

CLASS 11

BIOLOGY

EXTRA QUESTIONS

Class 11 Biology Chapter 9 Biomolecules – Extra Questions with Answers

Extra practice questions for Class 11 Biology Chapter 9 (Biomolecules), beyond the textbook. These Class 11 Biology Chapter 9 important questions are handy for last-minute exam practice.

Contents

- Very Short Answer Questions (1 mark)
- Short Answer Questions (2–3 marks)
- Higher-Order Thinking / Application Questions
- Class 11 Biology Chapter 9 – Solutions and Notes

Extra practice questions for Class 11 Biology Chapter 9 (Biomolecules), beyond the textbook. These Class 11 Biology Chapter 9 important questions are handy for last-minute exam practice.

Very Short Answer Questions (1 mark)

Q1. Name the bond that links amino acids in a protein.

Ans: Peptide bond.

Q2. What is the storage polysaccharide found in animals?

Ans: Glycogen.

Q3. What sugar is found in RNA?

Ans: Ribose.

Q4. What type of biomolecule are enzymes, mostly?

Ans: Proteins.

Q5. Name the storage polysaccharide found in plants.

Ans: Starch.

Short Answer Questions (2–3 marks)

Q6. List the four levels of protein structure.

Ans: Primary (amino acid sequence), secondary (alpha helix/beta sheet), tertiary (3D folding), quaternary (multiple subunits).

Q7. Differentiate between monosaccharides, oligosaccharides, and polysaccharides.

Ans: Monosaccharides are single sugar units (e.g. glucose); oligosaccharides contain 2-10 monosaccharide units (e.g. sucrose); polysaccharides contain many units (e.g. starch, cellulose).

Q8. What factors affect enzyme activity?

Ans: Temperature, pH, substrate concentration, and presence of inhibitors/activators.

Higher-Order Thinking / Application Questions

Q9. Explain why enzyme activity typically increases with temperature up to an optimum point, but then sharply decreases at higher temperatures, connecting this to the protein structure of enzymes.

Ans: Enzymes are proteins whose catalytic function depends critically on their specific three-dimensional (tertiary/quaternary) structure, particularly the precise shape of their active site, which must match the substrate for the reaction to occur efficiently. As temperature increases toward the enzyme's optimum, increased kinetic energy causes more frequent, more energetic collisions between enzyme and substrate, increasing reaction rate. However, beyond the optimum, thermal energy disrupts the weak, non-covalent bonds (hydrogen bonds, ionic interactions, hydrophobic interactions) maintaining the enzyme's folded structure, causing denaturation. Once denatured, the active site's shape is permanently distorted and can no longer bind its substrate, causing a sharp, often irreversible decline in activity above the optimum, illustrating that enzyme function is intrinsically tied to maintaining a specific, temperature-sensitive protein structure.

Q10. Explain why cellulose (plant cell walls) and starch (a plant storage molecule), despite both being polysaccharides made entirely of glucose monomers, have very different physical

properties and biological functions, connecting this to the type of glycosidic bonds linking their glucose units.

Ans: The critical difference lies in the type of glycosidic bond linking glucose units. Starch has glucose units linked by alpha-glycosidic bonds, causing the chain to coil helically; this coiled structure is easily broken down by digestive enzymes (like amylase, which recognizes alpha bonds), making starch an easily mobilizable energy store. Cellulose has glucose units linked by beta-glycosidic bonds, causing chains to lie straight and pack tightly via hydrogen bonding into rigid, insoluble microfibrils. Most animals lack cellulase (the enzyme needed to break beta bonds), so cellulose cannot be digested and instead functions as rigid structural support in plant cell walls. This alpha vs beta bond difference, despite identical glucose building blocks, entirely explains the different shapes, digestibility, and biological roles of starch and cellulose.

Class 11 Biology Chapter 9 – Solutions and Notes

For complete step-by-step answers and a quick summary, check the [Class 11 Biology Chapter 9 Solutions](#) and [Class 11 Biology Chapter 9 Revision Notes](#).

See also: [Chapter 1](#) | [Chapter 2](#) | [Chapter 3](#) | [Chapter 4](#) | [Chapter 5](#) | [Chapter 6](#) | [Chapter 7](#) | [Chapter 8](#) | [Chapter 9](#)

Practice more: [Chapter 1](#) | [Chapter 2](#) | [Chapter 3](#) | [Chapter 4](#) | [Chapter 5](#) | [Chapter 6](#) | [Chapter 7](#) | [Chapter 8](#)

Quick revision: [Chapter 1](#) | [Chapter 2](#) | [Chapter 3](#) | [Chapter 4](#) | [Chapter 5](#) | [Chapter 6](#) | [Chapter 7](#) | [Chapter 8](#)