Chemistry 11

Organic Chemistry Practice Test

Name: Key
Date:
Block:

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

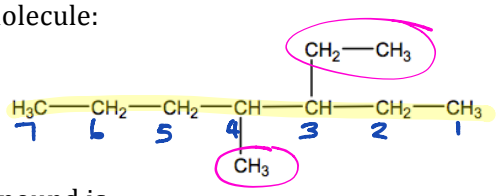
C 2. Carbon compounds that contain only single carbon-carbon bonds are said to be:
A. Alkynes
B. Aromatic
C. Saturated
D. Unsaturated

alkanes

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

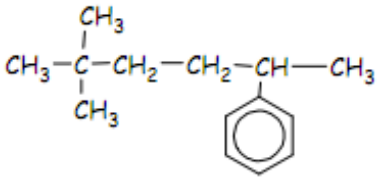
6. Explain your answer to the question above:
- 7 carbons in parent chain = heptane
- numbering from right to left gives the lowest overall numbers

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

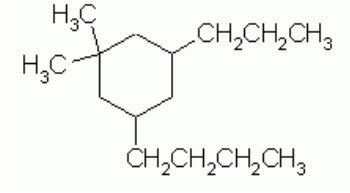
Use the following diagram for number 9:



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

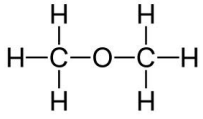
Use the following diagram for number 10:



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		$C_4H_{12}O_2$
I	II	III	IV

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

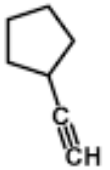
12. Explain your answer to the question above:

I, II, and III have C_2H_6O as their chemical composition, making them isomers

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

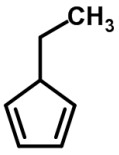
A. 8
B. 10
C. 12
D. 14

__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

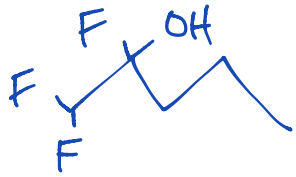
__B__ 15. The molecular formula for the following compound is:



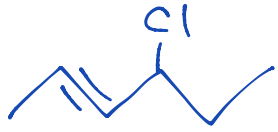
A. C_6H_{14}
B. C_7H_{10}
C. C_8H_{12}
D. C_9H_9

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

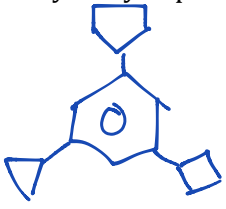
1,1,2-trifluoro-2-pentanol



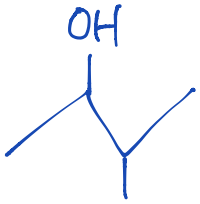
4-chloro-2-hexyne



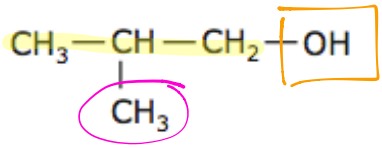
3-cyclobutyl-1-cyclopentyl-5-cyclopropylbenzene



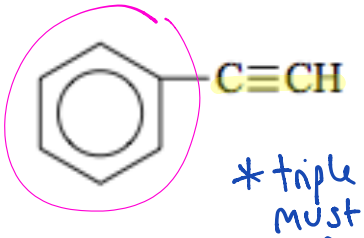
3-methyl-2-butanol



Name the following molecules:

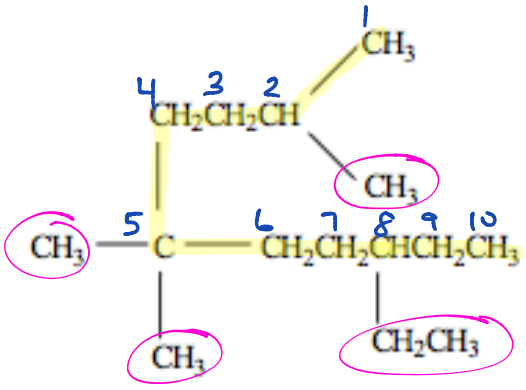


2-methyl-1-propanol

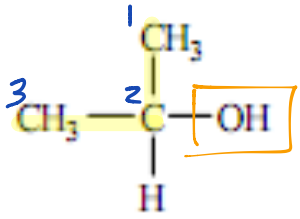


* triple bond must be parent

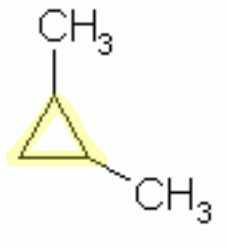
1-phenyl-1-ethyne



8-ethyl-2,5,5-trimethyl decane

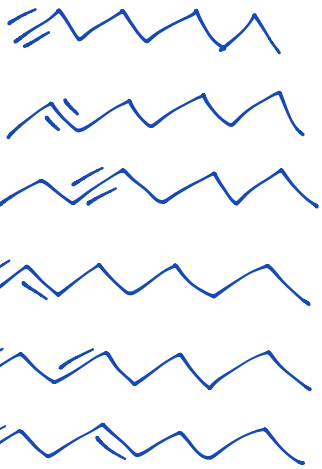


2-propanol



1,2-dimethyl cyclopropane

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.



1-nonyne

2-nonyne

3-nonyne

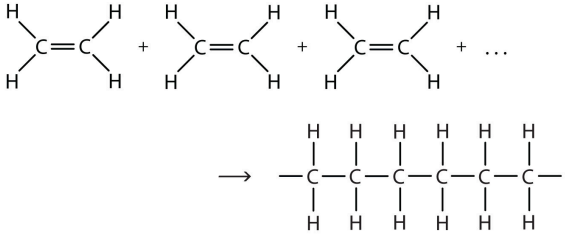
1,2-nondiene

1,3-nondiene

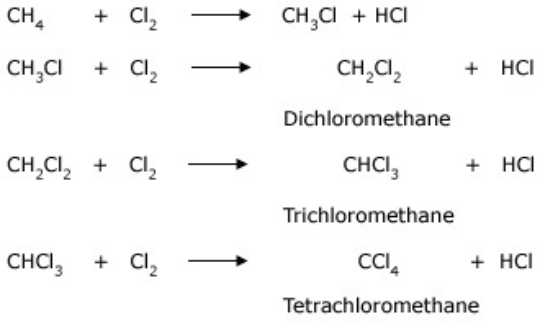
1,4-nondiene

2-cycloheptyl-1-ethene

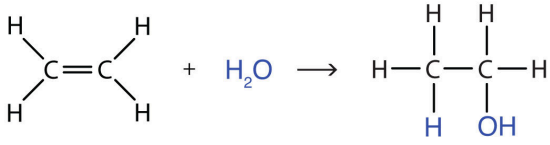
Classify the following type of reactions as combustion, substitution, addition, elimination or polymerization:



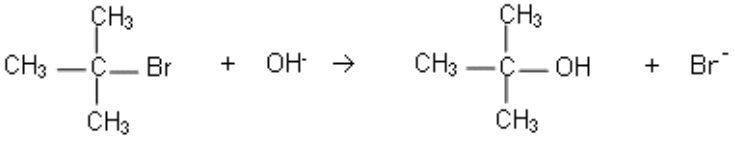
polymerization



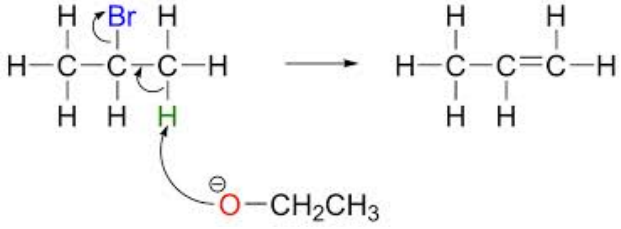
substitution



addition



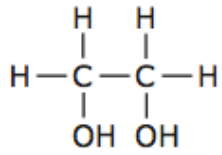
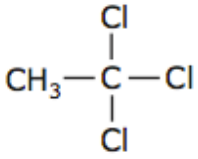
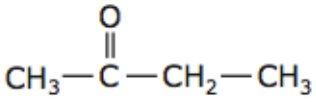
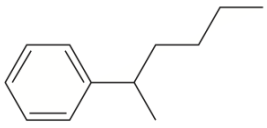
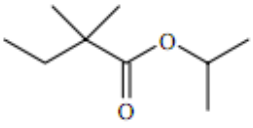
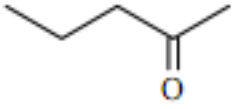
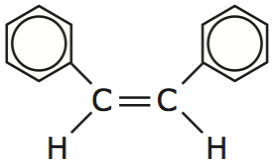
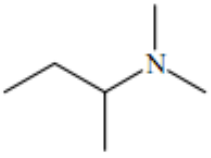
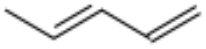
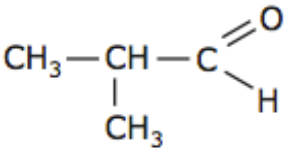
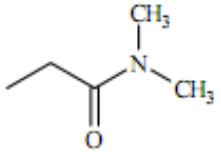
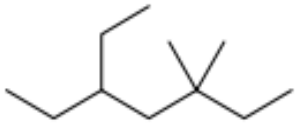
substitution



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

O 	C 
N 	L 
E 	N 
L, D 	H 
D 	M 
K 	A 
B, O Cyclobutanol	C, D 2,3-dichloro-2-butene
L, D 1,4-diphenyl-3-hexene	L 1,2,3-tripropylbenzene