

Chapter 11 Test

Multiple Choice

Identify the letter of the choice that best completes the statement or answers the question.

- Which one of the following nucleotide pair bonds would be found in a DNA molecule?
 - adenine-guanine
 - guanine-cytosine
 - adenine-cytosine
 - cytosine-uracil
- The backbone of a DNA molecule is made of which two components?
 - phosphate molecules and ribose sugars
 - deoxyphosphate molecules and ribose sugars
 - phosphate molecules and deoxyribose sugars
 - deoxyphosphate molecules and deoxyribose sugars
- Ribosomes are made of _____.
 - rRNA
 - tRNA and mRNA
 - mRNA
 - DNA
- Watson and Crick were the first to suggest that DNA is _____.
 - a short molecule
 - the shape of a double helix
 - a protein molecule
 - the genetic material
- The chromosome abnormality that occurs when part of one chromosome breaks off and is added to a different chromosome is _____.
 - deletion
 - nondisjunction
 - translocation
 - inversion
- Which of the following would be *least* likely to happen as a result of a mutation in a person's skin cells?
 - skin cancer
 - reduced functioning of the skin cell
 - no change in functioning of the skin cell
 - the person's offspring have mutated skin
- The pairing of _____ in DNA is the key feature that allows DNA to be copied.
 - nucleotides
 - nitrogen bases
 - chromosomes
 - codons
- The process by which a DNA molecule is copied is called _____.
 - binary fission
 - mitosis
 - replication
 - translation
- A DNA nucleotide may be made up of a phosphate group, along with _____.
 - deoxyribose sugar and uracil
 - ribose sugar and adenine
 - deoxyribose sugar and thymine
 - ribose sugar and cytosine

10. Which series is arranged in order from largest to smallest in size?
- chromosome, nucleus, cell, DNA, nucleotide
 - cell, nucleus, chromosome, DNA, nucleotide
 - nucleotide, chromosome, cell, DNA, nucleus
 - cell, nucleotide, nucleus, DNA, chromosome
11. Messenger RNA is formed in the process of ____.
- transcription
 - translation
 - replication
 - mutation
12. An RNA molecule is a polymer composed of subunits known as ____.
- polysaccharides
 - ribose molecules
 - nucleotides
 - uracil molecules
13. X rays, ultraviolet light, and radioactive substances that can change the chemical nature of DNA are classified as ____.
- growth regulators
 - metamorphic molecules
 - hydrolytic enzymes
 - mutagens

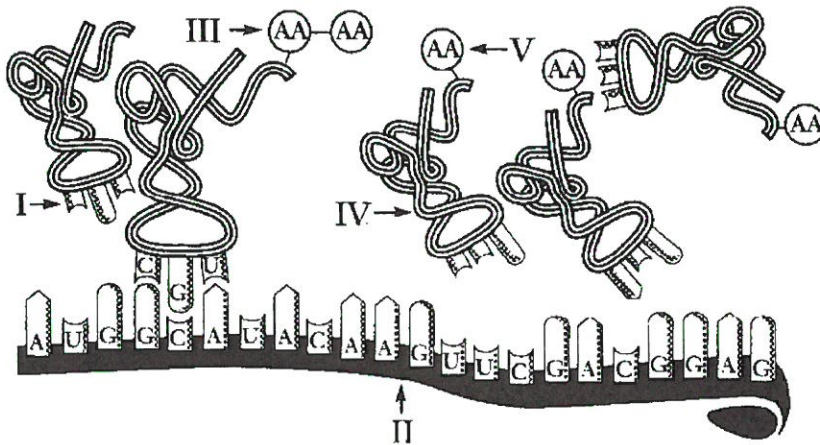


Figure 11-1

14. In which part of the cell does this process shown in Figure 11-1 take place?
- in the nucleus
 - in food vacuoles
 - at the ribosomes
 - on the chromosome
15. Which of the structures in Figure 11-1 are composed of RNA?
- II and IV
 - III and IV
 - I and V
 - III and V
16. Structure III in Figure 11-1 represents a(n) ____.
- gene
 - amino acid
 - codon
 - DNA molecule
17. The process illustrated in Figure 11-1 is called ____.
- translation
 - replication
 - monoploidy
 - transcription

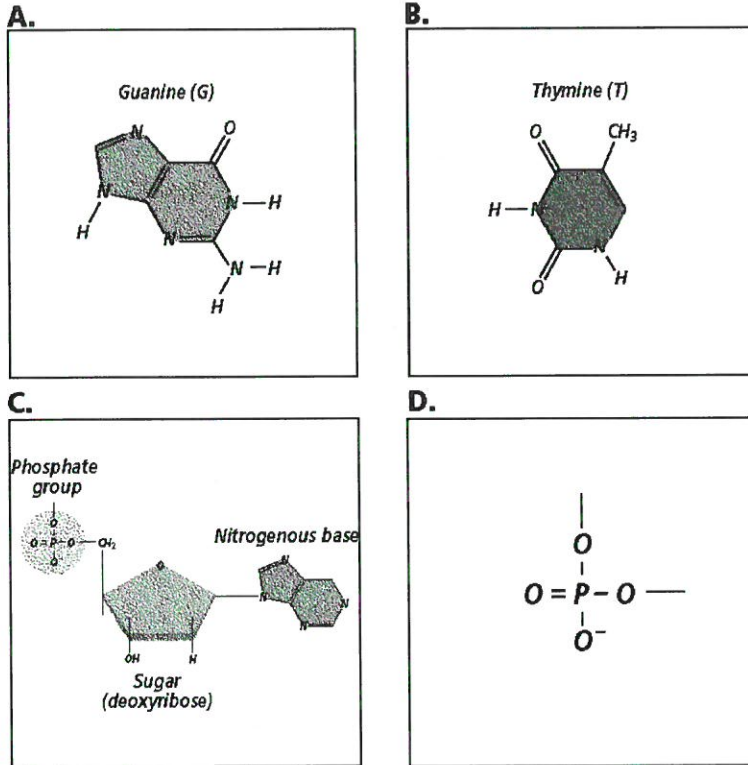


Figure 11-3

23. Which structure shown in Figure 11-3 does not contain a nitrogenous base?

- | | |
|------|------|
| a. A | c. C |
| b. B | d. D |

24. Which structure shown in Figure 11-3 would attract a free cytosine nucleotide?

- | | |
|------|------|
| a. A | c. C |
| b. B | d. D |

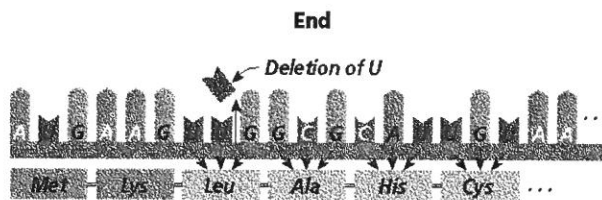
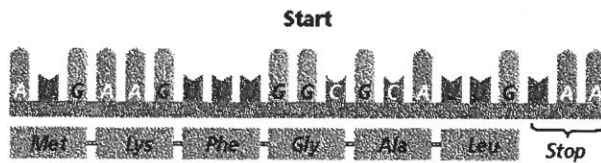


Figure 11-4

25. What type of mutation has occurred in Figure 11-4?
 - a. point mutation
 - b. frame shift
 - c. lethal
 - d. protein
26. What will be the result of the mutation in Figure 11-4?
 - a. it will have no effect on protein function
 - b. only one amino acid will change
 - c. nearly every amino acid in the protein will be changed
 - d. the organism will die
27. When parts of chromosomes are broken off and lost during mitosis or meiosis, the result is a(n)
 - a. chromosomal mutation
 - b. frameshift mutation
 - c. point mutation
 - d. favorable mutation
28. The process of converting RNA code into an amino acid sequence is called _____.
 - a. replication
 - b. translation
 - c. transcription
 - d. meiosis
29. If a nucleotide is added or removed from a DNA molecule and mRNA is created, the codons after the mutation will not be read correctly. This is a
 - a. chromosomal mutation
 - b. frameshift mutation
 - c. point mutation
 - d. favorable mutation
30. A change in a single base pair of the DNA molecule that affects the synthesis of a protein is called a(n)
 - a. chromosomal mutation
 - b. frameshift mutation
 - c. point mutation
 - d. favorable mutation
31. The molecule _____ brings amino acids to the ribosomes for the assembly of proteins.
 - a. mRNA
 - b. rRNA
 - c. tRNA
 - d. nucleotide
32. Each set of three nitrogen bases representing an amino acid is referred to as a(n) _____.
 - a. codon
 - b. trio
 - c. triplet
 - d. ribosome

33. The process by which DNA makes a copy of itself is called _____.
- replication
 - transcription
 - translation
 - interphase
34. Thymine, adenine, guanine, and cytosine are classified as _____.
- deoxyribose
 - nitrogenous base
 - nucleotide
 - amino acids
35. A(n) _____ involves the substitution of a different nitrogen base in a DNA molecule.
- chromosomal mutation
 - frameshift mutation
 - point mutation
 - favorable mutation
36. During the process of transcription, DNA serves as the template for making _____, which leaves the nucleus and travels to the ribosomes.
- new molecules of DNA
 - proteins
 - tRNA
 - mRNA
37. Translation is to protein as transcription is to _____.
- amino acid
 - tRNA
 - mRNA
 - DNA
38. DNA is to RNA as double stranded is to _____.
- deoxyribose
 - ribose
 - uracil
 - single stranded
39. Adenine is to thymine as guanine is to _____.
- cytosine
 - thymine
 - uracil
 - anti-codon
40. Mutations in body cells
- can be passed on to offspring
 - cannot be passed on to offspring
 - always cause cancer
 - give you super powers like the X-men

Short Answer

41. In Figure 11-2, use the letter P to label all of the phosphate groups. Use an S to label all the sugar molecules. For labeling the nitrogen bases, use a T for thymine and a C for cytosine. Guanine and adenine have been filled in for you. Circle and label a single nucleotide.

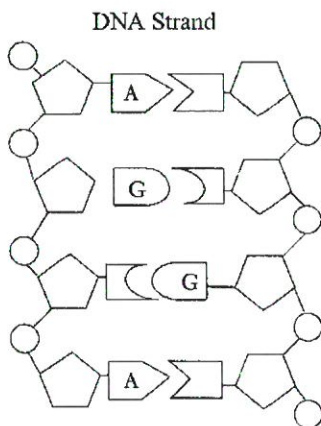


Figure 11-2