**Biology 122 – DNA Replication Computer Lab Assignment – October 31, 2019**

**Web Site: Phschool.com Code: cbp-4122 DUE: November 1, 2019**

**Name: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

**Section A**

Complete the following sentences with the missing word or words in the spaces provided:

Before a cell divides, it its in a copying process called . This process ensures that each resulting cell will have a \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ of DNA molecules.

DNA replication is carried out by a \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_. These enzymes \_\_\_\_\_\_\_\_\_\_ a molecule of DNA. The sites where the \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ and \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ occur are called the \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.

When \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ between the base pairs are \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_, the two strands of DNA \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_. Each strand serves as a \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ for the attachment of \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_. Replication proceeds in \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ until each chromosome is \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.

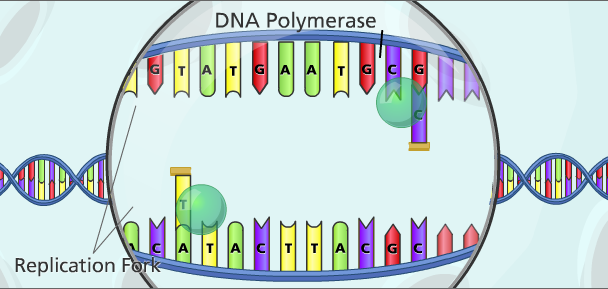
The principal enzyme involved in DNA replication is called \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_. The rules of base pairing make it possible to \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ the base sequence of the \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ strand. Guanine always bonds with \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ and thymine always bonds with \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_, these are said to be \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ bases.

DNA continues to replicate in \_\_\_\_\_\_\_\_\_\_\_\_\_ directions.

In addition to adding complementary bases to the original strands, DNA polymerase also \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ each \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ strand, helping to maximize the odds that each molecule is a \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_copy of the original \_\_\_\_\_\_\_\_\_. In the end, there are to new complementary strands of DNA, and the cell is ready to divide.

End result of replication is \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ DNA strands each with a(n) \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ of DNA and a \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_new strand of DNA.

Complete the following strand by providing the complementary base pairs that are missing on both strands indicated below (starting at the arrows provided):



**Section B – Use textbook and/or internet to complete the following questions.**

**NOTE: If not enough space provided, please answer your responses on your own paper.**

1. Describe the structure and components of DNA.

**ANS**:



1. What are nucleotides?

**ANS**:

1. What is a nucleosome?

**ANS**:

1. What are histones?

**ANS**:

1. What is helicase?

**ANS**:

1. What is the role of helicase in DNA replication? Why is their role so important during DNA replication?

**ANS:**

1. Where does DNA replication take place in eukaryotic cells?

**ANS:**

1. Define the term gene.

**ANS**:

1. The first step of DNA replication is to copy part of the DNA sequence into a new **ANS**:
2. In a DNA strand, the letters A, T, C, and G represents .

7. What is a purine? Which nitrogen bases represents purines?

**ANS**:

8. What is a pyrimidine? Which nitrogen bases represents pyrimidines?

**ANS**: