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ASSIGNMENT!!!

1. **HIGHLIGHT THE STEPS OF DNA REPLICATION**
a. Initiation
b. Elongation
c. Termination

a. Initiation: Replication begins at a location on the double helix known as OriC to which certain initiator proteins bind and trigger unwinding. Enzymes known as Helixases unwind the double helix by breaking the hydrogen bonds between complementary base pairs, while the other proteins keep the single strands from rejoining. The cell prepares for the next step which is elongation by creating short sequences of RNA called Primers that provide starting point of elongation.

b. Elongation: With the Primer as the starting point for the leading strand, a new DNA strand grows one base at a time. The existing strand is a template for the new strand. The Enzyme DNA POLYMERASE controls elongation, which can occur only in the leading direction. The lagging strand unwinds in small sections that DNA POLYMERASE replicates in the leading direction.

c. Termination: After elongation is complete, the two new double helixes have replaced the original helix. During termination, the last primer sequence must be removed from the end of the lagging strand. This last portion of the lagging strand is the Tolomere section, containing a repeating non-coding sequence of bases. Enzymes snip off a tolomere at the end of each replication, leading to shorter strands after each cycle. Finally, enzymes called nucleases "Proofread" the new double helix structures and remove mispaired bases. DNA POLYMERASE then fills the gaps created by the excised bases.

2.) **OUTLINE THE FUNCTIONS OF DNA REPLICATION ENZYMES**

a. Enzyme: Topoisomerase
Function: Relaxes the super-coiled DNA.

b. Enzyme: DNA helicase
Function: Unwinds the double helix at the replication fork.

c. Enzyme: Primase
Function: Provides the starting point for DNA POLYMERASE to begin synthesis of the new strand.

d. Enzyme: DNA POLYMERASE
Function: Synthesizes the new DNA strand and also proofreads and correct some errors.

e. Enzyme: DNA Ligase
Function: Re-joins the two DNA strands into a double helix and joins Okazaki fragments of the lagging strands.