

Fundamentals of Organic Chemistry

Organic Chemistry · Practice Test · 25 Questions

1. What is the defining element present in all organic compounds?

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

2. Which hydrocarbon series consists of molecules with only single covalent bonds between carbon atoms?

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

3. What is the chemical formula for methane, the simplest alkane?

- A) CH₂
- B) C₂H₆
- C) CH₄
- D) C₃H₈

4. Which functional group is characteristic of alcohols?

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

5. What type of bond is formed when two atoms share a pair of electrons in an organic molecule?

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

6. Which process involves the breakdown of long-chain hydrocarbons into smaller, more useful molecules?

- A) Polymerization
- B) Cracking
- C) Distillation
- D) Oxidation

7. What is the general formula for a non-cyclic alkene?

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

8. Which substance is the primary monomer used to produce polyethylene plastic?

- A) Propene
- B) Butene
- C) Ethene
- D) Benzene

9. What is the IUPAC name for a three-carbon alkane chain?

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

10. Which of these molecules contains a triple bond between two carbon atoms?

- A) Ethane
- B) Ethene
- C) Ethyne
- D) Propane

11. What functional group is found in carboxylic acids?

- A) -OH
- B) -COOH
- C) -CHO
- D) -CO-

12. Which hydrocarbon is the primary component of natural gas?

- A) Propane
- B) Methane
- C) Butane
- D) Octane

13. In organic chemistry, what does the prefix 'meth-' indicate in a carbon chain?

- A) 1 carbon atom
- B) 2 carbon atoms
- C) 3 carbon atoms
- D) 4 carbon atoms

14. What is the name of the simplest aromatic hydrocarbon?

- A) Cyclohexane
- B) Benzene
- C) Toluene
- D) Phenol

15. Which element, other than carbon, is most commonly bonded to carbon in hydrocarbons?

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

16. What is the term for compounds that have the same molecular formula but different structural arrangements?

- A) Isotopes
- B) Isomers
- C) Allotropes
- D) Polymers

17. Which functional group is present in aldehydes?

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

18. What process turns liquid vegetable oils into solid fats by adding hydrogen?

- A) Hydrogenation
- B) Oxidation
- C) Combustion
- D) Esterification

19. What is the total number of valence electrons in a neutral carbon atom?

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

20. Which organic family contains the functional group -NH₂?

- A) Amines
- B) Amides
- C) Esters
- D) Ethers

21. What type of reaction occurs when an acid reacts with an alcohol to form an ester?

- A) Neutralization
- B) Esterification
- C) Cracking
- D) Substitution

22. Which of the following is a saturated hydrocarbon?

- A) Ethene
- B) Ethyne
- C) Propane
- D) Benzene

23. What property refers to the resistance of a liquid to flow?

- A) Volatility
- B) Viscosity
- C) Solubility
- D) Density

24. Which group of organic compounds is commonly used as solvents and perfumes due to their pleasant scents?

- A) Esters
- B) Alkanes
- C) Acids
- D) Amines

25. What is the IUPAC name of the molecule CH₃CH₂OH?

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