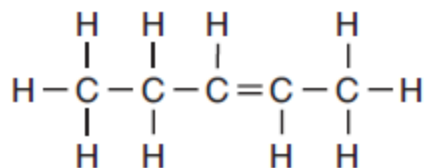
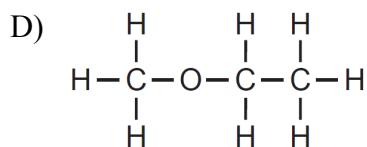
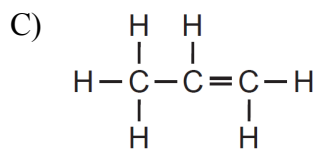
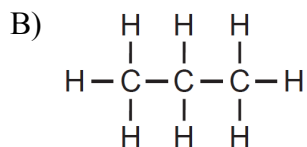
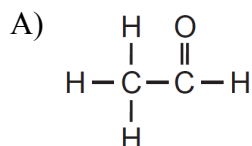


1. Given the formula representing a compound:

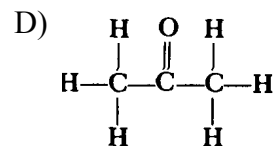
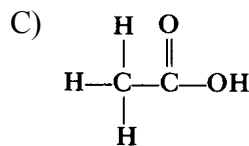
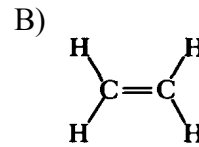
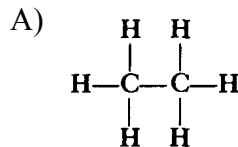


What is a chemical name of this compound?

- A) 2-pentene B) 2-pentyne
C) 3-pentene D) 3-pentyne
2. Which formula represents an organic compound?
A) CaH_2 B) C_4H_8 C) H_2O_2 D) P_2O_5
3. A molecule of an unsaturated hydrocarbon must have
A) at least one single carbon-carbon bond
B) at least one multiple carbon-carbon bond
C) two or more single carbon-carbon bonds
D) two or more multiple carbon-carbon bonds
4. Which formula represents an unsaturated hydrocarbon?
A) C_5H_{12} B) C_6H_{14}
C) C_7H_{16} D) C_8H_{14}
5. Which formula represents an unsaturated hydrocarbon?

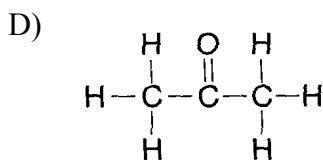
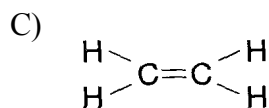
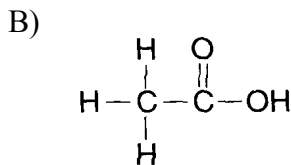
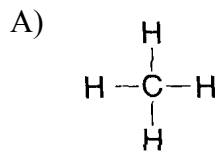


6. Which formula represents an unsaturated hydrocarbon?



7. A straight-chain hydrocarbon that has only one double bond in each molecule has the general formula
A) $\text{C}_n\text{H}_{2n-6}$ B) $\text{C}_n\text{H}_{2n-2}$
C) C_nH_{2n} D) $\text{C}_n\text{H}_{2n+2}$
8. Which formula represents 2-butene?
- A)
$$\begin{array}{cccc} & \text{H} & \text{H} & \text{H} & \text{H} \\ & | & | & | & | \\ \text{H} & -\text{C} & -\text{C} & -\text{C} & -\text{C} & -\text{H} \\ & | & | & | & | \\ & \text{H} & \text{H} & \text{H} & \text{H} \end{array}$$
- B)
$$\begin{array}{cccc} & \text{H} & & \text{H} & \text{H} & & \text{H} \\ & | & & | & | & & | \\ & \text{C} & = & \text{C} & -\text{C} & = & \text{C} \\ & | & & & | & & | \\ & \text{H} & & & \text{H} & & \text{H} \end{array}$$
- C)
$$\begin{array}{cccc} & \text{H} & \text{H} & \text{H} & \text{H} \\ & | & | & | & | \\ & \text{C} & = & \text{C} & -\text{C} & -\text{C} & -\text{H} \\ & | & & | & | \\ & \text{H} & & \text{H} & \text{H} \end{array}$$
- D)
$$\begin{array}{cccc} & \text{H} & & \text{H} & & \text{H} \\ & | & & | & & | \\ \text{H} & -\text{C} & -\text{C} & = & \text{C} & -\text{C} & -\text{H} \\ & | & | & & | & | \\ & \text{H} & \text{H} & & \text{H} & \text{H} \end{array}$$
9. A molecule of butane and a molecule of 2-butene both have the same total number of
A) carbon atoms B) hydrogen atoms
C) single bonds D) double bonds
10. A double carbon-carbon bond is found in a molecule of
A) pentane B) pentene
C) pentyne D) pentanol

11. Which structural formula represents an unsaturated hydrocarbon?



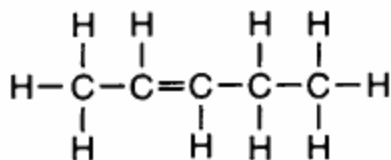
12. Which formula represents an unsaturated hydrocarbon?

- A) CH_2CHCl B) $\text{CH}_3\text{CH}_2\text{Cl}$
C) $\text{CH}_3\text{CH}_2\text{CH}_3$ D) CH_3CHCH_2

13. The multiple covalent bond in a molecule of 1-butene is a

- A) double covalent bond that has 6 shared electrons
B) double covalent bond that has 4 shared electrons
C) triple covalent bond that has 6 shared electrons
D) triple covalent bond that has 4 shared electrons

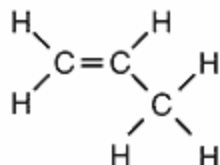
14. Given the formula:



What is the IUPAC name of this compound?

- A) 2-pentene B) 2-pentyne
C) 2-butene D) 2-butyne

15. Given the structural formula:



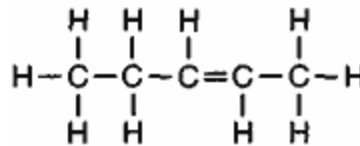
What is the IUPAC name of this compound?

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

16. Which formula represents an unsaturated hydrocarbon?

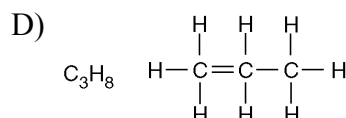
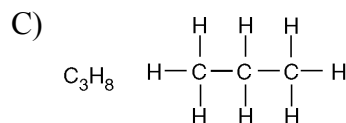
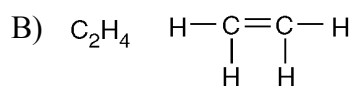
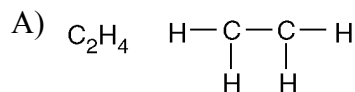
- A) C_2H_6 B) C_3H_8
C) C_5H_8 D) C_6H_{14}

17. What is the IUPAC name of the compound with the structural formula shown below?

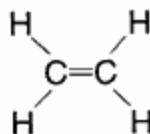


- A) 2-pentene B) 3-pentene
C) 2-pentyne D) 3-pentyne

18. The empirical formula of a compound is CH_2 . Which molecular formula is correctly paired with a structural formula for this compound?

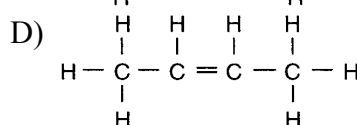
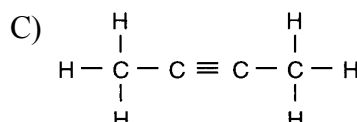
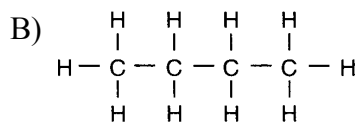
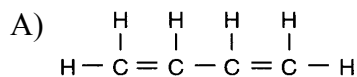


19. What is the correct name for the substance represented by the structural formula below?



- A) acetylene B) benzene
C) ethene D) propene

20. Which structural formula represents a member of the alkene series?



21. Which formula represents an alkene?

- A) CH_4 B) C_2H_2
C) C_3H_6 D) C_4H_{10}

22. As the length of the chain of carbon atoms in molecules of the alkene series increases, the number of double bonds per molecule

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

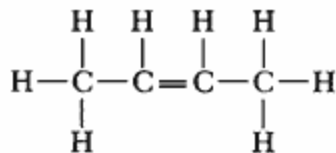
23. Which is the correct molecular formula of pentene?

- A) C_5H_8 B) C_5H_{10}
C) C_5H_{12} D) C_5H_{14}

24. Which normal alkene has the highest boiling point at 1 atmosphere?

- A) C_2H_4 B) C_3H_6
C) C_4H_8 D) C_5H_{10}

25. Given the compound:



What is the general formula of the hydrocarbon series of which this compound is a member?

- A) $\text{C}_n\text{H}_{2n+2}$ B) C_nH_{2n}
C) $\text{C}_n\text{H}_{2n-2}$ D) $\text{C}_n\text{H}_{2n-6}$

26. Alkanes *differ* from alkenes in that alkanes

- A) are hydrocarbons
B) are saturated compounds
C) have the general formula C_nH_{2n}
D) undergo addition reactions

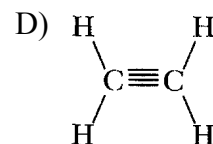
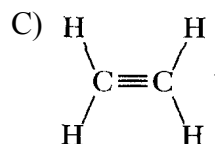
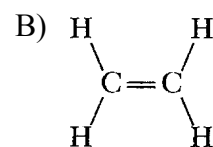
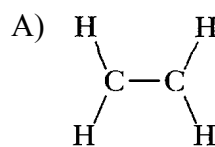
27. Which formula represents an unsaturated hydrocarbon?

- A) C_3H_8 B) $\text{C}_3\text{H}_7\text{Cl}$
C) C_3H_6 D) CCl_4

28. Which alkene consists of 4 carbon atoms?

- A) propane B) propene
C) butane D) butene

29. Which is the structural formula of ethene?



30. A hydrocarbon molecule has seven carbon atoms in a straight chain. There is a double bond between the third carbon atom and the fourth carbon atom in the chain. The IUPAC name for this hydrocarbon is

- A) 3-heptyne B) 4-heptyne
C) 3-heptene D) 4-heptene

31. Which sequence represents only alkenes?

- A) C_2H_2 , C_2H_4 , C_2H_6 B) C_2H_2 , C_3H_4 , C_6H_6
C) C_2H_4 , C_3H_4 , C_4H_4 D) C_2H_4 , C_3H_6 , C_4H_8