

Describe the process of DNA replication according to the semiconservative theory.

Firstly, unwinding of DNA _____ helix occurs. Enzyme _____ catalyses the unwinding of parental DNA _____ helix into single stranded, by breaking _____ bonds between both strands, forming replication _____. Unwinding of DNA causing strain of _____ double helix ahead the _____ fork. _____ helps relieve the strain by catalyses the _____, swiveling and _____ the DNA. _____ _____ bind to each separated parental single strand to prevent _____ bonds form between the two separated parental single stranded, hence prevent _____ stranded DNA formed again.

Next, each parental single strand will act as _____. _____ catalyses the synthesis of RNA primer. RNA primer is a short RNA strand made of _____ nucleotides. RNA primer initiates the elongation of new _____ strands synthesis. _____ catalyses the synthesis of new DNA strands by adding free _____ nucleotides that complementary to the bases on DNA _____ in the direction of _____ to _____ end, starting at _____ end of RNA primer. Adenine (A) pairs with _____ (T) by _____ hydrogen bonds while guanine (G) pairs with _____ (C) by _____ hydrogen bonds.

After that, formation of leading and lagging strands occurs. New DNA strand that synthesized continuously towards replication fork is called as _____ strand. Only _____ RNA primer is needed to synthesis a leading strand. Meanwhile the other new strand that synthesized discontinuously and away from replication fork is called _____ strand. Lagging strand is made up of many short _____ fragments. Each short DNA fragment is known as _____ fragment. _____ RNA primer is needed to synthesis one Okazaki fragment. Thus, many RNA primers are needed to form a _____ strand. _____ catalyses the removal of RNA primers by replace the _____ nucleotides with _____ nucleotides. _____ catalyses the formation of phosphodiester bonds between Okazaki fragments, hence producing a continuous _____ strand. The elongation of leading and lagging strands occurs from _____ to _____ direction. Finally, _____ identical copies of daughter DNA molecules are produced by semiconservative. Each daughter DNA molecule has one _____ or parental strand and one _____ strand.