Name: _____

Chemistry R: Unit 15 Practice Test

Key

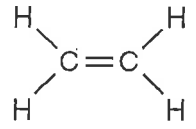
A 1) What type of bond occurs in a saturated hydrocarbon molecule?

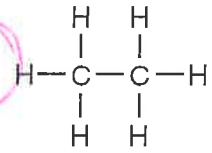
A) single covalent bond
B) triple covalent bond
C) ionic bond
D) double covalent bond

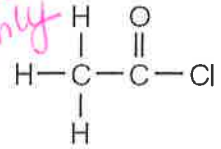
Alkanes

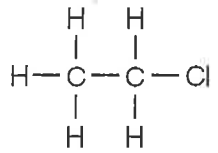
B 2) Which structural formula represents a saturated hydrocarbon?

all single C-C bonds. C and H's only

A) 

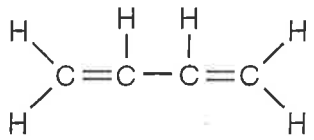
B) 

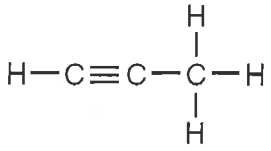
C) 

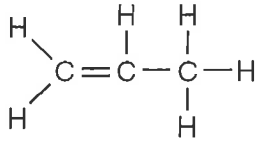
D) 

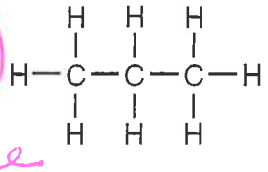
D 3) Which structural formula represents a saturated compound?

all single C-C bonds.

A) 

B) 

C) 

D) 

A 4) Which formula represents an unsaturated hydrocarbon?

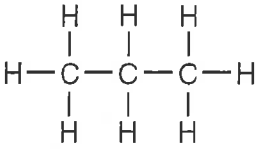
→ double or triple

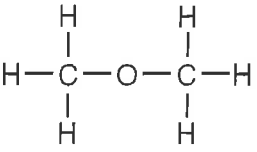
C_nH_{2n} or C_nH_{2n-2}

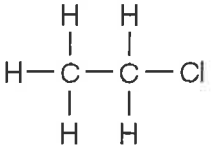
A) C_4H_5Cl B) C_2H_6 C) C_4H_9Cl D) C_3H_8

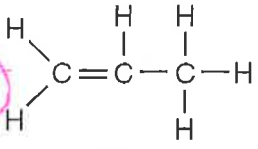
D 5) Which of the following is the structural formula for an unsaturated compound?

double or triple C-C bond.

A) 

B) 

C) 

D) 

D 6) The total number of covalent bonds in a molecule of methane is

A) 1 B) 2 C) 3 D) 4

B 7) A molecule of ethane and a molecule of ethene *both* have the same

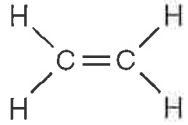
A) molecular formula
B) number of carbon atoms
C) number of hydrogen atoms
D) empirical formula

D 8) What is the formula for pentene?

A) C_4H_{10} B) C_4H_8 C) C_5H_{12} D) C_5H_{10}

C 9) Which structural formula represents a member of the series of hydrocarbons having the general formula C_nH_{2n-2}?

A)



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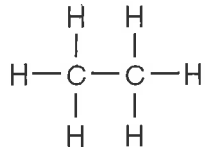
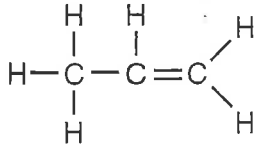
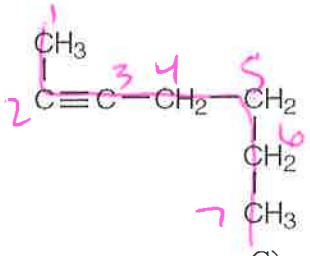


C) H—C≡C—H

D)



B 10) What is the correct IUPAC name for the hydrocarbon with the following structural formula?



A) 1-methyl-4-ethyl-1-butyne
B) 2-heptyne
C) 5-ethyl-2-pentyne
D) 1-methyl-1-hexyne

A 11) Given the structural formula for ethyne:

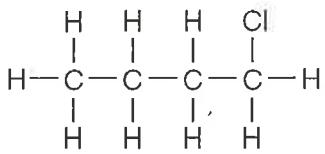
H—C≡C—H

What is the total number of electrons shared between the carbon atoms?

A) 6 B) 2 C) 3 D) 4

B 12) What is the structural formula for 2-chlorobutane?

A)



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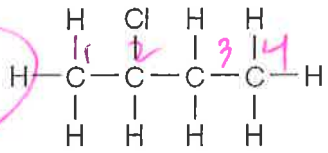
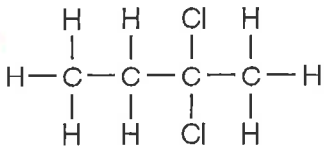


C)



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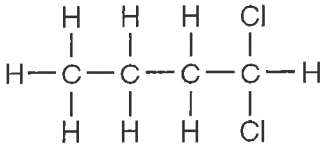


C 13) What type of compound is represented by the structural formula shown below?

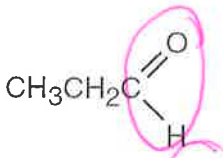
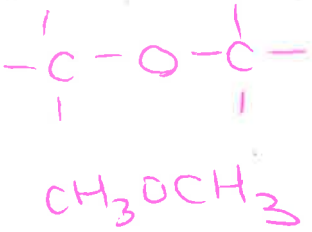


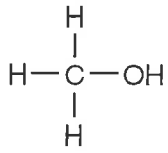
Table R aldehyde

A) an acid
B) an ether
C) an aldehyde
D) an ester

D 14) Which structural formula represents an isomer of dimethyl ether?



CH_3OCH_3

A)


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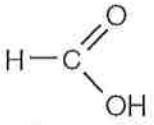

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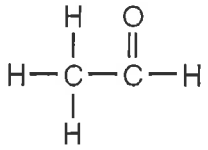
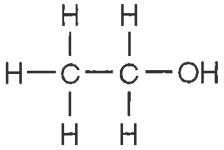


D)


D 15) The products of the complete combustion of a hydrocarbon are water and

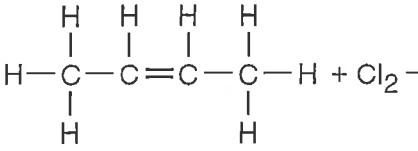
A) an alcohol
B) carbon
C) an aldehyde
D) carbon dioxide

A 16) Given the equation: fermentation

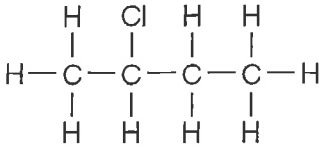
$$X \xrightarrow[\text{from yeast}]{\text{zymase}} 2C_2H_5OH + 2CO_2$$

The substance represented by X is

A) glucose
B) glycerol
C) carbon dioxide
D) ethanol

D 17) In the reaction

, what structural formula correctly represents X?

addition rxn

A)


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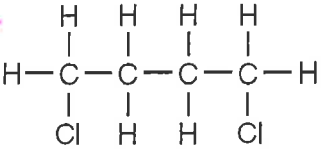

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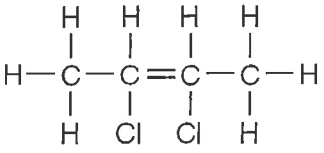
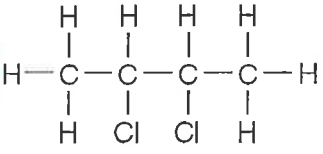
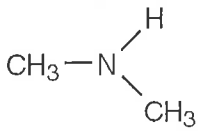


D)


B 18) What type of compound is represented by the structural formula below?



A) an ether
B) an amine
C) an aldehyde
D) an ester

A 19) Organic compounds that are essentially nonpolar and exhibit weak intermolecular forces have
A) low melting points
B) high conductivity in solution
C) high boiling points
D) low vapor pressure

A 20) The bonds between the atoms in an organic molecule are generally
A) covalent
B) coordinate covalent
C) hydrogen
D) ionic

C 21) Which of the following statements explains why the element carbon forms so many compounds?
A) Carbon readily forms ionic bonds with other carbon atoms.
B) Carbon atoms have very high electronegativity.
C) Carbon readily forms covalent bonds with other carbon atoms.
D) Carbon atoms combine readily with oxygen.

B 22) Compared with the rate of an inorganic reaction, the rate of an organic reaction is usually
A) slower, because the organic particles are ionic
B) slower, because the organic particles are molecules
C) faster, because the organic particles are ionic
D) faster, because the organic particles are molecules

D 23) The isomers CH_3OCH_3 and CH_3CH_2OH differ in
A) molecular formula
B) number of atoms
C) formula mass
D) molecular structure

C 24) Which hydrocarbon has more than one possible structural formula?
A) C_3H_8 B) C_2H_6 C) C_4H_{10} D) CH_4

A 25) Which compound is an isomer of C_4H_9OH?
A) $C_2H_5OC_2H_5$
B) $C_3H_7CH_3$
C) $C_2H_5COOC_2H_5$
D) CH_3COOH