WLHS / AP Bio / Monson

Name_____
Date_____Per_____

CHAPTER 5 STUDY QUESTIONS, part 2: Proteins and Nucleic Acids

1) Draw and label the **general** chemical structure of an amino acid and label its parts. →

2) What is the NAME of the covalent bond that links 2 amino acids together?_____

3) How many amino acids are there?_____

4) Complete the following table of protein functions: (see Fig. 5.15)

Type of protein	Function	Example(s)

5) Why is a protein's shape or conformation (shape) so important?_____

_____

6) Provide a brief explanation for the four levels of protein structure:

➔ **primary structure:**

➔ **secondary structure:** (include 2 examples)

➔ **tertiary structure:**

➔ **quaternary structure:**

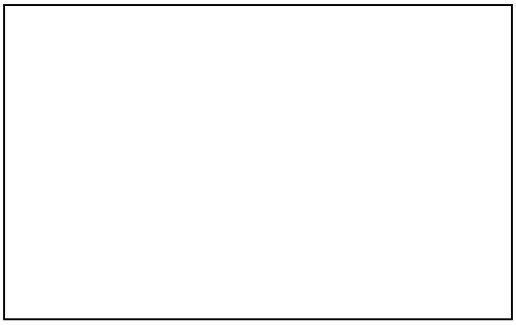
7) List four types of chemical / molecular interactions that contribute to the reinforcement of the tertiary structure of a protein.

8) APPLY: Where would you expect a polypeptide region that is rich in the amino acids valine, leucine, and isoleucine to be located in the folded polypeptide? Explain.

9) What is the shape of the DNA molecule? Which 2 scientists first proposed this model?

10) What are the subunits / monomers (building blocks) of **nucleic acids** called?_____
What is the name of the bond that joins one of these building blocks to the next?_____

11) What are the 3 parts of a **nucleotide**? (sketch and label here)



12) Distinguish between **purines** and **pyrimidines** (how are they different?) and list 2 purines and 3 pyrimidines.

13) Describe at least 2 ways in which RNA differs from DNA.

14) Fill in the blanks below illustrating the information flow in a cell:

DNA ➔ _____ ➔ _____

15) Summarize the **base pairing rules** in DNA and in RNA.

16) Given the following sequence of DNA, write the sequence that would be on the complementary strand of DNA:

A G T T C G G G C A G T T A A A C G C G A T A A T C C G A

_____

17) How are DNA sequences (and amino acid sequences in proteins) used as "tape measures" of evolution? (describe how human hemoglobin is being used in this area of biology)