

Name _____ Hour _____

Chapter 12 Review

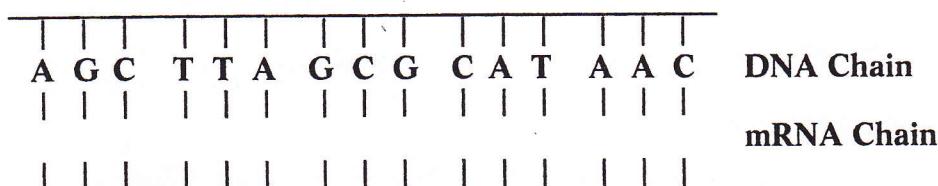
True/False

1. Replication starts at one end of the DNA molecule and proceeds to the other.
2. RNA is a double-stranded molecule.
3. Amino acids are linked together by hydrogen bonds.
4. Cytosine always bonds to guanine in DNA.
5. Transfer RNA serves as a template for DNA during protein synthesis.
6. Translation is the process of assembling protein molecules.
7. An anticodon is part of an mRNA molecule.
8. DNA carries the information for protein synthesis from the nucleus to the cytoplasm.
9. Purines have a double ring of carbon and nitrogen atoms.
10. Transcription usually occurs in the nucleus of a cell.

Complete the table by checking the correct column for each statement.

	Statement	DNA	RNA
11.	Contains ribose		
12.	Composed of a double chain of nucleotides		
13.	Contains deoxyribose		
14.	Contains uracil		
15.	Contains thymine		
16.	Composed of a single chain of nucleotides		

17. Label the diagram by completing the sequence of nitrogen bases in the mRNA.
Use these letters: A, U, C, G, T.



Multiple Choice

_____ 18. A large region of DNA that directs the formation of a polypeptide is called

a:

- a. protein
- b. nucleotide
- c. monomer
- d. gene

_____ 19. Which of the following can only bond to one specific type of amino acid?

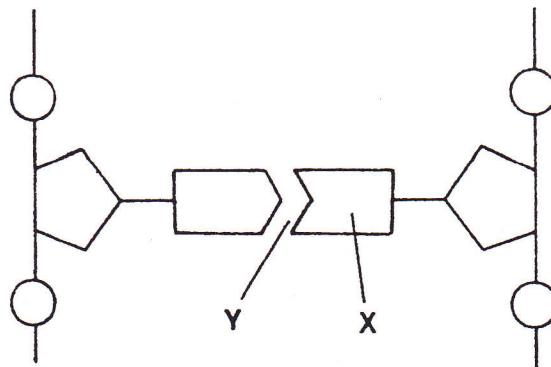
- a. mRNA
- b. tRNA
- c. rRNA
- d. DNA

_____ 20. In a DNA molecule, thymine always pairs with

- a. cytosine
- b. guanine
- c. adenine
- d. uracil

_____ 21. New mRNA is made through the process of:

- a. duplication
- b. transcription
- c. translation
- d. crystallography



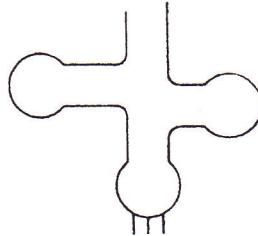
_____ 22. In the nucleic acid, the structure labeled X represents:

- a. a nitrogen base
- b. an amino acid
- c. a deoxyribose molecule
- d. a phosphate group

_____ 23. Which type of bond will form at point Y?

- a. peptide bond
- b. helicase bond
- c. hydrogen bond
- d. nitrogen bond

- _____ 24. The genetic code of an organism is determined by:
- the sequence of nitrogen bases in its DNA
 - the number of amino acids in its cells
 - the speed at which its polypeptides are produced
 - the shape of the ribosomes in its cells
- _____ 25. Which of the following "unzips" the DNA molecule during replication?
- | | |
|----------------|---------------|
| a. helicase | b. polymerase |
| c. start codon | d. anticodon |
- _____ 26. Damaged DNA is usually repaired by:
- | | |
|------------|----------------|
| a. purines | b. nucleotides |
| c. enzymes | d. ribosomes |



- _____ 27. Which type of molecule is shown in the diagram?
- | | |
|-----------|---------------|
| a. tRNA | b. mRNA |
| c. purine | d. pyrimidine |

Complete the statements.

28. The enzyme that catalyzes the formation of the sugar-to-phosphate bonds in DNA is called _____.
29. The five-carbon sugar in DNA is called _____.
30. The information needed for protein synthesis is stored by a cell's _____.

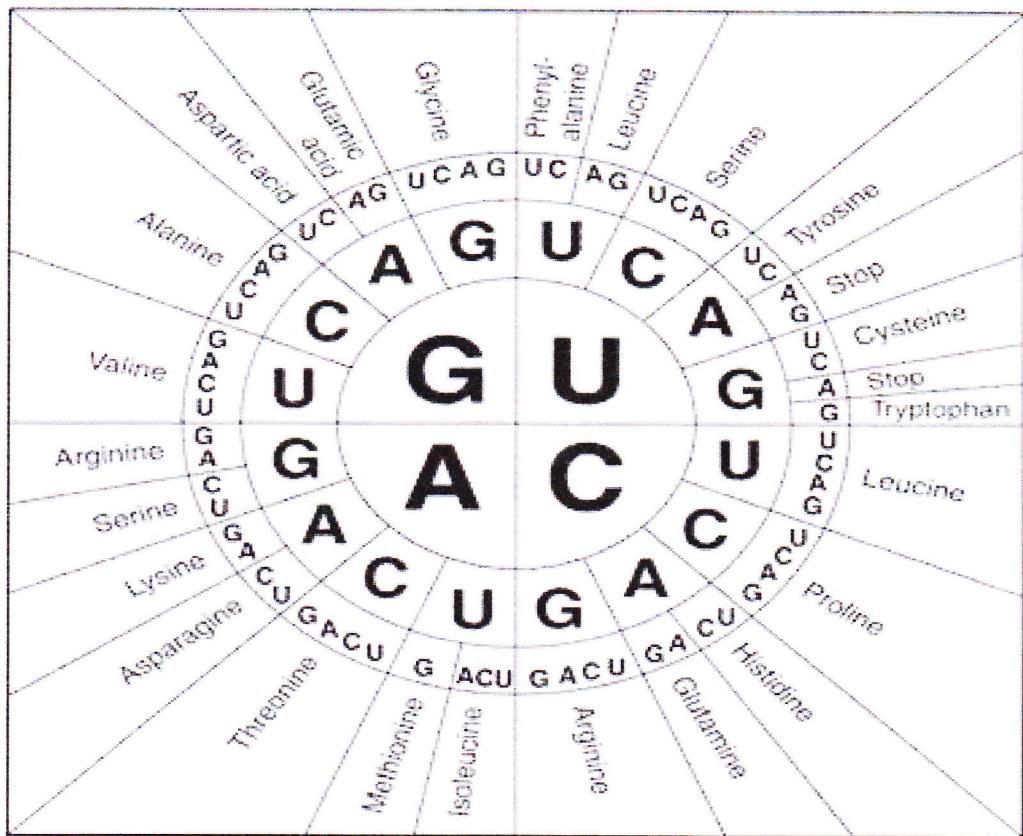
31. A specific group of three sequential bases of mRNA is called _____.
32. The repeating subunits in both DNA and RNA are called _____.
33. Rosalind Franklin produced images of DNA by a technique called
_____.

34. The nitrogen base found in RNA but not in DNA is _____.
35. The DNA molecule is arranged in the shape of a _____.
36. The process of translation occurs at a cell's _____.
37. Thymine and cytosine belong to a class of organic molecules called
_____.

Order the steps in translation from 1 to 8.

- _____ The tRNA anticodon recognizes the mRNA codon, and the two molecules join.
- _____ At the end of the mRNA strand there is a codon, for which no tRNA molecules have anticodons to match; therefore, translation stops.
- _____ An mRNA codon attaches to a ribosome.
- _____ Once the first and second amino acids are in place, they bond together; then, the first tRNA is released.
- _____ A tRNA molecule approaches, carrying its amino acid.
- _____ The second mRNA codon is joined by the proper tRNA molecule with its amino acid.
- _____ The process continues as the ribosome moves along the mRNA strand and a polypeptide chain grows.
- _____ The polypeptide chain breaks away from its assembly line.

Complete the diagram below.



PROTEIN (POLYPEPTIDE)

