

# Polysaccharides and Carboxylic Acids Chemistry

Chemistry · Answer Key · 15 Questions

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## 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) H<sub>2</sub>O
- B) OH<sup>-</sup>
- C) H<sub>3</sub>O<sup>+</sup>**
- D) H<sub>2</sub>O<sub>2</sub>

**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