Oxidation of Aldehydes and Chemistry of Carbohydrates

Chemistry · Practice Test · 13 Questions

1. Which reagent can oxidize both aldehydes and alcohols?

A) Tollens' reagent
B) Acidified dichromate
C) Water
D) Ammonia

2. What is the color change when an aldehyde is oxidized by acidified dichromate?

A) Blue to clear
B) Orange to green
C) Clear to pink
D) Green to yellow

3. What forms on the reaction vessel surface when Tollens' reagent oxidizes an aldehyde?

A) Green precipitate
B) Bubbles of gas
C) Silver mirror
D) White powder

4. Which functional group cannot be easily oxidized?

A) Aldehyde
B) Primary alcohol
C) Secondary alcohol
D) Ketone

5. What is the general formula for carbohydrates?

A) C_nH_{2n+2}
B) $(CH_2O)_n$
C) C_nH_{2n}
D) C_nH_nO

6. What is a polyhydroxyaldehyde or polyhydroxyketone commonly called?

A) Protein
B) Lipid
C) Carbohydrate
D) Nucleotide

7. In aqueous solution, what form of glucose is most abundant?

A) Chain form
B) Cyclic form
C) Linear form
D) Gas form

8. What is the process of breaking down a disaccharide into monosaccharides using water called?

A) Condensation
B) Oxidation
C) Hydrolysis
D) Polymerization

9. What type of bond links two monosaccharides together?

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

10. What is the byproduct released during the condensation reaction of two monosaccharides?

A) Oxygen
B) Carbon dioxide
C) Water
D) Hydrogen

11. Which of the following is a common monosaccharide?

A) Maltose
B) Glucose
C) Sucrose
D) Starch

12. What causes carbohydrates to be highly soluble in water?

A) Non-polar chains
B) Polar hydroxyl groups
C) High molar mass
D) Crystalline structure

13. What is the molecular formula of the disaccharide maltose?

A) $C_6H_{12}O_6$
B) $C_{12}H_{22}O_{11}$
C) $C_6H_{10}O_5$
D) $C_{12}H_{24}O_{12}$