

Organic Chemistry Fundamentals

Organic Chemistry · Answer Key · 25 Questions

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

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

2. What is the simplest alkane hydrocarbon?

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

3. Which chemical formula represents the functional group of an alcohol?

- A) -OH**
- B) -COOH
- C) -NH₂
- D) -CHO

4. How many bonds does a neutral carbon atom typically form in stable organic molecules?

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

5. What is the general term for compounds that contain only carbon and hydrogen?

- A) Polymers
- B) Hydrocarbons**
- C) Isomers
- D) Carbohydrates

6. Which state of matter is typically associated with short-chain alkanes like methane at room temperature?

- A) Solid
- B) Liquid
- C) Gas**
- D) Plasma

7. Which type of bond involves the sharing of electron pairs between carbon atoms?

- A) Ionic
- B) Covalent**
- C) Metallic
- D) Hydrogen

8. Which common organic acid is found in vinegar?

- A) Citric acid
- B) Acetic acid**
- C) Sulfuric acid
- D) Lactic acid

9. What prefix is used to indicate a hydrocarbon chain with three carbon atoms?

- A) Meth-
- B) Eth-
- C) Prop-**
- D) But-

10. Which element, besides carbon, is present in every hydrocarbon?

- A) Oxygen
- B) Nitrogen
- C) Sulfur
- D) Hydrogen**

11. What is the name of the process used to separate components of crude oil based on boiling points?

- A) Distillation**
- B) Filtration
- C) Sublimation
- D) Centrifugation

12. Which of these is considered an organic compound?

- A) Sodium chloride
- B) Calcium carbonate
- C) Glucose**
- D) Water

13. Which functional group is characterized by a carbon atom double-bonded to an oxygen atom?

- A) Hydroxyl
- B) Carbonyl**
- C) Amino
- D) Halide

14. What is the chemical formula for ethene?

- A) C₂H₆
- B) C₂H₄**
- C) C₂H₂
- D) CH₄

15. What is the shape of a methane molecule (CH₄)?

- A) Linear
- B) Tetrahedral**
- C) Planar
- D) Octahedral

16. Which class of hydrocarbons contains at least one carbon-carbon triple bond?

- A) Alkanes
- B) Alkenes
- C) Alkynes**
- D) Arenes

17. What is the fundamental building block of proteins?

- A) Fatty acids
- B) Amino acids**
- C) Monosaccharides
- D) Nucleotides

18. Which organic substance is the primary component of natural gas?

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

19. In organic chemistry, what does the suffix '-ene' denote?

- A) A single bond
- B) A double bond**
- C) A triple bond
- D) A cyclic structure

20. What are molecules with the same molecular formula but different structural arrangements called?

- A) Isotopes
- B) Allotropes
- C) Isomers**
- D) Homologs

21. Which element is often bonded to carbon in functional groups found in proteins?

- A) Neon
- B) Nitrogen**
- C) Helium
- D) Argon

22. What is the most abundant organic compound on Earth, found in plant cell walls?

- A) Starch
- B) Glycogen
- C) Cellulose**
- D) Chitin

23. What type of organic reaction involves the replacement of one atom or group by another?

- A) Substitution**
- B) Addition
- C) Elimination
- D) Combustion

24. Which term describes long chains of repeating organic units?

- A) Monomers
- B) Polymers**
- C) Isomers
- D) Crystals

25. What is the IUPAC name for the alcohol with two carbon atoms?

- A) Methanol
- B) Ethanol**
- C) Propanol
- D) Butanol