Chemistry Class 12 NCERT Solutions: Chapter 14 Biomolecules Part 6

Q: 23. The two strands in DNA are not identical but are complementary. Explain.

Answer:

In the helical structure of DNA, the two strands are held together by hydrogen bonds between specific pairs of bases. Cytosine forms hydrogen bond with guanine, while adenine forms hydrogen bond with thymine. As a result, the two strands are complementary to each other.

Q: 24. Write the important structural and functional differences between DNA and RNA.

Answer:

The structural differences between DNA and RNA are as follows:

DNA		RNA	
1.	The sugar moiety in DNA molecules is β-D-2 deoxyribose.	1.	The sugar moiety in RNA molecules is β-D-ribose.
2.	DNA contains uracil (U) . It does not contain thymine (T) .	2.	RNA contains thymine (T) . It does not contain uracil (U) .
3.	The helical structure of DNA is Double - stranded.	3.	The helical structure of RNA is Single - stranded.

Q_24_1_Table of Structural Difference of DNA and RNA

The functional differences between DNA and RNA are as follows:

DNA		RNA	
1.	DNA is the chemical basis of heredity.	1.	RNA is not responsible for heredity.
2.	Proteins are synthesised by RNA molecules in the cells.	2.	DNA molecules do not synthesise proteins, but transfer coded message for the synthesis of proteins in the cells.

Q_24_2_Table of Functional Difference of DNA and RNA

Q: 25. What are the different types of RNA found in the cell?

Answer:

(i) Messenger RNA (m-RNA)

(ii) Ribosomal RNA (r-RNA)

(iii) Transfer RNA (t-RNA)

There are 3 types of RNA:

- Messenger RNA (mRNA)
- Ribosomal RNA (rRNA)
- Transfer RNA (tRNA)

Comparison of Three Types of RNA

Name	mRNA	rRNA	tRNA
Function	Carries genetic information from DNA in the nucleus to direct protein synthesis in the cytoplasm	Associates with protein to form the ribosome	Transports amino acids to the ribosome
Example