

1. Which atoms can bond with each other to form chains, rings, or networks?

- A) carbon atoms B) hydrogen atoms
C) oxygen atoms D) nitrogen atoms

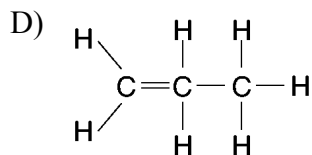
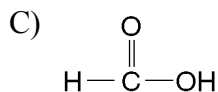
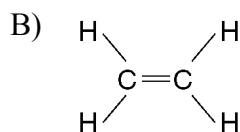
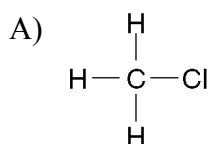
2. A molecule of an organic compound contains at least one atom of

- A) carbon B) chlorine
C) nitrogen D) oxygen

3. Which two compounds have the same molecular formula but different chemical and physical properties?

- A) $\text{CH}_3\text{CH}_2\text{Cl}$ and $\text{CH}_3\text{CH}_2\text{Br}$
B) CH_3CHCH_2 and $\text{CH}_3\text{CH}_2\text{CH}_3$
C) CH_3CHO and CH_3COCH_3
D) $\text{CH}_3\text{CH}_2\text{OH}$ and CH_3OCH_3

4. Which structural formula is *incorrect*?



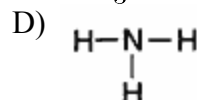
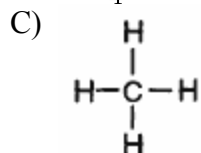
5. Organic compounds that are essentially non-polar and exhibit weak intermolecular forces have

- A) low vapor pressure
B) low melting points
C) high boiling points
D) high electrical conductivity in solution

6. In general, which property do organic compounds share?

- A) high melting point
B) high electrical conductivity
C) readily soluble in water
D) slow reaction rate

7. Which representation is the structural formula of an organic compound?



8. Which of the following compounds has the highest normal boiling point?

- A) C_2H_6 B) C_3H_8 C) C_4H_{10} D) C_5H_{12}

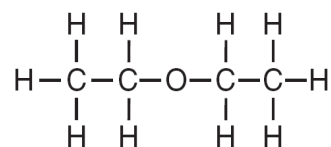
9. Which of the following has the lowest boiling point?

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

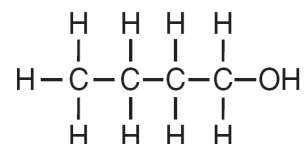
10. Which kind of bond is most common in organic compounds?

- A) covalent B) ionic
C) hydrogen D) electrovalent

11. Given the formulas for two compounds:



and

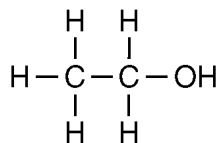


These compounds differ in

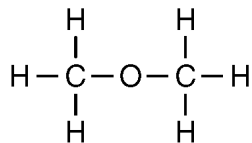
- A) gram-formula mass
B) molecular formula
C) percent composition by mass
D) physical properties at STP

12. Given the structural formulas:

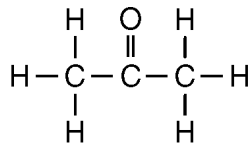
Formula A



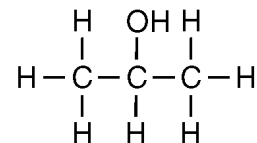
Formula B



Formula C



Formula D



Which two formulas represent compounds that are isomers of each other?

- A) A and B B) A and C C) B and D D) C and D

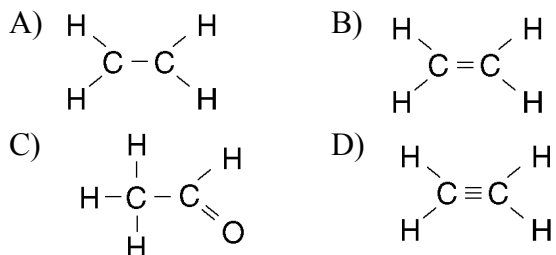
13. Hydrocarbons are compounds that contain

- A) carbon, only
B) carbon and hydrogen, only
C) carbon, hydrogen, and oxygen, only
D) carbon, hydrogen, oxygen, and nitrogen, only

14. A molecule of a compound contains a total of 10 hydrogen atoms and has the general formula C_nH_{2n+2} . Which prefix is used in the name of this compound?

- A) but- B) dec- C) oct- D) pent-

15. Which structural formula *correctly* represents a hydrocarbon molecule?



16. What is the general formula for the members of the alkane series?

- A) C_nH_{2n} B) C_nH_{2n+2}
C) C_nH_{2n-2} D) C_nH_{2n-6}

17. Natural gas is mostly comprised of

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

18. What is the geometric shape of a methane molecule?

- A) triangular B) rectangular
C) octahedral D) tetrahedral

19. As the number of carbon atoms in each successive member of a homologous hydrocarbon series increases, the number of possible isomers

- A) decreases B) increases
C) remains the same

20. Which of the following compounds has the greatest possible number of isomers?

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

21. The total number of covalent bonds in a molecule of C_3H_8 is

- A) 11 B) 10 C) 3 D) 8