**DNA Replication/Transcription/Translation**  
PART 1: DNA Structure and Replication:  
Structure:  
DNA has two ends, 5’ and 3’ .   
If this is your template strand:  
 5’ - CCGCATGTGTGAGATACATTGGCCAAGACACTGTTAGCTC - 3’   
what is the complementary 3’ - - 5’ strand?  
What type of covalent bond can be found attaching the backbone of your DNA molecule? What type of bonds hold the base pairs of the two strands together at the “rungs”?  
Why is DNA called “antiparallel”?  
  
Replication.   
What are the functions of DNA helicase and DNA topoisomerase?  
What do single stranded binding proteins (SSBP) do?  
DNA can be only be built in one direction.   
 Which strand is the leading strand?  
 Why does the lagging strand “lag”?  
What does DNA ligase do?  
Why is this called “semi-conservative replication”?  
Is DNA replication required for protein synthesis?   
  
PART 2: Transcription  
What enzyme performs transcription?  
What is the major difference between a DNA and RNA nucleotide?  
Where does transcription take place in a eukaryotic cell? In a prokaryotic cell?  
  
PART 3: Translation  
Where does translation take place in a eukaryotic cell? In a prokaryotic cell?  
What is the start codon?  
What is a codon?  
What is an anti-codon?  
Does dehydration synthesis form the peptide bond between amino acids?  
Why is the process of transcription and translation called “gene expression”?