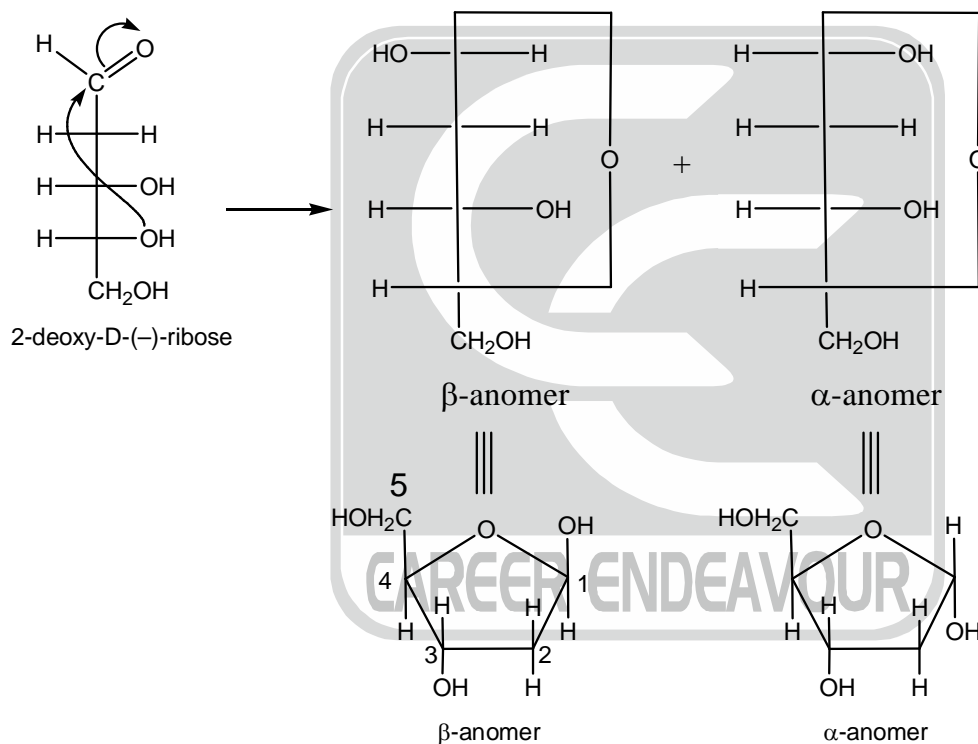
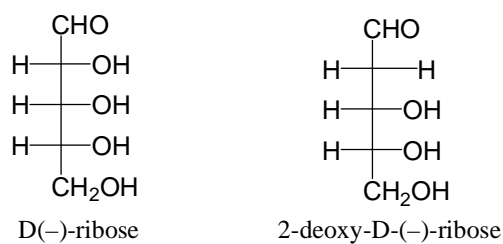


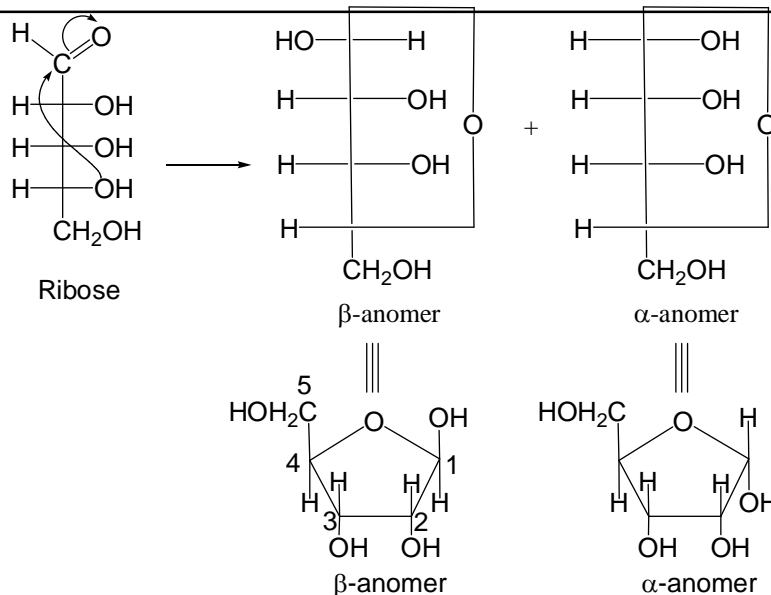
2. Deoxy Ribose:



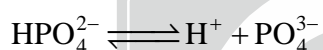
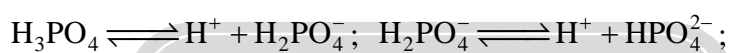
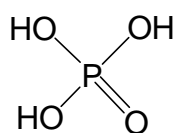
Remark: In nucleic acid sugars are in β -anomeric, furanose form and it is hemiacetal.

3. Sugars: The sugar present in the nucleic acids are pentoses: D(-)-ribose and 2-deoxy-D-(-)-ribose.

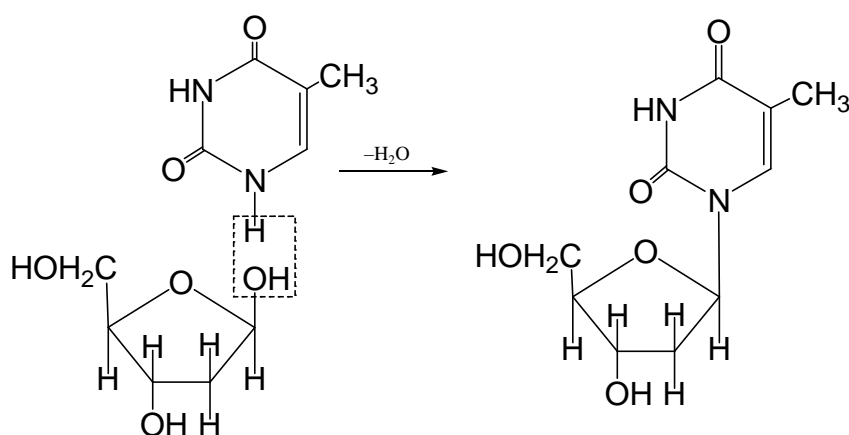
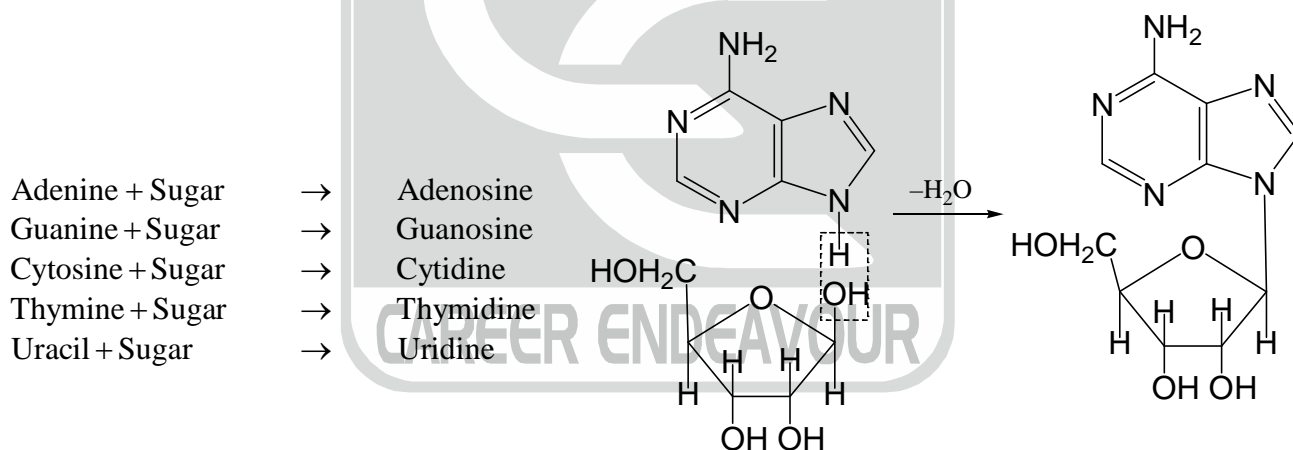




4. Phosphate Group :

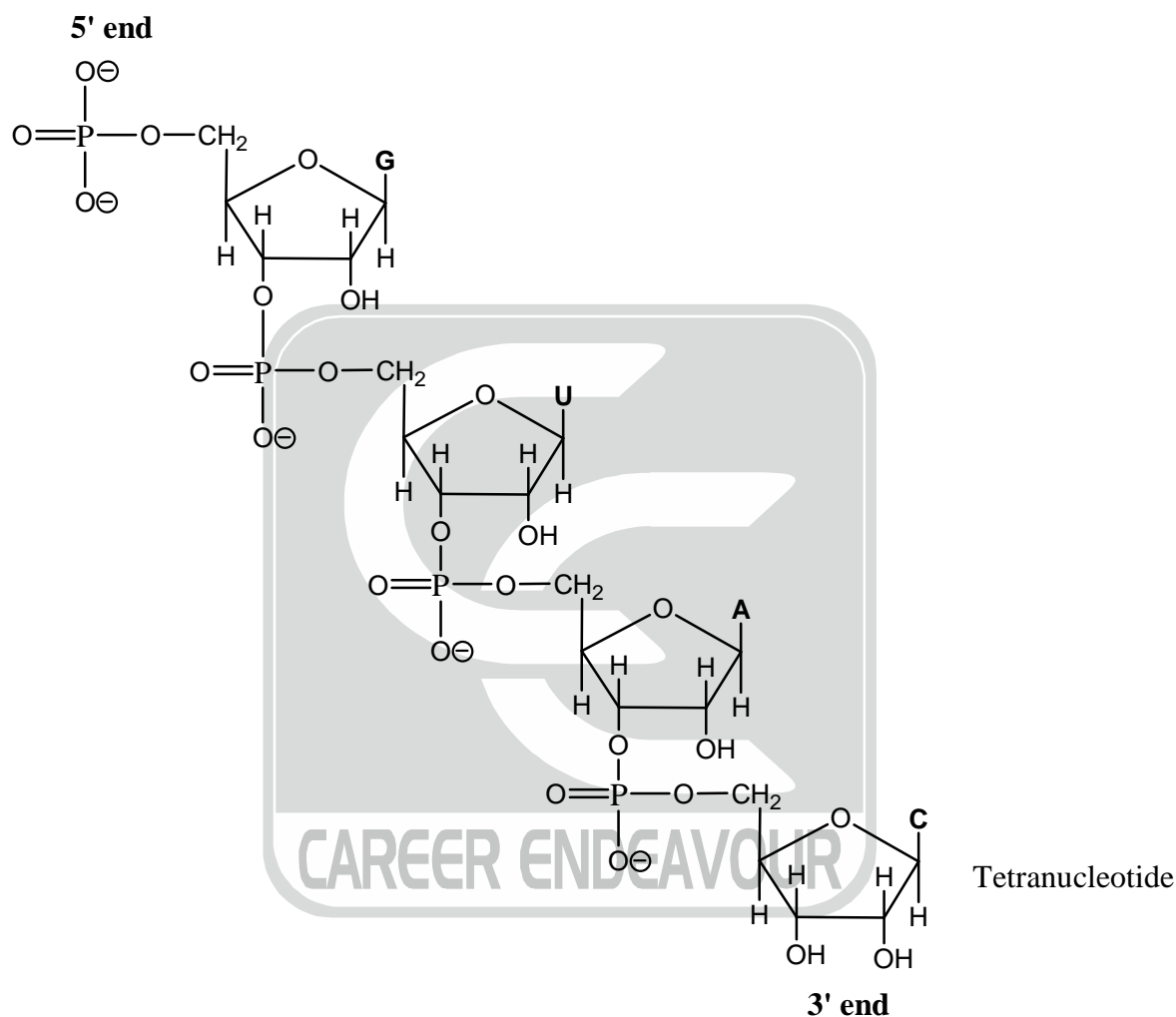


Nucleoside: The combination of a base (either a purine or pyrimidine with a sugar (ribose or deoxyribose)) are called nucleosides. For example



Ribonucleic Acids(RNA):

- RNA is a polymer of ribonucleotides.
- The individual ribonucleotides are linked together by phosphodiester bonds.
- The attachment of the phosphate is at the 3'-position in the ribose molecules.
- The common bases in RNAs are adenine, guanine, uracil and cytosine.
- According to the source of nucleic acid there are three types of nucleic acid: Ribosomal RNA (r-RNA), Transfer RNA(t-RNA) and Messenger RNA (m-RNA).

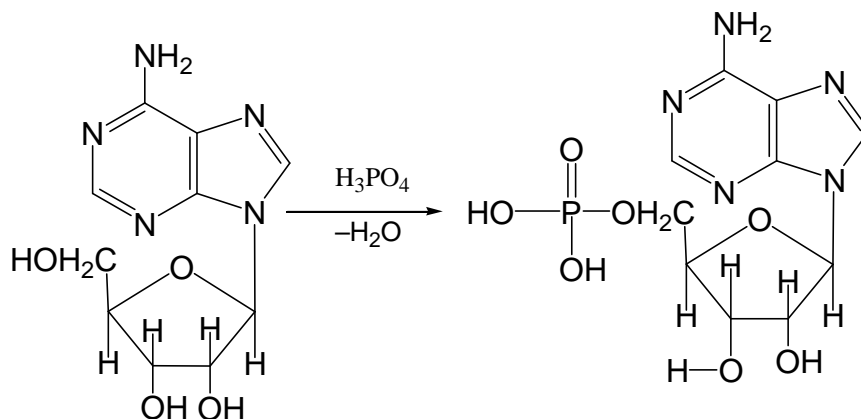
Primary Structure of RNA:

The secondary structure of RNA has been investigated and it appears that RNAs exist as a single strands which contain helical segments established by hydrogen bond.

Nucleotide:

Nucleotides are the combination of a nucleoside and phosphoric acid i.e. nucleotides are nucleosides phosphate. For example

Adenosine	+	phosphate	→	Adenylic acids
Guanosine	+	phosphate	→	Guanylic acids
Cytidine	+	phosphate	→	Cytidylic acids
Uridine	+	phosphate	→	Uridylic acids

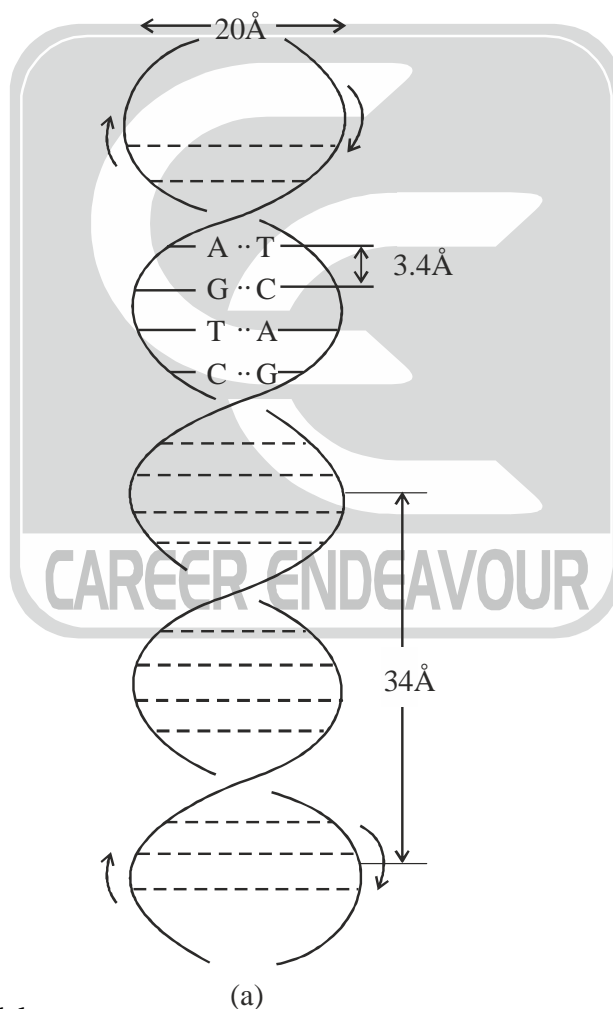


On the basis of sugar present in the nucleic acid, it can be classified into two parts: Ribonucleic acids (RNA) and the deoxyribonucleic acid (DNA).

Deoxyribonucleic acid:

- DNA are polymers of the deoxyribonucleotides and hydrolysis by certain enzymes result in a mixture of monomers.
- The common bases DNAs are Adenine(A), Guanine (G), Thymine (T) and Cytosine (C).

Secondary Structure of DNA: (Double helix model by Watson & Crick):



- Two strands are antiparallel.
- The X-ray studies have shown that the pairs are planar and that the hydrogen bonds are almost collinear, their lengths lying between 2.8 and 2.9 Å.
- Each turn of the helix contains ten nucleotide pairs and the diameter of the helix is about 20 Å.
- The spacing between adjacent pair is 3.4 Å.

Base pairing in DNA.

Adenine always paired with thymine by double H-bonds.