Name _____ Class _____ Date _____

SECTION 10-1 REVIEW

DNA

VOCABULARY REVIEW Define the following terms and provide one example for each.

1. purine _____

2. pyrimidine _____

3. complementary base pair _____

4. nitrogen-containing base _____

MULTIPLE CHOICE Write the correct letter in the blank.

_____ **1.** The primary function of DNA in cells is to

a. serve as a storage form for unused nucleotides.
b. occupy space in the nucleus to keep the nucleus from collapsing.
c. store information that tells the cells which proteins to make.
d. serve as a template for making long, spiral carbohydrates.

_____ **2.** The two strands of a DNA molecule are held together by

a. ionic bonds. **b.** covalent bonds. **c.** peptide bonds. **d.** hydrogen bonds.

_____ **3.** According to the base-pairing rules, guanine binds with

a. cytosine. **b.** adenine. **c.** thymine. **d.** guanine.

_____ **4.** During DNA replication, the enzyme DNA polymerase

a. separates the two nucleotide chains in a DNA molecule.
b. constructs new nucleotide chains that are complementary to the chains in the original DNA molecule.
c. breaks down the original DNA molecule into individual nucleotides.
d. joins two DNA molecules into a single molecule.

_____ **5.** If the sequence of nucleotides in one chain of a DNA molecule is T-C-A-A-G-C, a new nucleotide chain will be produced during replication with the complementary sequence

a. T-C-A-A-G-C. **b.** A-G-T-T-C-G. **c.** C-T-G-G-A-T. **d.** G-A-C-C-T-A.

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SHORT ANSWER Answer the questions in the space provided.

1. What are the three parts of a DNA nucleotide, and how are they connected to each other?

2. If 15% of the nucleotides in a DNA molecule contain guanine, what percentage of the nucleotides contain each of the other three bases? Explain your reasoning.

3. Why is it important that exact copies of DNA are produced during replication?

4. **Critical Thinking** Why is it advantageous to have weak hydrogen bonds between complementary base pairs and strong covalent bonds between phosphate and deoxyribose groups in a DNA molecule?

STRUCTURES AND FUNCTIONS Label each part of the figure in the spaces provided.

The diagram below shows two nucleotide base pairs in a segment of a DNA molecule.