

Nucleic Acids Quiz Answer Key PDF

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What type of sugar is found in DNA?

- A. Ribose
- B. Glucose
- C. Deoxyribose ✓**
- D. Fructose

Which of the following are stop codons?

- A. UAA ✓**
- B. AUG
- C. UGA ✓**
- D. UAG ✓**

What is the significance of the antiparallel nature of DNA strands?

The significance of the antiparallel nature of DNA strands lies in its role in enabling complementary base pairing during DNA replication and transcription, which is essential for maintaining genetic fidelity.

How does the genetic code ensure accurate protein synthesis?

The genetic code uses codons to specify amino acids, ensuring that tRNA accurately matches each codon during protein synthesis.

Which of the following statements about mutations are true?

- A. They can lead to genetic disorders. ✓**
- B. They always result in harmful effects.
- C. They contribute to genetic diversity. ✓**

D. They can be caused by environmental factors. ✓

Explain the role of tRNA in protein synthesis.

The role of tRNA in protein synthesis is to transport amino acids to the ribosome, matching them to the corresponding codons on the mRNA during translation.

Which of the following base pairs is correct in DNA?

- A. A-U
- B. C-T
- C. G-C ✓**
- D. T-G

Which of the following is a start codon in mRNA?

- A. UAA
- B. AUG ✓**
- C. UGA
- D. UAG

How do mutations affect the genetic code and potentially lead to genetic disorders?

Mutations affect the genetic code by altering nucleotide sequences, potentially leading to genetic disorders through dysfunctional proteins.

What is the primary function of mRNA?

- A. To replicate DNA
- B. To transport amino acids
- C. To carry genetic information from DNA to the ribosome ✓**
- D. To form the structure of ribosomes

Describe the process of DNA replication and its significance.

DNA replication involves unwinding the double helix, synthesizing new complementary strands using DNA polymerase, and proofreading for errors to ensure fidelity. It is significant because it

allows for genetic information to be accurately passed on during cell division.

What is the shape of DNA?

- A. Single helix
- B. Double helix ✓**
- C. Triple helix
- D. Linear strand

Which of the following are components of a nucleotide?

- A. Nitrogenous base ✓**
- B. Phosphate group ✓**
- C. Amino acid
- D. Sugar ✓**

What are the functions of DNA?

- A. Store genetic information ✓**
- B. Synthesize proteins directly
- C. Guide development ✓**
- D. Replicate itself ✓**

Which of the following are types of RNA?

- A. mRNA ✓**
- B. tRNA ✓**
- C. rRNA ✓**
- D. dRNA

Which nitrogenous base pairs with Adenine in DNA?

- A. Cytosine
- B. Guanine
- C. Thymine ✓**
- D. Uracil

Which enzyme is primarily responsible for DNA replication?

- A. RNA polymerase
- B. DNA ligase
- C. DNA polymerase ✓**
- D. Helicase

Which processes involve RNA?

- A. Transcription ✓**
- B. Translation ✓**
- C. Replication
- D. Mutation

Which nitrogenous base is found in RNA but not in DNA?

- A. Thymine
- B. Uracil ✓**
- C. Adenine
- D. Cytosine

Discuss the differences between DNA and RNA in terms of structure and function.

The primary differences between DNA and RNA include their structure and function: DNA is a double helix composed of deoxyribonucleotides, containing the bases adenine, thymine, cytosine, and guanine, and serves as the genetic blueprint for organisms. In contrast, RNA is usually single-stranded, made of ribonucleotides with the bases adenine, uracil, cytosine, and guanine, and is involved in translating the genetic information from DNA into proteins.