OMOTAYO FAITH
OMOWUNMI
18/mhs01/301
Medical laboratory science
assignment
1. HIGHLIGHT THE STEPS OF DNA REPLICATION
2.OUTLINE THE FUNCTIONS OF DNA REPLICATION ENZYMES.
1. There are three main steps to DNA replication: initiation, elongation, and termination. In order to fit within a cell's nucleus, DNA is packed into tightly coiled structures called chromatin, which loosens prior to replication, allowing the cell replication machinery to access the DNA strands.Before DNA replication can begin, the double helix structure of the DNA molecules has to be 'unzipped.' Helicase, an enzyme, is integral to his process, breaking the hydrogen bonds that hold the complementary bases of

DNA together (A with T and C with G). The separation creates a 'Y' shape called a replication fork and the two single strands of DNA now act as templates for making new strands of DNA.

2.

Important Enzymes in DNA Replication	
Enzyme	Function
Topoisomerase	Relaxes the super-coiled DNA
DNA helicase	Unwinds the double helix at the replication fork
Primase	Provides the starting point for DNA polymerase to begin synthesis of the new strand
DNA polymerase	Synthesizes the new DNA strand; also proofreads and corrects some errors
DNA ligase	Re-joins the two DNA strands into a double helix and joins Okazaki fragments

of the lagging strand
The process of DNA replication is catalyzed by a type of enzyme called DNA polymerase (polymeaning many, mer meaning pieces, and –asemeaning enzyme; so an enzyme that attaches many pieces of DNA), the double helix of the original DNA molecule separates and new strands are made to match the separated strands. The result will be two DNA molecules, each containing an old and a new strand. Therefore, DNA replication is called semiconservative. The term semiconservative refers to the fact that half of the original molecule (one of the two strands in the double helix) is "conserved" in the new molecule. The original strand is referred to as the template strand because it provides the information, or template, for the newly

synthesized strand.