

Organic Chemistry in the Natural World

Organic Chemistry · Practice Test · 25 Questions

1. Which organic acid is primarily responsible for the stinging sensation caused by the defense mechanism of red ants?

- A) Citric acid
- B) Formic acid
- C) Acetic acid
- D) Lactic acid

2. What is the primary organic compound that makes up the rigid cell walls of terrestrial plants?

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

3. Which organic molecule is responsible for the red colour in the blood of vertebrates, functioning as an oxygen carrier?

- A) Chlorophyll
- B) Hemoglobin
- C) Carotene
- D) Melanin

4. Which class of organic compounds serves as the primary structural material for the exoskeleton of crustaceans and insects?

- A) Proteins
- B) Lipids
- C) Chitin
- D) Nucleic acids

5. What is the main chemical component of the essential oil that gives lavender its characteristic floral scent?

- A) Linalool
- B) Ethanol
- C) Methane
- D) Benzene

6. Which organic polymer is used by spiders to create silk that is stronger than steel by weight?

- A) Collagen
- B) Fibroin
- C) Keratin
- D) Elastin

7. What type of organic molecule is predominantly used by hibernating animals to store long-term energy?

- A) Glucose
- B) Triglycerides
- C) Amino acids
- D) Nucleotides

8. Which organic compound is synthesised by plants during photosynthesis to store chemical energy?

- A) Glucose
- B) Acetone
- C) Glycerol
- D) Methane

9. What organic pigment allows marine algae to perform photosynthesis in deep ocean water?

- A) Fucoxanthin
- B) Hemocyanin
- C) Uric acid
- D) Formaldehyde

10. The bioluminescence observed in fireflies is caused by a chemical reaction involving which organic compound?

- A) Luciferin
- B) Cholesterol
- C) Thymine
- D) Caffeine

11. Which sulfur-containing amino acid is essential for the formation of hair and feathers in animals?

- A) Cysteine
- B) Glycine
- C) Alanine
- D) Serine

12. What complex organic molecule acts as the primary genetic material in all living organisms?

- A) RNA
- B) DNA
- C) ATP
- D) NADPH

13. Which organic acid is commonly associated with the sour taste found in citrus fruits like lemons?

- A) Citric acid
- B) Malic acid
- C) Butyric acid
- D) Oleic acid

14. What organic compound is secreted by skunks as a primary defense mechanism, resulting in a pungent smell?

- A) Thiols
- B) Esters
- C) Ketones
- D) Aldehydes

15. Which organic molecule, found in the liver, is the primary storage form of glucose in animals?

- A) Cellulose
- B) Glycogen
- C) Starch
- D) Amylose

16. What organic class does the substance 'wax', used by bees to build honeycombs, belong to?

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

17. Which organic compound gives carrots their vibrant orange colour?

- A) Beta-carotene
- B) Anthocyanin
- C) Chlorophyll
- D) Xanthophyll

18. What nitrogenous base is specifically found in RNA but replaced by Thymine in DNA?

- A) Uracil
- B) Cytosine
- C) Adenine
- D) Guanine

19. Which organic compound is the primary component of natural rubber harvested from the *Hevea brasiliensis* tree?

- A) Isoprene
- B) Ethylene
- C) Acetylene
- D) Propane

20. What class of organic molecules are the primary building blocks of enzymes in living organisms?

- A) Proteins
- B) Lipids
- C) Carbohydrates
- D) Hydrocarbons

21. Which organic compound is released by many plants as a volatile signal to attract pollinators?

- A) Terpenes
- B) Alkanes
- C) Alcohols
- D) Ketones

22. What organic molecule is responsible for the distinct scent of freshly cut grass?

- A) (Z)-3-hexenal
- B) Methanol
- C) Benzene
- D) Toluene

23. Which organic acid is produced by muscles during anaerobic respiration in mammals?

- A) Lactic acid
- B) Citric acid
- C) Ascorbic acid
- D) Folic acid

24. What is the main organic component of the shell of an egg?

- A) Calcium carbonate
- B) Keratin
- C) Collagen
- D) Chitin

25. Which organic compound is used by the body to transport cholesterol through the blood?

- A) Lipoproteins
- B) Glycoproteins
- C) Nucleoproteins
- D) Chromoproteins