**From Genes To Proteins** (p. 208 – 214)

**I. Decoding The Information In DNA**

**1. List three main differences between RNA (ribonucleic acid) and DNA.**

1. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

2. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

3. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**2. Match the following terms with the correct definitions.**

1. \_\_\_\_\_\_\_\_ Transcription A. Process by which proteins are made from DNA

2. \_\_\_\_\_\_\_\_ Translation B. Reading and assembling of amino acid chains

3. \_\_\_\_\_\_\_\_ Protein Synthesis C. Protein instructions passed from a gene to RNA

**II. Transfer Of Information From DNA To RNA**

**1. Define the term RNA polymerase.**

RNA polymerase –

**2. Circle the letter of each sentence that is true about transcription.**

a. During transcription, DNA polymerase binds to RNA & separates the DNA strands.

b. One strand of DNA is used as a template to assemble nucleotides into a strand of RNA.

c. RNA polymerase binds only to DNA promoters, which have specific base sequences.

d. Promoters are signals in RNA that indicate when to begin transcription.

**3. Both strands of DNA serve as templates during transcription.**

Circle One : True False

**4. Transcription occurs in the nucleus (eukaryotic).**

Circle One : True False

**III. The Genetic Code : Three-Nucleotide “Words”**

**1. Define the term messenger RNA.**

Messenger RNA –

**2. Proteins are made by joining \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ into long chains**

**called polypeptides.** (Not in the book.)

**3. What is the genetic code?** \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**4. Define the term codons.**

Codons –

**5. Circle the letter of the number of possible three-base codons.**

a. 4 b. 12 c. 64 d. 128

**6. All amino acids are specified by only one codon.**

Circle One : True False

**7. Circle the letter of the codon that is not a stop codon.**

a. UAA b. UGA c. UAG d. AUG

**IV. RNA’s Role In Translation**

**1. Match the following terms with the correct definitions.**

1. \_\_\_\_\_\_\_\_ Transfer RNA A. Sequence of tRNA complementary to mRNA

2. \_\_\_\_\_\_\_\_ Anticodons B. RNA molecules that are part of ribosomes

3. \_\_\_\_\_\_\_\_ Ribosomal RNA C. RNA that carry a specific amino acid on one end

**2. List the seven steps of protein synthesis.**

1. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

2. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

3. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

4. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

5. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

6. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

7. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**3. For the most part, the genetic code is universal.**

Circle One : True False