

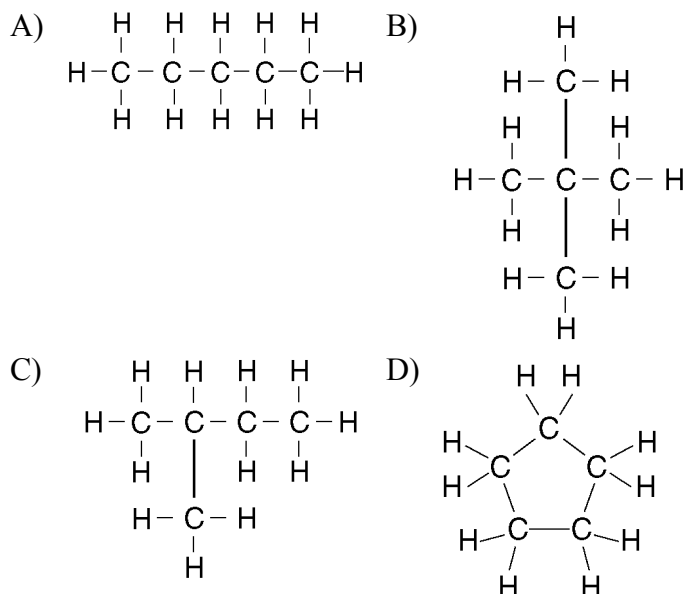
1. Which hydrocarbon is saturated?

- A) C_2H_2 B) C_3H_4
C) C_4H_6 D) C_4H_{10}

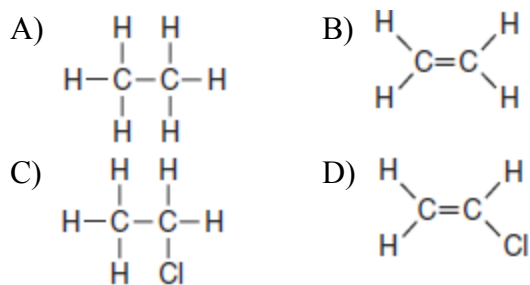
2. What is the chemical name for the compound $CH_3CH_2CH_2CH_3$?

- A) butane B) butene
C) decane D) decene

3. Which structural formula represents a molecule that is *not* an isomer of pentane?



4. Which formula represents an unsaturated hydrocarbon?



5. What is the number of hydrogen atoms in a molecule of ethyne?

- A) 6 B) 2 C) 8 D) 4

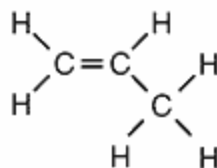
6. What is the number of electrons shared in the multiple carbon-carbon bond in one molecule of 1-pentyne?

- A) 6 B) 2 C) 3 D) 8

7. Molecules of 2-methyl butane and 2,2-dimethyl propane have different

- A) structural formulas
B) molecular formulas
C) numbers of carbon atoms
D) numbers of covalent bonds

8. Given the structural formula:



What is the IUPAC name of this compound?

- A) propane B) propene
C) propanone D) propanal

9. Which formula represents an unsaturated hydrocarbon?

- A) C_2H_4 B) C_3H_8
C) C_4H_{10} D) C_5H_{12}

10. Which compound is a member of the same homologous series as C_3H_8 ?

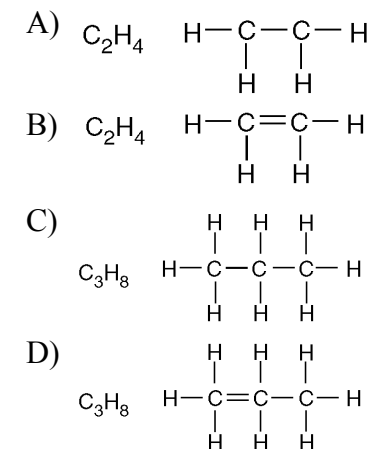
- A) CH_4 B) C_4H_8
C) C_5H_8 D) C_5H_{10}

11. Which formula represents the first member of the benzene series?

- A) C_4H_8 B) C_5H_{10}
C) C_6H_6 D) C_7H_8

12. The empirical formula of a compound is CH_2 .

Which molecular formula is correctly paired with a structural formula for this compound?



13. Which molecular formula can be represented by the structural formula shown below?



- A) C_6H_6 B) C_6H_{10}
 C) C_6H_{12} D) C_6H_{14}

14. Which of the following has the lowest boiling point?

- A) butane B) ethane
 C) methane D) propane

15. Which series contains cyclic hydrocarbons?

- A) alkane B) alkene
 C) alkyne D) benzene

16. Which general formula represents the compound $CH_3CH_2CCH_3$?

- A) C_nH_n B) C_nH_{2n}
 C) C_nH_{2n-2} D) C_nH_{2n+2}

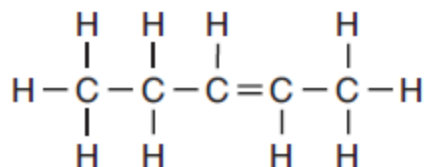
17. The two isomers of butane have different

- A) formula masses
 B) empirical formulas
 C) molecular formulas
 D) structural formulas

18. Compared with the rate of an inorganic reaction, the rate of an organic reaction is usually

- A) faster, because organic compounds are ionic.
 B) faster, because the organic compounds are molecules.
 C) slower, because organic compounds are ionic.
 D) slower, because the organic compounds are molecules.

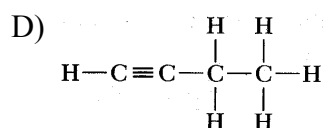
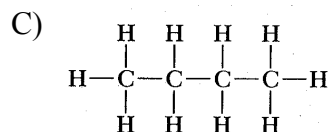
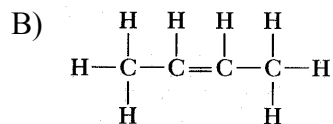
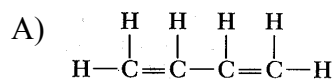
19. Given the formula representing a compound:



What is a chemical name of this compound?

- A) 2-pentene B) 2-pentyne
 C) 3-pentene D) 3-pentyne

20. Which structural formula represents a molecule of butane?



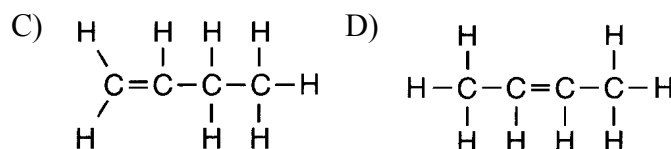
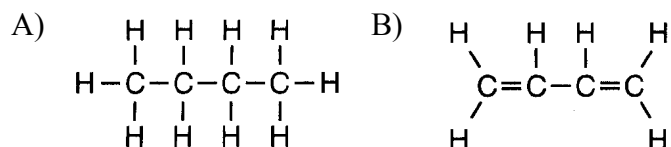
21. Which formula represents an unsaturated hydrocarbon?

- A) C_5H_{12} B) C_6H_{14}
 C) C_7H_{16} D) C_8H_{14}

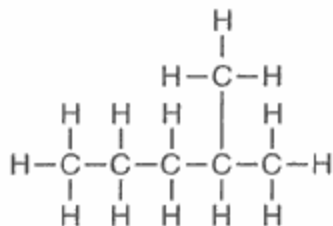
22. Which formula represents an alkene?

- A) C_2H_6 B) C_3H_6
 C) C_4H_{10} D) C_5H_{12}

23. Which formula represents 2-butene?



24. What is the IUPAC name of the organic compound that has the formula shown below?



- A) 1,1-dimethylbutane
B) 2-methylpentane
C) hexane
D) 4-methylpentane
25. Which three compounds belong to the alkene series?
- A) CH_4 , C_2H_6 , C_3H_4
B) C_3H_6 , C_4H_8 , C_5H_{10}
C) C_4H_{10} , C_5H_{10} , C_6H_6
D) C_2H_2 , C_3H_4 , C_4H_8
26. In a molecule of CH_4 , the hydrogen atoms are spatially oriented toward the corners of a regular
- A) pyramid B) tetrahedron
C) square D) rectangle
27. A student investigated four different substances in the solid phase. The table below is a record of the characteristics (marked with an *X*) exhibited by each substance.

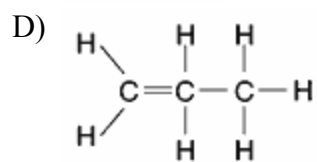
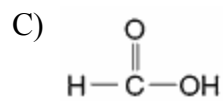
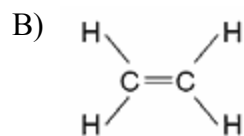
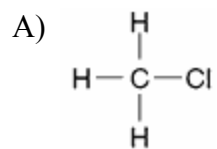
Characteristic Tested	Substance A	Substance B	Substance C	Substance D
High Melting Point	X		X	
Low Melting Point		X		X
Soluble in Water	X			X
Insoluble in Water		X	X	
Decomposed under High Heat	X			
Stable under High Heat	X		X	X
Electrolyte	X			X
Nonelectrolyte		X	X	

Which substance has characteristics most like those of an organic compound?

- A) *A* B) *B* C) *C* D) *D*

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28. Which structural formula is *incorrect*?



29. A molecule of any organic compound has at least one

- A) ionic bond B) double bond
C) oxygen atom D) carbon atom
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