

Biology Chapter 2 Self Quiz Answer Key PDF Answers In Appendix LII

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Which factors can affect enzyme activity? (Select all that apply)

- A. Temperature ✓**
- C. pH ✓**
- D. Substrate concentration ✓**
- C. Light intensity

What is the primary element that forms the backbone of organic molecules?

- A. Hydrogen
- C. Carbon ✓**
- D. Nitrogen
- C. Oxygen

Which of the following are functions of lipids in biological systems? (Select all that apply)

- A. Energy storage ✓**
- C. Structural component of cell membranes ✓**
- D. Genetic information storage
- C. Insulation ✓**

Which of the following are components of the cell membrane? (Select all that apply)

- A. Phospholipids ✓**
- C. Proteins ✓**
- D. Nucleic acids
- C. Carbohydrates ✓**

Which of the following is a characteristic of prokaryotic cells?

- A. Presence of a nucleus
- C. Membrane-bound organelles
- D. Multicellular organization
- C. Single circular DNA molecule ✓**

Which of the following is NOT a function of proteins?

- A. Enzyme catalysis
- C. Genetic information storage ✓**
- D. Transport
- C. Structural support

Which of the following are properties of water that make it essential for life? (Select all that apply)

- A. High heat capacity ✓**
- C. Universal solvent ✓**
- D. Low surface tension
- C. Ability to form hydrogen bonds ✓**

Discuss the importance of carbohydrates in cellular respiration.

Carbohydrates are crucial in cellular respiration because they are converted into glucose, which is then oxidized to generate ATP, the energy currency of the cell.

Explain how the properties of water contribute to its role as a universal solvent.

Water is considered a universal solvent primarily due to its polar nature, which allows it to interact with and dissolve various ionic and polar substances, facilitating chemical reactions and biological processes.

How do prokaryotic and eukaryotic cells differ in terms of genetic material organization?

Prokaryotic cells have a single circular chromosome, whereas eukaryotic cells have multiple linear chromosomes within a nucleus.

What is the significance of the high specific heat capacity of water for living organisms?

The significance of the high specific heat capacity of water for living organisms is that it helps maintain stable temperatures, which is crucial for the proper functioning of biological processes.

Describe the structure of a phospholipid and its role in the cell membrane.

A phospholipid consists of a glycerol backbone, two fatty acid tails, and a phosphate group. In the cell membrane, phospholipids arrange themselves into a bilayer, with the hydrophilic heads facing outward towards the water and the hydrophobic tails facing inward, creating a semi-permeable barrier that regulates the movement of substances in and out of the cell.

Which of the following are true about eukaryotic cells? (Select all that apply)

- A. They have a nucleus. ✓**
- C. They lack membrane-bound organelles.
- D. They can be unicellular or multicellular. ✓**
- C. Their DNA is linear. ✓**

What is the primary function of nucleic acids?

- A. Energy storage
- C. Information storage ✓**
- D. Structural support
- C. Catalysis

Which macromolecules are polymers? (Select all that apply)

- A. Proteins ✓**
- C. Lipids
- D. Carbohydrates ✓**
- C. Nucleic acids ✓**

Which organelle is responsible for energy production in eukaryotic cells?

- A. Nucleus
- C. Ribosome

D. Golgi apparatus

C. Mitochondria ✓

Which macromolecule serves as the main source of energy for cells?

A. Proteins

C. Carbohydrates ✓

D. Nucleic acids

C. Lipids

What type of bond holds water molecules together?

A. Ionic bond

C. Covalent bond

D. Metallic bond

C. Hydrogen bond ✓

Explain the role of enzymes in metabolic reactions.

Enzymes play a crucial role in metabolic reactions by acting as catalysts that increase the rate of these reactions without being consumed in the process.

What is the basic unit of life according to cell theory?

A. Atom

C. Cell ✓

D. Organism

C. molecule