

Test Prep Pretest

Complete each statement by writing the correct term or phrase in the space provided.

1. In 1928, Griffith found that the ability to cause disease could be transferred between strains of bacteria due to the process of _____.
2. Avery's experiments demonstrated that DNA, and not protein or RNA, is the _____ material.
3. After infecting *Escherichia coli* bacteria with P-labeled phages, Hershey and Chase traced the ^{32}P . The scientists found most of the radioactive substance in the _____.
4. Watson and Crick used the X-ray _____ photographs of Wilkins and Franklin to build their model of DNA.
5. The process of making new DNA is called _____.
6. The Y-shaped area formed when the double helix separates during replication is called a _____.
7. DNA replication occurs before a _____.
8. Eukaryotic DNA contains many replication forks working in concert, whereas prokaryotic DNA contains only _____ replication forks during replication.
9. Proteins that catalyze the formation of a DNA molecule are _____.
10. Gene expression occurs through transcription and _____.
11. _____ places the amino acids on the growing polypeptide chains.
12. Messenger RNA is complementary to the _____ sequence.

Test Prep Pretest *continued*

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

- | | |
|-----------------------------|--|
| _____ 13. transformation | a. discovered the three-dimensional structure of DNA with the help of other scientists |
| _____ 14. replication | b. binds to a genes promoter |
| _____ 15. DNA helicase | c. developed high quality X-ray diffraction photographs of DNA |
| _____ 16. Wilkins and Frank | d. results in two DNA molecules that are identical to the original DNA molecule |
| _____ 17. Watson and Crick | e. results in a change in a cell's genotype |
| _____ 18. RNA polymerase | f. contains an anticodon and an amino acid binding site |
| _____ 19. tRNA | g. contains uracil instead of thymine |
| _____ 20. RNA | h. unwinds the two DNA strands during replication |

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

21. Relate the role of base-pairing rules to the structure of DNA.

22. Describe the components of a nucleotide in DNA.

23. What happened when Griffith mixed harmless living R bacteria with harmless heat-killed S bacteria and then injected mice with this mixture?

Test Prep Pretest *continued*

24. Why did Hershey and Chase use radioactive elements in their experiments?

25. Explain how DNA polymerase “proofreads” a new DNA strand.

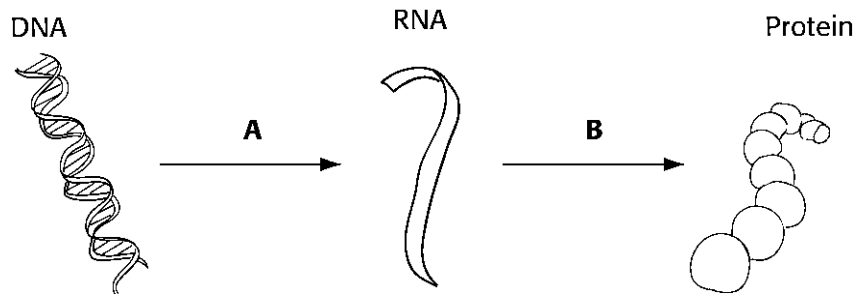
26. Describe the role of DNA helicases during replication.

27. Explain how RNA differs from DNA.

28. Describe the functions of RNA.

Test Prep Pretest *continued*

Questions 29–31 refer to the figure below.



29. The processing of information from DNA into proteins, as shown above, is referred to as _____.

30. Stage A is called _____.

31. Stage B is called _____.

In the space provided, write the letter of the term or phrase that best completes each statement or best answers each question.

_____ 32. Which of the following represents the codons that correspond to this segment of DNA: TAT—CAG—GAT?

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|----------------|----------------|
| a. AUA—GUC—CUA | c. AUAGU—CCUA |
| b. ATA—GTC—CTA | d. ACA—CUC—GUA |

_____ 33. Which of the following are the anticodons that correspond to the mRNA codons CAG—ACU—UUU?

- GTC—TGA—AAA
- GUC—UGA—AAA
- glutamine—threonine—phenylalanine
- GAC—UCA—AAA