Quick Review of DNA, mRNA and Protein synthesis(from Bac.I)

➢ Chemical composition of DNA (Deoxyribonucleic acid):

- DNA is a double stranded molecule of complementary nucleotide sequence.
- **Nucleotide** is the building chemical unit of DNA molecule, composed of 3 binding chemical elements:

  1.**Phosphoric acid (P)**

  2.**Deoxyribose sugar (S)** $C_5H_{10}O_4$

  3.**Nitrogenous base** is one of 4 bases: - Adenine (A)
  - Guanine (G)
  - Cytosine (C)
  - Thymine (T)

  These bases are binding 2 by 2 in DNA molecule where **A** binds with **T** and **G** binds with **C.**

  Every genetic codon is composed of triplet of nucleotides and code for a specific amino acid.

  The size of a segment of DNA is by the number of base pairs(bp).

➢ RNA (Ribonucleic acid): single stranded molecule composed of sequence of nucleotides.

mRNA

A nucleotide of RNA: is composed of 3 chemical elements:

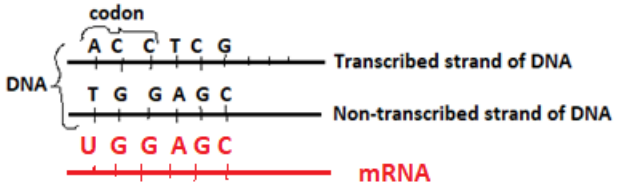
1. Phosphoric acid (P)
2. Ribose sugar (S) $C_5H_{10)}O_5$
3. Nitrogenous base which is one of the 4 nitrogenous bases:- Adenine (A)
   - Guanine (G)
   - Cytosine(C)
   - Uracil (U)

Kinds of RNA: 1. Ribosomal RNA: rRNA
2. Messenger RNA :mRNA
3. Transfer RNA :tRNA

➢ Protein Synthesis: passes into 2 steps :

1. Transcription : It occurs in the nucleus .It is the synthesis of mRNA which is complementary to the transcribed strand of DNA and is the same as the non- transcribed strand but instead of T there is U.

   Example:



2. Translation: occurs in the cytoplasm. It is the transformation of language of mRNA into a language of amino acids by means of tRNA.