Name: _____

BIO300/CMPSC300
Lab 2: Part 1
DNA: The Molecule Worksheet
Fall 2017

1. A nucleotide is made of three parts: a _____ group, a five carbon _____, and a _____ base.

2. In a single strand of DNA, the phosphate group binds to the _____ of the next nucleotide.

3. The DNA of any species contains equal amounts of _____ & _____ and also equal amounts of _____ & _____.

4. In DNA, thymine is complementary to (or pairs with) _____ ; cytosine is complementary to _____.

5. In a strand of DNA, if the percentage of thymine is 30%, what would the percentage of cytosine in the same DNA strand be? _____.

6. James Watson and Francis Crick with, the help of Rosalind Franklin and others, determined that the shape of the DNA molecule was a _____.

7. A two-ring purine always pairs with a _____ -ring _____.

8. What type of bonds connect the deoxyribose sugars to the phosphate groups? _____

9. What type of bonds connect the bases to each other? _____

DNA Replication

1. Number the steps of DNA replication in the correct order (1, 2, 3):
   _____ Daughter strands are formed using complementary base pairing.
   _____ DNA unwinds
   _____ The DNA of the daughter strands winds with together with its parent strand.

2. Why is DNA replication called “semi-conservative”?

3. What enzyme unwinds or unzips the parent strand? _____

4. What enzyme connects joins the new nucleotides during the synthesis of the daughter strand?

5. Show the complimentary base pairing that would occur in the replication of the short DNA molecule below.

Original DNA Strand 1	Original DNA Strand 2		Original DNA Strand 1	New DNA Strand		New DNA Strand	Original DNA Strand 2
A	T				+		
C	G				+		
T	A				+		
T	A				+		
A	T				+		
C	G				+		
G	C				+		
C	G				+		
C	G				+		
G	C				+		
A	T				+		
T	A				+		