

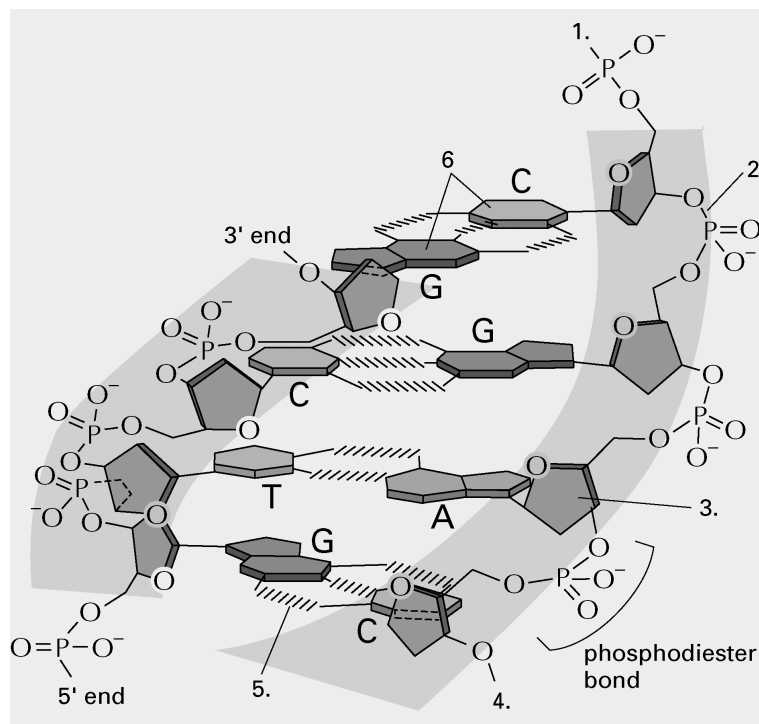
Question 1 (one correct answer)

In a DNA double helix

- (a) the two DNA strands are identical.
- (b) uracil pairs with adenine.
- (c) thymine pairs with cytosine.
- (d) the two DNA strands run antiparallel.
- (e) the nucleotides are ribonucleotides.

Question 2

On the diagram of a small portion of a DNA molecule, match the labels below to the numbered label lines.



- (a) Base
- (b) Sugar
- (c) Phosphate
- (d) Hydrogen bond
- (e) 5' end

Question 3

DNA replication involves several different enzymes. What is the function of the:

- (a) DNA-Helicase
- (b) Primase
- (c) DNA polymerase

Question 4

E. coli genome is made of 4.6×10^6 base pairs. Knowing that the replication speed in E. coli is 1,000 bases per second, calculate how much time is necessary for the replication of the entire E. coli genome.

Question 5

Under optimal conditions (rich culture medium, optimal temperature, etc.) E. coli doubling time is 20 minutes. This doubling time is shorter than the time required for the genome replication.

Explain how is this possible.