**Chapter 14 – DNA Proteins Name\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_**

1. Name the 3 main kinds of RNA and their main purpose

2. Name three differences between mRNA and DNA

3. The process where the DNA message is copied into RNA is called \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.

4. What enzyme is responsible for adding RNA nucleotides to the growing strand? \_\_\_\_\_\_\_\_\_\_\_\_\_\_

5. What is the purpose of a promoter?

6. Describe how RNA is edited after being copied from the DNA. Use and explains the terms intron and exon.

7. Define codon.

8. # of amino acids \_\_\_\_\_\_\_\_\_\_ # of different codons \_\_\_\_\_\_\_\_\_\_

9. The codon \_\_\_\_\_\_\_\_ is called a START codon. Not all codons code for amino acids, some tell the protein chain to \_\_\_\_\_\_\_\_\_\_.

10. Define anticodon

11. Describe translation:

12. Where does translation occur? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

13. Refer to figure 14.9, use the genetic code to translate the mRNA sequence:

**UAUCGCACCUCAGGAGACUAG**

14. Transcribe then translate the following DNA sequence:

**GAAGCTCCCCCTAAGCCTATC**

15. Gene mutations occur when a small amount of DNA is changed. Describe a mutation that is a base-pair substitution.

16. Describe the two ways there can be a “frameshift” mutation.

17. Which is probably more harmful – substitution or frameshift – and why?

18. What are “transposable elements” and why are they problematic?

19. What agents cause an increase in mutations?