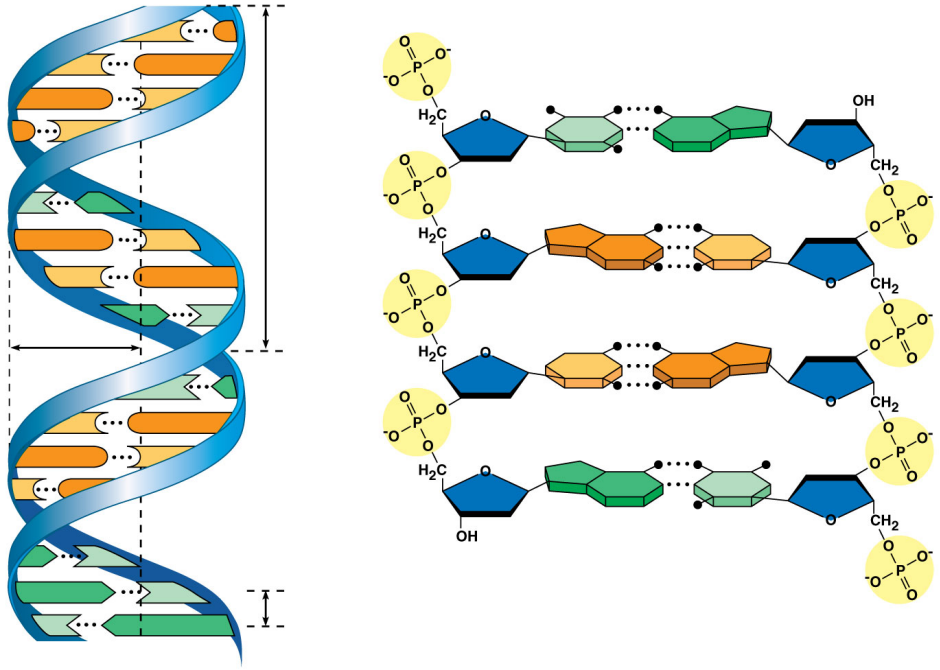
SI Session 17

I. DNA

A. Label the 3’ end, 5’ end, pyrimidine bases and purine bases

B. What type of bond is present between the nitrogenous bases?



C. Explain the difference between conservative, semiconservative, and dispersive replication

D. Which of the following statements about replication origins is correct?

a. The two strands of DNA at the origin are separated, allowing the formation of a replication bubble

b. In both eukaryotes and prokaryotes, replication proceeds in both directions from each origin

c. In bacteria, the DNA sequence at the origin is recognized by specific proteins that then bind to the origin

d. Bacterial chromosomes have a single origin, but eukaryotic chromosomes have many origins

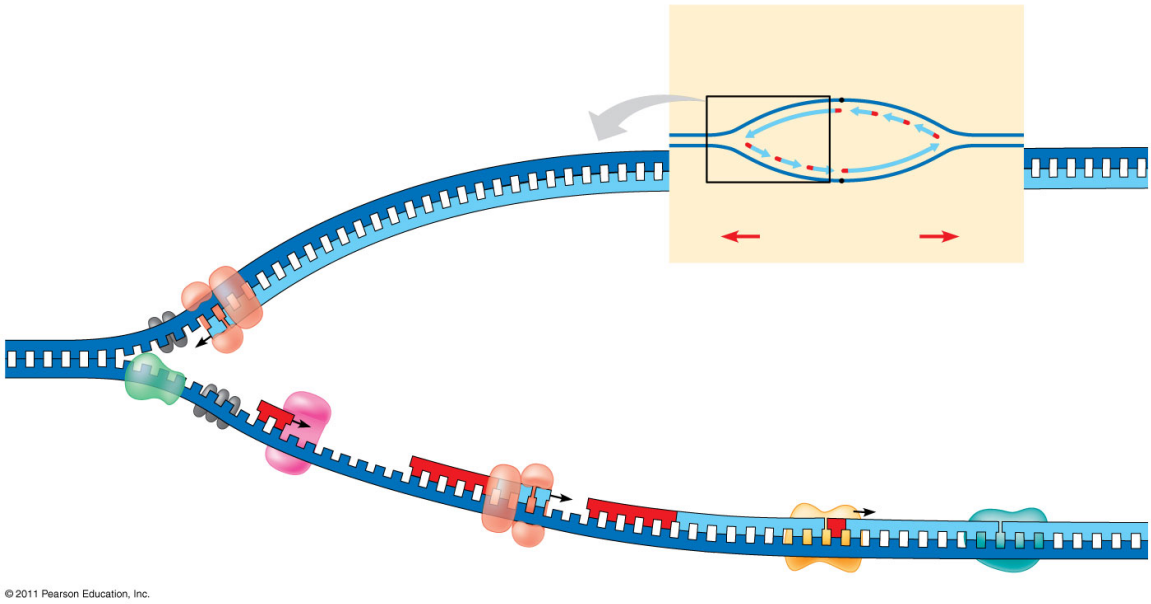
d. All of the above

E. At the end of each replication bubble is:

a. A gene
b. A replication fork
c. A ribosome
d. A telomere
e. An origin of replication

II. DNA Replication

a. Label the enzymes involved in DNA replication (, the leading strand, the lagging strand, the Okazaki fragments, the 3' end, and the 5' end



b. Complete the following table regarding the enzymes involved in DNA replication

Enzyme/ Protein	Function
Helicase	
Single-strand Binding Protein	
Topoisomerase	

Primase	
DNA Polymerase	
DNA Ligase	

III. DNA Repair

a. How does the mismatch repair alter the DNA strand?

b. Explain the process of nucleotide excision repair

c. What are telomeres? Why do they get shorter over time?