Foundations of Organic Chemistry

Chemistry · Answer Key · 15 Questions

1. Which element is the primary backbone of all organic molecules?

A) Oxygen
B) Carbon
C) Nitrogen
D) Hydrogen

2. How many covalent bonds does a carbon atom typically form in a stable organic molecule?

A) Two
B) Three
C) Four
D) Five

3. What is the simplest alkane hydrocarbon molecule?

A) Ethane
B) Methane
C) Propane
D) Butane

4. Which of the following is the chemical formula for Methane?

A) CH_4
B) C_2H_6
C) C_3H_8
D) CH_3OH

5. Organic compounds that contain only carbon and hydrogen atoms are known as:

A) Alcohols
B) Hydrocarbons
C) Carbohydrates
D) Polymers

6. Which functional group is characteristic of alcohols?

A) -COOH
B) -OH
C) $-NH_2$
D) -CHO

7. What is the name of the process by which large molecules are built from smaller repeating units?

A) Oxidation
B) Polymerization
C) Distillation
D) Combustion

8. Which of the following is a common biological polymer found in nature?

A) Plastic
B) Cellulose
C) Nylon
D) Polyester

9. What type of bond is formed when carbon atoms share electrons with other atoms?

A) Ionic bond
B) Metallic bond
C) Covalent bond
D) Hydrogen bond

10. Which of these molecules is an example of an alkene, containing at least one double bond?

A) Ethane
B) Ethene
C) Methane
D) Propane

11. What is the molecular formula for Ethanol?

A) C2H5OH
B) CH3OH
C) C3H7OH
D) C4H9OH

12. Which element is frequently found bonded to carbon in organic molecules alongside hydrogen?

A) Neon
B) Oxygen
C) Argon
D) Helium

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13. What shape do carbon atoms typically take when bonded to four other atoms?

A) Linear
B) Square
C) Tetrahedral
D) Pyramidal

14. Which class of organic compounds includes sugars and starches?

A) Proteins
B) Lipids
C) Carbohydrates
D) Nucleic acids

15. What is the result of the complete combustion of a hydrocarbon in the presence of sufficient oxygen?

A) Carbon and water
B) Carbon dioxide and water
C) Carbon monoxide and hydrogen
D) Oxygen and methane

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