

Biomolecules — Assignment 1

Class 11 Biology · Topic-wise question bank covering every concept of the chapter · Narayan Gurukul Academy

Instructions: (1) Attempt all questions. This worksheet walks through every concept of the chapter, topic by topic.
(2) The interactive MCQ version of these questions (with instant answer reveal) is available on the notes page.
(3) Universal values: $g = 10 \text{ m/s}^2$ unless stated. Give answers with correct SI units.

Chemical Composition of Living Tissue

MCQ Questions (choose the correct option)

- The most abundant element in living organisms is
 - carbon
 - nitrogen
 - calcium
 - iron
- The most abundant compound in a living cell is
 - water
 - protein
 - carbohydrate
 - lipid
- Micromolecules include
 - amino acids and sugars
 - proteins
 - nucleic acids
 - polysaccharides
- The ash content of a cell represents
 - inorganic substances
 - organic substances
 - proteins
 - enzymes

1 Mark Questions

- Name the most abundant compound in a living cell.
- What are micromolecules?
- What are macromolecules?

2 Mark Questions

- Distinguish between micromolecules and macromolecules.
- State the role of water in living organisms.

3 Mark Questions

- Describe the chemical composition of living tissue.
- Explain the importance of water and inorganic ions in cells.

Proteins

MCQ Questions (choose the correct option)

1. Proteins are polymers of
 - (A) amino acids
 - (B) monosaccharides
 - (C) nucleotides
 - (D) fatty acids
2. Essential amino acids are those that
 - (A) cannot be synthesised by the body
 - (B) are synthesised by the body
 - (C) are stored in the liver
 - (D) are vitamins
3. The peptide bond is formed between
 - (A) the carboxyl group of one amino acid and the amino group of another
 - (B) two carboxyl groups
 - (C) two amino groups
 - (D) a sugar and a base
4. The secondary structure of a protein is
 - (A) the alpha-helix or beta-sheet
 - (B) the linear sequence of amino acids
 - (C) the three-dimensional shape
 - (D) the joined subunits

1 Mark Questions

1. What is a peptide bond?
2. Name one essential amino acid.
3. What is the primary structure of a protein?

2 Mark Questions

1. Distinguish between essential and non-essential amino acids.
2. State two functions of proteins.

3 Mark Questions

1. Describe the four levels of protein structure.
2. Explain the classification of proteins with examples.

Polysaccharides

MCQ Questions (choose the correct option)

1. Polysaccharides are polymers of
 - (A) monosaccharides
 - (B) amino acids
 - (C) nucleotides
 - (D) fatty acids
2. The storage carbohydrate of plants is

- (A) starch
 - (B) glycogen
 - (C) cellulose
 - (D) chitin
3. The storage carbohydrate of animals is
- (A) glycogen
 - (B) starch
 - (C) cellulose
 - (D) sucrose
4. Cellulose is a polymer of
- (A) glucose
 - (B) fructose
 - (C) galactose
 - (D) ribose

1 Mark Questions

1. What is a polysaccharide?
2. Name the storage carbohydrate of animals.
3. What is cellulose made of?

2 Mark Questions

1. Distinguish between starch and cellulose.
2. State two functions of polysaccharides.

3 Mark Questions

1. Explain the structure and functions of polysaccharides.
2. Compare starch, glycogen and cellulose.

Nucleic Acids

MCQ Questions (choose the correct option)

1. Nucleic acids are polymers of
 - (A) nucleotides
 - (B) amino acids
 - (C) monosaccharides
 - (D) fatty acids
2. A nucleotide consists of
 - (A) a sugar, a phosphate and a nitrogenous base
 - (B) two sugars
 - (C) only a base
 - (D) only a phosphate
3. DNA contains the sugar
 - (A) deoxyribose
 - (B) ribose
 - (C) glucose

- (D) fructose
4. RNA contains the sugar
- (A) ribose
 - (B) deoxyribose
 - (C) glucose
 - (D) maltose

1 Mark Questions

1. What is a nucleotide?
2. Name the sugar of DNA.
3. Name the sugar of RNA.

2 Mark Questions

1. Distinguish between DNA and RNA.
2. State two functions of nucleic acids.

3 Mark Questions

1. Describe the structure of DNA.
2. Explain the structure of a nucleotide and the types of nucleic acids.

Lipids

MCQ Questions (choose the correct option)

1. Lipids are generally
 - (A) insoluble in water
 - (B) soluble in water
 - (C) polymers of amino acids
 - (D) nitrogenous
2. The building blocks of lipids are
 - (A) fatty acids and glycerol
 - (B) amino acids
 - (C) nucleotides
 - (D) monosaccharides
3. Phospholipids are the main components of
 - (A) cell membranes
 - (B) cell walls
 - (C) enzymes
 - (D) nucleic acids
4. Lipids that have a fused ring structure include
 - (A) cholesterol
 - (B) starch
 - (C) cellulose
 - (D) protein

1 Mark Questions

1. Why are lipids insoluble in water?
2. What are phospholipids?
3. Name one steroid.

2 Mark Questions

1. Distinguish between fats and oils.
2. State two functions of lipids.

3 Mark Questions

1. Describe the classification of lipids.
2. Explain the structure and functions of phospholipids.

Enzymes

MCQ Questions (choose the correct option)

1. Enzymes are chemically
 - (A) proteins
 - (B) carbohydrates
 - (C) lipids
 - (D) nucleic acids
2. Enzymes act as
 - (A) biological catalysts
 - (B) substrates
 - (C) products
 - (D) inhibitors
3. The active site of an enzyme is
 - (A) a specific region that binds the substrate
 - (B) the whole enzyme
 - (C) a cofactor
 - (D) a product
4. Enzyme activity is affected by
 - (A) temperature and pH
 - (B) colour
 - (C) mass only
 - (D) volume

1 Mark Questions

1. What are enzymes?
2. What is an active site?
3. Name one factor affecting enzyme activity.

2 Mark Questions

1. State two properties of enzymes.
2. Distinguish between a cofactor and a coenzyme.

3 Mark Questions

1. Explain the mechanism of enzyme action.
2. Describe the factors affecting enzyme activity.

Metabolism and Living State

MCQ Questions (choose the correct option)

1. The sum total of all chemical reactions in a cell is
 - (A) metabolism
 - (B) anabolism only
 - (C) catabolism only
 - (D) catalysis
2. The breakdown reactions of metabolism are
 - (A) catabolic
 - (B) anabolic
 - (C) neutral
 - (D) reversible
3. The synthesis reactions of metabolism are
 - (A) anabolic
 - (B) catabolic
 - (C) degradative
 - (D) exergonic
4. Metabolic pathways that release energy are
 - (A) catabolic
 - (B) anabolic
 - (C) endergonic
 - (D) synthetic

1 Mark Questions

1. What is metabolism?
2. What is catabolism?
3. What is anabolism?

2 Mark Questions

1. Distinguish between catabolism and anabolism.
2. Why is metabolism essential for the living state?

3 Mark Questions

1. Explain the concept of metabolism with examples.
2. Describe the living state with reference to metabolism.