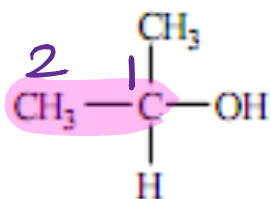
2-methyl-1-propanol



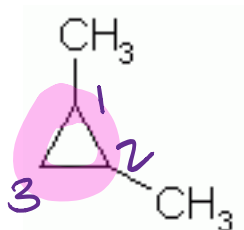
1-phenyl-1-benzene



8-ethyl-2,5,5-trimethyldecane

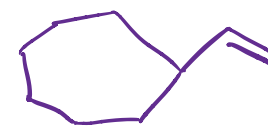
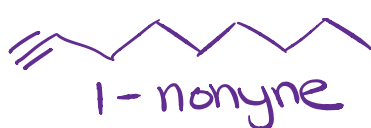


1-methyl-1-ethanol



1,2-dimethylcyclopropane

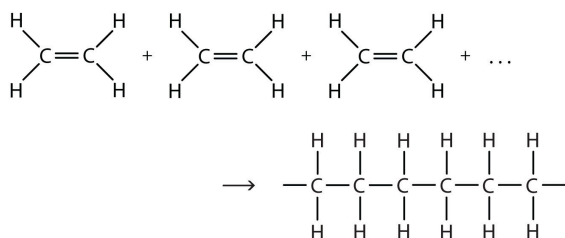
C_9H_{16} has multiple isomers. Draw and name 3 of them. You may draw a structural formula, condensed structural formula or in carbon skeleton form.



2-cycloheptyl-1-ethene



Classify the following type of reactions as combustion, substitution, addition, elimination or polymerization:



polymerization



Dichloromethane

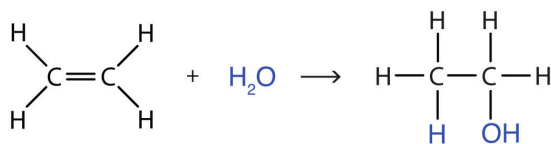


Trichloromethane

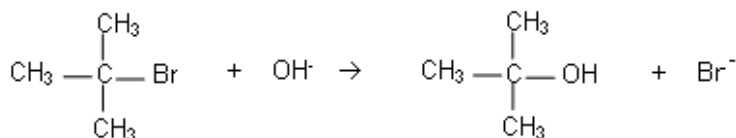


Tetrachloromethane

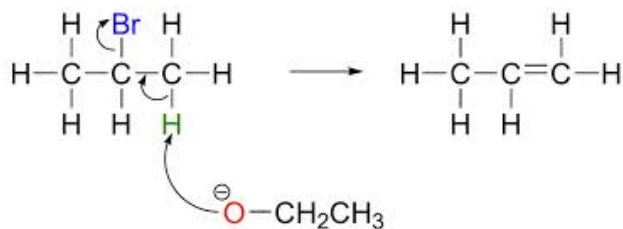
Substitution



addition



Substitution



elimination

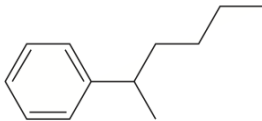
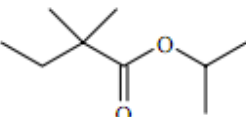
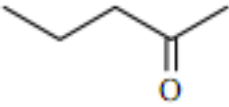
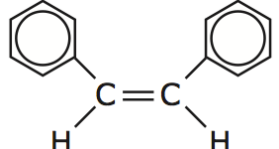
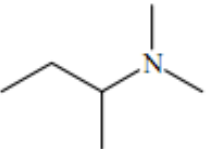
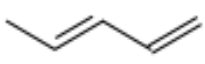
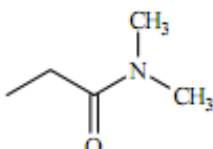
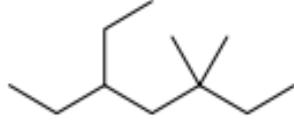
Classify the following molecules according to their main functional group.

There may be more than one correct answer. Functional groups may be used more than once.

- A. Alkane Straight chain
- B. Cycloalkane
- C. Alkyl Halide
- D. Alkene
- E. Ester

- F. Carboxylic Acid
- G. Ether
- H. Amine
- J. Alkyne
- K. Amide

- L. Aromatic Hydrocarbon
- M. Aldehyde
- N. Ketone
- O. Alcohol

<p><u>O</u></p> $\begin{array}{c} \text{H} \quad \text{H} \\ \quad \\ \text{H}-\text{C}-\text{C}-\text{H} \\ \quad \\ \text{OH} \quad \text{OH} \end{array}$	<p><u>C</u></p> $\begin{array}{c} \text{Cl} \\ \\ \text{CH}_3-\text{C}-\text{Cl} \\ \\ \text{Cl} \end{array}$
<p><u>N</u></p> $\text{CH}_3-\overset{\text{O}}{\parallel}{\text{C}}-\text{CH}_2-\text{CH}_3$	<p><u>L</u></p> 
<p><u>E</u></p> 	<p><u>N</u></p> 
<p><u>D, L</u></p> 	<p><u>H</u></p> 
<p><u>D</u></p> 	<p><u>M</u></p> $\begin{array}{c} \text{O} \\ \\ \text{CH}_3-\text{CH}-\text{C} \\ \quad \\ \text{CH}_3 \quad \text{H} \end{array}$
<p><u>K</u></p> 	<p><u>A</u></p> 
<p><u>B, O</u></p> <p>Cyclobutanol</p>	<p><u>C, D</u></p> <p>2,3-dichloro-2-butene</p>
<p><u>D, L</u></p> <p>1,4-diphenyl-3-hexene</p>	<p><u>L</u></p> <p>1,2,3-tripropylbenzene</p>