Name _____ Block _____

AP Biology
Chapter 17: Protein Synthesis
Practice Problems

1. Using the base-paring rules, fill in the bases to be found on the complementary RNA strands:

   a. DNA: 3' A--G--G--C--C--T--G--C--T--T--A--A 5'

      mRNA:

   b. DNA: 3' T--G--G--C--A--G--C--T--A--C--C--G 5'

      mRNA:

   c. DNA: 3' T--T--T--A--C--G--C--A--C--C--T--G 5'

      mRNA:

2. Write out the amino acid sequence from the following mRNA strands:

   a. mRNA: 5' A-U-G-C-A-U-A-G-A-A-G-G-C-C-U-A-U-U-G-U-A 3'

      Amino Acids:

   b. mRNA: 5' C-A-U-G-U-U-U-C-U-U-A-C-A-G-G-U-G-C-G-G-G 3'

      Amino Acids:

3. Using the following DNA strand, write out the mRNA, and then the amino acids.

   DNA: 3' T--A--C--A--A--G--T--A--C--T--T--G--T--T--T--C--T--T--A--A--A 5'

   mRNA:

   Amino Acids:

4. Suppose the two guanosine (G) nucleotides in #3 above were changed to two cytosine (C) nucleotides. What is the new amino acid chain?

5. Suppose the two guanosine (G) nucleotides in #3 were removed from the DNA strand. How would this mutation affect the amino acid chain? Write out the new amino acid chain.

6. What would be the tRNAs that would be complimentary to this mRNA strand?

   mRNA: 5' C--G--A--U--G--C--G--U--U--A--U--C--U--G--U--C--C--C--A--C--A 3'

   tRNAs: