Directed Reading

Section: RNA and Gene Expression

In the space provided, write the letter of the description that best matches the term or phrase.

____ 1. ribonucleic acid (RNA)  
_____ 2. uracil  
_____ 3. transcription  
_____ 4. translation  
_____ 5. gene expression

**Complete each statement by underlining the correct term or phrase in the brackets.**


7. RNA polymerase adds complementary [DNA / RNA] nucleotides as it “reads” the gene.

8. In eukaryotes, transcription takes place in the [nucleus / cytoplasm].

**Read each question, and write your answer in the space provided.**

9. What are two differences between transcription and DNA replication?

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________________________________________________________________________
________________________________________________________________________
________________________________________________________________________

10. What determines where on the DNA molecule transcription begins and where it ends?

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________________________________________________________________________
In the space provided, explain how the terms in each pair are related to each other.

11. RNA, messenger RNA

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12. codons, genetic code

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Study the following six steps in the synthesis of proteins. Determine the order in which the steps take place. Write the number of each step in the space provided.

_____ 13. The codon following the start codon then receives the tRNA molecule with the complementary anticodon. The tRNA carries the amino acid specified by the codon.

_____ 14. Steps 2–5 are repeated until a stop codon is reached. The newly made protein is released into the cell.

_____ 15. The first tRNA detaches, leaves behind its amino acid, and moves away from the ribosome.

_____ 16. Enzymes help form a peptide bond between the amino acids of adjacent tRNA molecules.

_____ 17. The tRNA (with its growing protein chain) and mRNA move one codon down, and the next codon is ready to receive the next tRNA and its amino acid.

_____ 18. An mRNA, the ribosome, and a tRNA carrying the amino acid methionine bind together. The tRNA bonds to the “start” codon AUG.