Name: _____ Chapter 8 Take-home Quiz
Due: Beginning of class Monday Mar 12, 2007 Worth 20 points

1). What is the relationship among DNA, a gene, and a chromosome?

A) A chromosome contains hundreds of genes which are composed of protein.
B) A chromosome contains hundreds of genes which are composed of DNA.
C) A gene contains hundreds of chromosomes which are composed of protein.
D) A gene is composed of DNA, but there is no relationship to a chromosome.
E) A gene contains hundreds of chromosomes which are composed of DNA.

2) DNA has

A) A, U, G, and C bases.
B) only C and T bases.
C) only A and G bases.
D) C, T, A, and G bases.
E) both U and T bases.

3) If amounts of bases in a DNA molecule are measured, we find

A) A = C and G = T.
B) A = G and C = T.
C) T = A and C = G.
D) no two bases would be equal in amount.
E) that all bases are equal in amount.

4) The correct structure of a nucleotide is

A) phosphate-5 carbon sugar-nitrogen base.
B) phospholipid-sugar-base.
C) phosphate-sugar-phosphate-sugar.
D) adenine-thymine and guanine-cytosine.
E) base-phosphate-glucose.

5) In DNA, phosphate groups bond to

A) adenine.
B) ribose.
C) pyrimidine bases.
D) other phosphate groups.
E) deoxyribose.

6) The rules for base pairing in DNA are

A) A = C and G = T in amount.
B) A with C, and G with T.
C) A with G, and C with T.
D) A with T, and G with C.
E) A = G and C = T in amount.

7) The two polynucleotide chains in a DNA molecule are attracted to each other by

A) covalent bonds between carbon atoms.
B) hydrogen bonds between bases.
C) peptide bonds between amino acids.
D) ionic bonds between "R" groups in amino acids.
E) covalent bonds between phosphates and sugars.

8) For the DNA sequence GCCTAT in one polynucleotide chain, the sequence found in the other polynucleotide chain is

A) CGGATA.
B) GCCATA.
C) CGGAUA.
D) ATTCGC.
E) GCCTAT.

9) In the comparison of a DNA molecule to a twisted ladder, the uprights of the ladder represent

A) nitrogenous bases linked together.
B) deoxyribose linked to phosphates.
C) deoxyribose linked to sulfates.
D) nitrogenous bases linked to phosphates.
E) hydrogen bonds between bases.

10) Which component of a nucleotide present within a DNA molecule could be removed without breaking the polynucleotide chain?

A) ribose
B) deoxyribose
C) phosphate
D) uracil
E) thymine

11) When a cell divides

A) each daughter cell receives a nearly perfect copy of the parent cell's genetic information.
B) each daughter cell receives exactly half the genetic information in the parent cell.
C) each daughter cell receives the same amount of genetic information that was in the parent cell, but it has been altered.
D) genetic information is randomly parceled out to the daughter cells.
E) None of the above are true.

12) When DNA polymerase is in contact with thymine in the parental strand, what does it add to the growing daughter strand?

A) deoxyribose
B) phosphate group
C) adenine
D) single-ring pyrimidine
E) uracil

13) Semiconservative DNA replication means
A) the old DNA is completely broken down.
B) the old DNA remains completely intact.
C) A pairs with T and G pairs with C.
D) only half of the DNA is replicated.
E) each new DNA molecule has half of the old one.

14) Which of the following is NOT involved in the DNA replication process?
A) DNA helicase
B) DNA ligase
C) DNA replicase
D) DNA polymerase
E) All of the above are involved.

15) Which of the following events occur withing a DNA replication bubble?
A) DNA polymerase helps to break hydrogen bonds between complementary base pairs.
B) DNA helicase attaches the phosphate of free nucleotide to the sugar of the previous nucleotide in the daughter strand
C) DNA helicase unwinds the double helix at each replication fork.
D) None of the above
E) All of the above

16). DNA Polymerase

A) Can advance in either direction along a single strand of DNA
B) Cleaves hydrogen bonds that join to two strands of DNA
C) Creates a polymer that consists of many molecules of DNA
D) Adds appropriate nucleotides to a newly forming DNA strand
E) Is the protein found in conjuction with DNA in eukaryotic chromosomes.

17. Which of the following do not make-up part of DNA?

A) Amino Acids
B) Nucleotides
C) Deoxyribose
D) Phosphate
E) Nitrogenous bases

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18. How did Avery show that the genetic material was not RNA?

19. Explain why the substrate specificity of enzymes were important in Avery's experiment that proved genes were made of DNA.

20. List three enzymes involved in DNA Replication and explain the function of each.