

Answer of question 1:

1-(x) Transcription is the process involved in the RNA formation on the DNA template.

2-(x) In both prokaryotes and eukaryotes, replication proceeds in two directions from each origin.

3-(✓)

4-(x) DNA is a biomolecule that has a self-repair mechanism.

5-(x) Ligase is an enzyme used to join bits of DNA.

6-(✓)

7- (x) Eukaryotes differ from prokaryotes in the mechanism of DNA replication due to discontinuous rather than semidiscontinuous replication.

8-(✓)

9-(✓)

10-(x) If a wrong nucleotide is included, helicase uses its proofreading ability to cleave the phosphodiester bond of the improper nucleotide.

The answer of Second Question: Complete the following sentences:-

1-leading, lagging, Okazaki fragments

2-Semiconservative.

3-add nucleotide for DNA synthesis

4-RNA polymerase

5-TATCCA

6-3 nucleic acid bases, one amino acid

7-Helicase

8-Uracil, Ribose

9-nucleobase, sugar, phosphate group

10- Prevents torsion by DNA breaks.

The Answer of Third Question:

1-b, 2- a 3-d 4-c 5-a 6-d 7-c 8-d 9-c 10-d

The Answer of Question 4

a) bacterial chromosomes is Circular while eukaryotic chromosomes is linear

b)types of RNA: 1-mRNA or Messenger RNA: mRNA transcribes the genetic code from DNA into a form that can be read and used to make proteins. mRNA carries genetic information from the nucleus to the cytoplasm of a cell. 2- **2-rRNA or Ribosomal RNA:**rRNA is located in the cytoplasm of a cell, where ribosomes are found. rRNA directs the translation of mRNA into proteins.3- 3-tRNA or Transfer RNA All t-RNA contain 5 main arms or loops which are as follows-Acceptor arm,Anticodon arm,D HU arm,TΨ C arm,Extra arm.

c) Compare between structural and numerical aberration in chromosome.

Structural aberration: deletion, duplication, inversion, translocation.
Numerical: Down syndrome, Turner syndrome, Klinefelter syndrome