Biology Chapter 2 Self Quiz Answer Key PDF

Biology Chapter 2 Self Quiz Answer Key PDF

Disclaimer: The biology chapter 2 self quiz answer key pdf was generated with the help of StudyBlaze AI. Please be aware that AI can make mistakes. Please consult your teacher if you're unsure about your solution or think there might have been a mistake. Or reach out directly to the StudyBlaze team at max@studyblaze.io.

Which subatomic particle is negatively charged?

A. Proton
B. Neutron
C. Electron ✓
D. Nucleus

What is the primary role of DNA in cells?

A. Energy production
B. Protein synthesis
C. Genetic information storage ✓
D. Cell membrane structure

Which macromolecule is primarily responsible for catalyzing biochemical reactions?

A. Carbohydrates
B. Lipids
C. Proteins ✓
D. Nucleic acids

What type of bond involves the sharing of electron pairs between atoms?

A. Ionic bond
B. Covalent bond ✓
C. Hydrogen bond
D. Metallic bond

Which property of water allows it to dissolve many substances?

A. Cohesion
B. Adhesión
C. Polarity ✓
D. High specific heat

What is the monomer unit of proteins?

A. Monosaccharide
B. Amino acid ✓
C. Nucleotide
D. Fatty acid

What is the primary function of carbohydrates in cells?

A. Genetic information storage
B. Energy storage and supply ✓
C. Structural support
D. Catalyzing reactions

Which of the following is a property of water that helps regulate temperature in organisms?

A. Low density
B. High specific heat ✓
C. High pH
D. Low surface tension

Explain the significance of hydrogen bonds in the properties of water and the structure of DNA.

Hydrogen bonds in water lead to its cohesive and adhesive properties, allowing for phenomena like surface tension and capillary action, while in DNA, they hold the two strands together, ensuring the stability and integrity of genetic information.

Compare and contrast the structure and function of DNA and RNA.

DNA (deoxyribonucleic acid) is a double-stranded molecule that contains the genetic blueprint for an organism, while RNA (ribonucleic acid) is typically single-stranded and plays a key role in translating that genetic information into proteins.

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

A. Cohesion ✓

B. High specific heat ✓

C. Low boiling point

D. Solvent properties ✓

Which of the following are types of carbohydrates? (Select all that apply)

A. Monosaccharides ✓

B. Amino acids

C. Disaccharides ✓

D. Polysaccharides ✓

Explain how the structure of water contributes to its role as a universal solvent.

The structure of water, characterized by its polar covalent bonds and bent shape, creates a partial positive charge on the hydrogen atoms and a partial negative charge on the oxygen atom. This polarity enables water to surround and interact with various solutes, effectively dissolving them and allowing water to act as a universal solvent.

How do buffer systems help maintain pH balance in biological systems? Provide an example.

Buffer systems help maintain pH balance by absorbing excess hydrogen ions (H+) or hydroxide ions (OH-), thus preventing significant changes in pH. An example is the bicarbonate buffer system in blood, which regulates pH by converting bicarbonate (HCO3-) and carbonic acid (H2CO3) to neutralize acids and bases.

Which macromolecules are involved in genetic information storage and transfer? (Select all that apply)

A. Carbohydrates

B. Proteins

C. DNA ✓

D. RNA ✓

What are the characteristics of enzymes? (Select all that apply)

A. They are proteins ✓
B. They increase the activation energy of reactions
C. They are reusable ✓
D. They are specific to substrates ✓

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

A. Energy storage ✓
B. Catalyzing reactions
C. Cell membrane structure ✓
D. Genetic information storage

Describe the role of enzymes in biological reactions and how they affect activation energy.

Enzymes facilitate biological reactions by lowering the activation energy, which increases the rate of the reaction without being consumed in the process.

Which elements are most commonly found in organic molecules? (Select all that apply)

A. Hydrogen ✓
B. Helium
C. Carbon ✓
D. Oxygen ✓

Discuss the importance of carbon in forming the backbone of biological molecules.

Carbon serves as the backbone of biological molecules because it can form four stable covalent bonds, allowing for the creation of complex and diverse organic compounds essential for life.