



Chemistry

Name: _____

Section _____ NAMING HYDROCARBONS WS Date: _____

Directions (1-18): For *each* statement or question, choose the word or expression that, of those given, best completes the statement or answers the question.

- Which element is composed of atoms that can form more than one covalent bond with one another?
(1) hydrogen (3) carbon
(2) helium (4) calcium
- What is the total number of valence electrons in a carbon atom in the ground state?
(1) 12 (3) 6
(2) 2 (4) 4
- Which property is generally characteristic of an organic compound?
(1) low melting point
(2) high melting point
(3) soluble in polar solvents
(4) insoluble in nonpolar solvents
- In general, what property do organic compounds share?
(1) high melting point
(2) high electrical conductivity
(3) readily soluble in water
(4) slow reaction rate
- A hydrocarbon molecule containing one triple covalent bond is classified as an
(1) alkene (3) alkyne
(2) alkane (4) alkadiene
- What is the total number of hydrogen atoms in a molecule of butene?
(1) 10 (3) 8
(2) 6 (4) 4
- What is the total number of pairs of electrons shared between the two adjacent carbon atoms in an ethyne molecule?
(1) 1 (3) 3
(2) 2 (4) 4
- Which hydrocarbon is a member of the series with the general formula C_nH_{2n-2} ?
(1) ethyne (3) butane
(2) ethene (4) benzene
- By how many carbon atoms does each member of a homologous series differ from the previous member?
(1) 1 (3) 3
(2) 2 (4) 4
- Which of the following is a saturated hydrocarbon?
(1) alkene (3) alkyne
(2) alkane (4) alkadiene
- All organic compounds contain the element
(1) hydrogen (3) carbon
(2) nitrogen (4) oxygen
- Which compound is a member of the same homologous series as C_3H_6 ?
(1) C_2H_4 (3) C_3H_4
(2) C_2H_6 (4) C_3H_8
- Which compound belongs to the alkene series?
(1) C_2H_2 (3) C_6H_6
(2) C_2H_4 (4) C_6H_{14}
- Which type of bond occurs in a saturated hydrocarbon molecule?
(1) single covalent (3) triple covalent
(2) double covalent (4) ionic
- Which formula represents butane?
(1) CH_3CH_3
(2) $CH_3CH_2CH_3$
(3) $CH_3CH_2CH_2CH_3$
(4) $CH_3CH_2CH_2CH_2CH_3$

16 The four single bonds of a carbon atom are directed in space toward the corners of a

- (1) regular tetrahedron
- (2) regular octahedron
- (3) square plane
- (4) trigonal bipyramid

17 Which type of bonds and solids are characteristic of organic compounds?

- (1) ionic bonds and ionic solids
- (2) ionic bonds and molecular solids
- (3) covalent bonds and ionic solids
- (4) covalent bonds and molecular solids

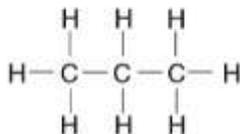
18 In which group could the hydrocarbons all belong to the same homologous series?

- (1) C_2H_2 , C_2H_4 , C_2H_6
- (2) C_2H_4 , C_3H_4 , C_4H_8
- (3) C_2H_4 , C_2H_6 , C_3H_6
- (4) C_2H_4 , C_3H_6 , C_4H_8

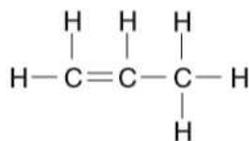
Naming Hydrocarbons:

Name the following compounds according to IUPAC nomenclature.

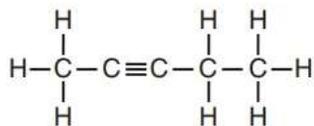
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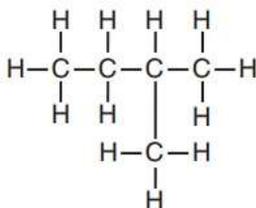
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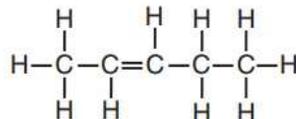
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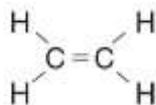
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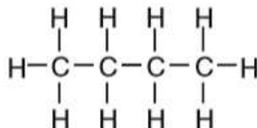
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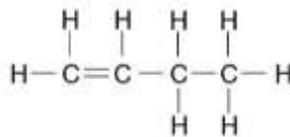
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7.



8.



Drawing Hydrocarbon Structural Formulas:

Draw structural formulas for the following compounds.

butane	ethyne
1-butene	2-butyne
2-methyl butane	2,2-dimethyl butane
3-ethyl heptane	2,3-dimethyl pentane