

Polysaccharides and Carboxylic Acids Chemistry

Chemistry · Practice Test · 15 Questions

1. Why are polysaccharides generally insoluble in water?

- A) They are too small
- B) They are densely tangled chains
- C) They are ionic
- D) They are hydrophobic gases

2. What type of bond links monomers together in a polysaccharide?

- A) Ionic bond
- B) Metallic bond
- C) Glycosidic bond
- D) Hydrogen bond

3. Which organisms produce chitin?

- A) Only plants
- B) Fungi, arthropods, and nematodes
- C) Only bacteria
- D) Reptiles and birds

4. What is the primary function of chitin in arthropods?

- A) Energy storage
- B) Scaffold material
- C) Oxygen transport
- D) Digestion

5. How are carboxylic acids produced?

- A) Complete oxidation of primary alcohols or aldehydes
- B) Reduction of ketones
- C) Hydration of alkenes
- D) Neutralization of salts

6. Why do carboxylic acids have higher boiling points than alcohols of similar mass?

- A) They are non-polar
- B) They have fewer atoms
- C) They have multiple sites for hydrogen bonding
- D) They are ionic solids

7. What happens to the solubility of carboxylic acids as the carbon chain length increases?

- A) It increases
- B) It stays the same
- C) It decreases
- D) It becomes explosive

8. Why are carboxylic acids considered weak acids?

- A) They do not contain hydrogen
- B) They completely dissociate in water
- C) They only partially ionize in water
- D) They are actually strong bases

9. What is the anion formed when a carboxylic acid loses a proton?

- A) Carboxylate anion
- B) Hydroxyl ion
- C) Carbonate ion
- D) Alkoxide ion

10. What is the correct way to name a carboxylate anion derived from ethanoic acid?

- A) Ethanoide
- B) Ethanoate
- C) Ethanyl
- D) Ethane acidate

11. What is the chemical formula of the hydronium ion?

- A) H₂O
- B) OH⁻
- C) H₃O⁺
- D) H₂O₂

12. What functional group makes carboxylic acids acidic?

- A) Hydroxyl group
- B) Carboxyl group
- C) Methyl group
- D) Amino group

13. Which of the following describes the hydrocarbon chain of a carboxylic acid?

- A) Hydrophilic
- B) Non-polar and hydrophobic
- C) Highly ionic
- D) Positively charged

14. What percentage of carboxylic acid molecules are typically dissociated in water?

- A) 100%
- B) 90%
- C) Fewer than 5%
- D) 50%

15. What is the result of reacting a carboxylic acid with a base to form a salt?

- A) A carboxylate salt
- B) An ester
- C) A primary alcohol
- D) An aldehyde