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**Matric No: 18/MHS01/163**

**Assignment Title: MEDICAL BIOCHEMISTRY  
Course Title: Medical Biochemistry II  
Course Code: BCH 204**

**Question**

1. HIGHLIGHT THE STEPS OF DNA REPLICATION

2. OUTLINE THE FUNCTIONS OF DNA REPLICATION ENZYMES.

**Answer**

**Step 1**: Replication Fork Formation.

**Step 2**: Primer Binding

**Step 3**: Elongation

**Step 4**: Termination

2.

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| **ENZYMES** | **FUNCTIONS** |
| DNA Pol 1 | Exonuclease activity removes RNA primer and replaces it with newly synthesized DNA. |
| DNA pol 2 | Repair function. |
| DNA Pol 3 | Main enzyme that adds nucleotide in the 5’-3’ direction. |
| Helicase | Opens DNA helix by breaking hydrogen bonds between the nitrogenous bases. |
| Ligase | Seals the gap between the Okazaki fragments to create one continuous DNA strand. |
| Primase | Synthesizes RNA primers necessary for replication. |
| Sliding Clamp | Helps to hold DNA polymerase in place when nucleotides are being added. |
| Topoisomerase | Helps relieve the stress of DNA when unwinding by causing breaks and then resealing the DNA. |
| Single Strand Binding Proteins | Binds to single stranded DNA to avoid DNA rewinding back. |