

Unit -5

Nucleic Acids

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Nucleic Acids (DNA and RNA)

* Definition →

- Nucleic acids polymers of C & H



DNA (Deoxyribonucleic acid)
RNA (Ribonucleic acid)

* Types →

- Carbon • Hydrogen

* Elemental composition -

Biochemistry || D Pharm 2nd Year

Unit - 5

Nucleic Acids (DNA and RNA)

* Definition →

- Nucleic acids polymers हैं।
Nucleotide of polymerization हैं।
अकार्बनिक हैं।
- RNA call of nuclei में located हैं।
- RNA genetic information को carry करत हैं।

* Types →

- 1) DNA (Deoxyribonucleic acid)
- 2) RNA (Ribonucleic acid)

* Elemental composition -

- Carbon
- Hydrogen
- Oxygen
- Nitrogen
- Phosphorus.

* composition of Nucleotides →

- Nucleotides are composed of -

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- Nitrogenous bases.
 - Pentose sugar
 - Phosphate.
- * Nitrogenous bases →
- Nucleic acid में Nitrogenous bases heterocyclic compounds of form में और 5 में 3-member ring में nitrogen and carbon contain और हैं।
 - में two types में divided और हैं।

1) Purines.

2) Pyrimidines.

1) Purines — (यूरिक)

• में two carbon nitrogen ring contain और 6 में 5-member and other 5 member ring और हैं।

example →

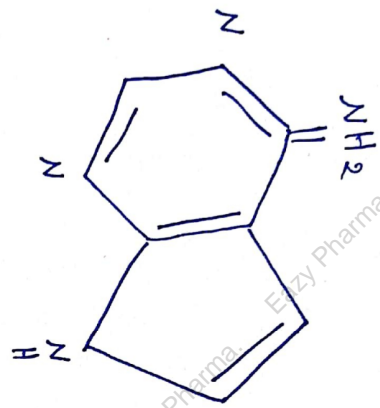
- Adenine.
- Guanine.

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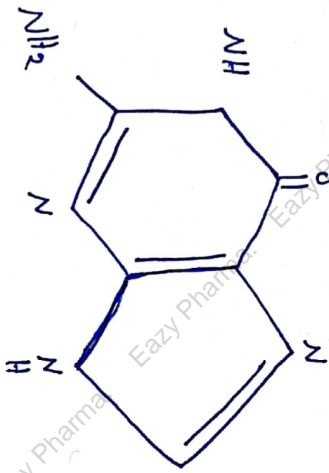
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Adenine

(6 - amino purine)



Guanine

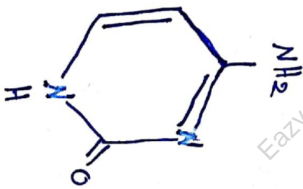
(2 Amino - 6 - oxy purine)

2) Pyrimidines - (पाइरीमिडिन) -

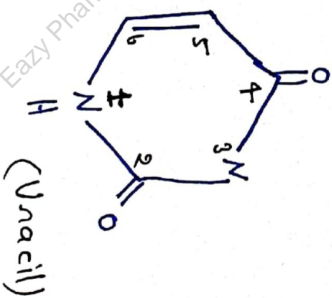
- 6 membered carbon - nitrogen ring
- 1st position and 3rd position Nitrogen (N) होता है।

• Examples -

- cytosine
- Uracil
- thymine



(Cytosine)



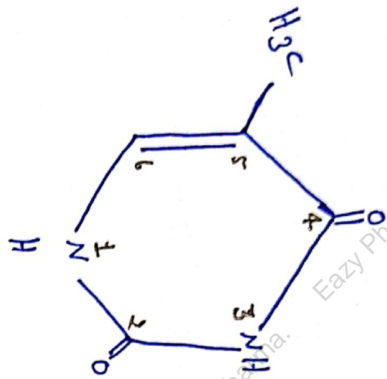
(Uracil)

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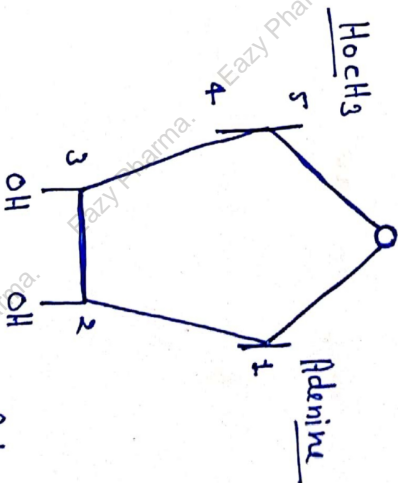
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Thymine

* Components of Nucleosides
and Nucleotides with example -

1) Nucleosides →
• Nucleosides, Nitrogenous base
and a Pentose sugar only



Adenosine

Combination है है

• Nature है basic है है

• eg -

- Adenosine
- Uridine
- Inanosine
- Thymidine

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2) Nucleotides →

• Nucleotides. Nitroge base and

a Pentose sugar and phosphate

or combination of

• Nature of acidic ester

• eg → → AMP. (Adenosine monophosphate)

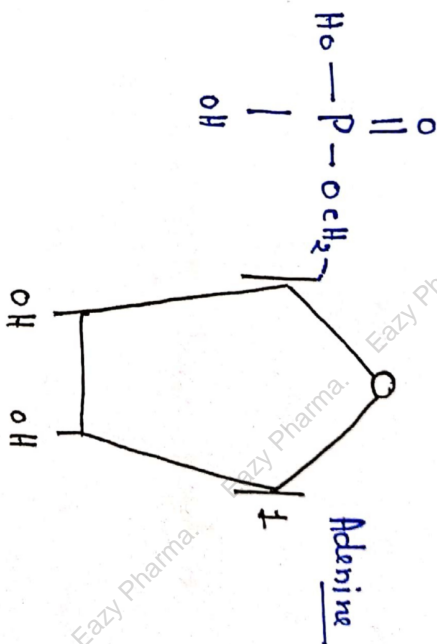
→ dUMP. (Deoxyguanylic acid)

→ cMP.

→ UMP.

→ dTMP.

(AMP Adenosine Monophosphate)



* Structure of DNA

(By Watson and Crick model)

Pic -

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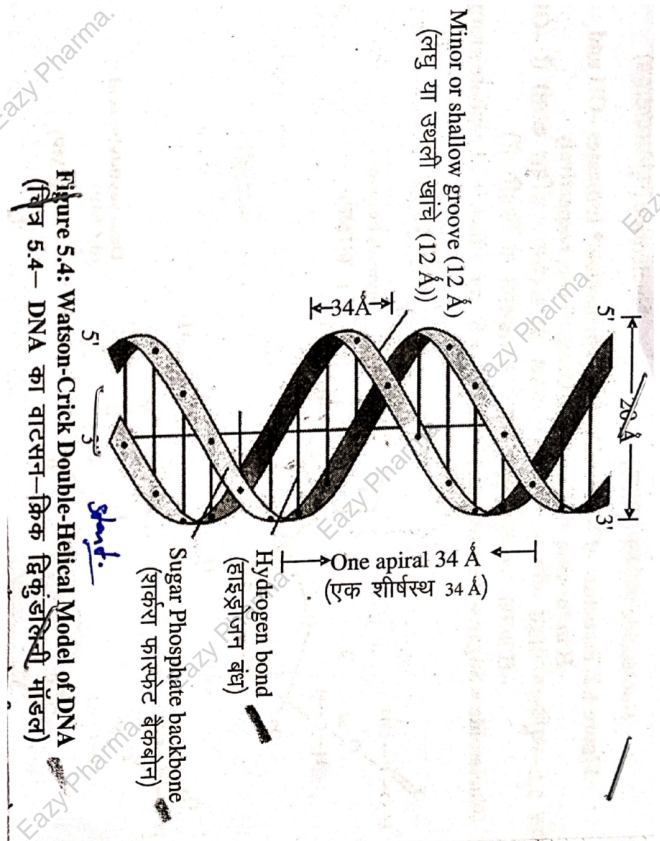


Figure 5.4: Watson-Crick Double-Helical Model of DNA (चित्र 5.4—DNA का वाटरसन-क्रिक द्विकुञ्जित मॉडल)

* function of DNA →

1) Genetic Information →

- living beings में DNA को genetic materials को सुरक्षित रखने और संवेदन के लिए

2) Transcription →

- जब RNA, DNA से formed होकर दिए transcription करता है

3) DNA fingerprinting →

- ये suspected person की identity को determine करने में help करता है।
etc.....

* Structure of DNA →

- DNA, monomeric units से

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Phosphor आग एकर है।
Nucleotides and है।

- Monomeric units like -

→ Deoxyadenylate. (dAMP)

→ Deoxyguanylate. (dGMP)

→ Deoxycytidylate. (dCMP)

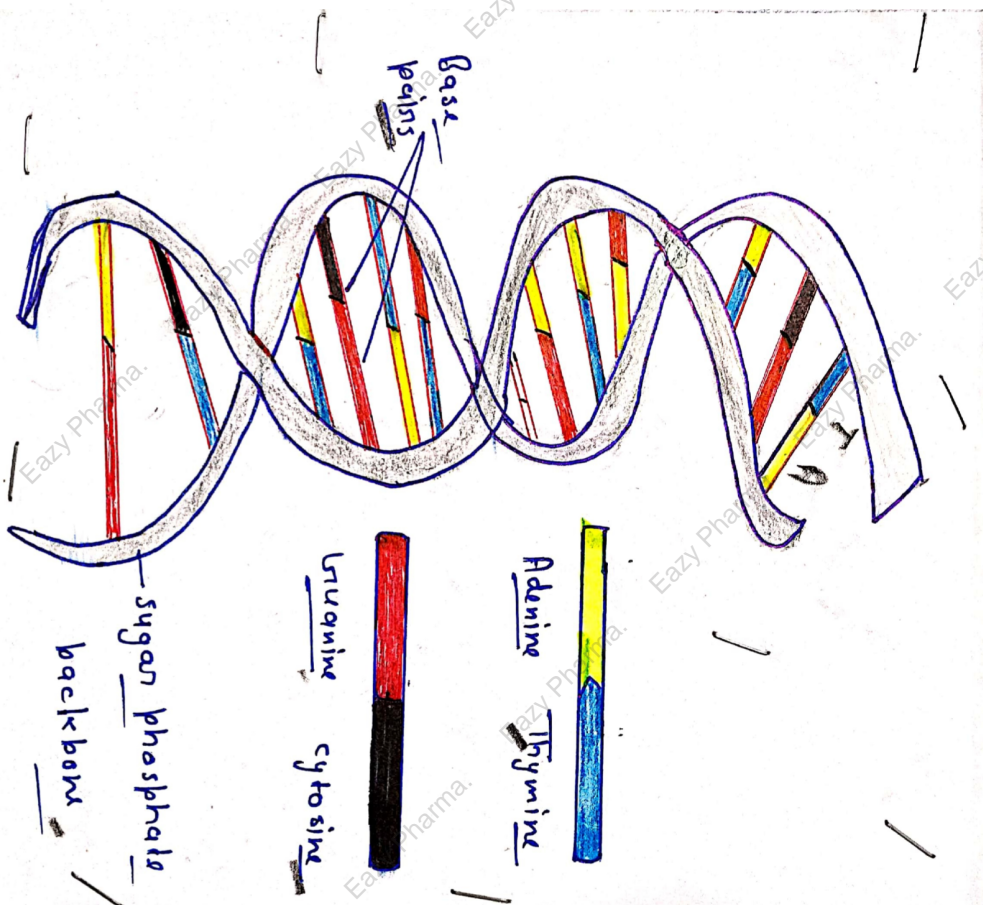
→ Deoxythymidylate. (dTMP)

- Monomeric units, 3' s' phosphodiester

bond एकर एकर एकर है।

एकर bonds as a backbone

एकर दकर एकर है।



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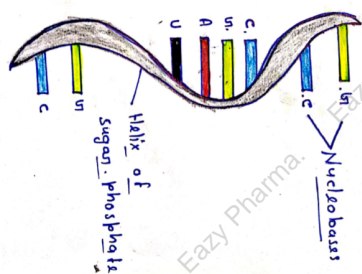
*** RNA (Ribonucleic Acid) -**

- RNA is polyribonucleotide
- RNA calls if DNA if to times larger amount is present
- Because RNA is large number of cellular functions performs
- Nucleotides RNA is found in -
 - AMP
 - GMP
 - CMP
 - UMP

*** structure of RNA →**

* structure of RNA →

• UMP



RNA
Ribonucleic Acid

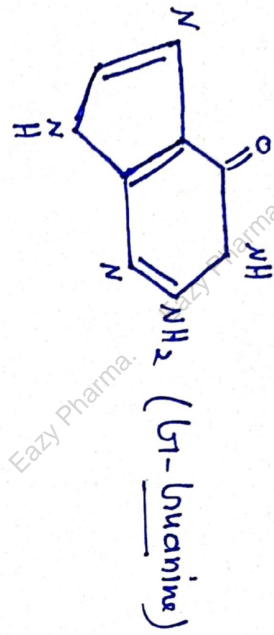
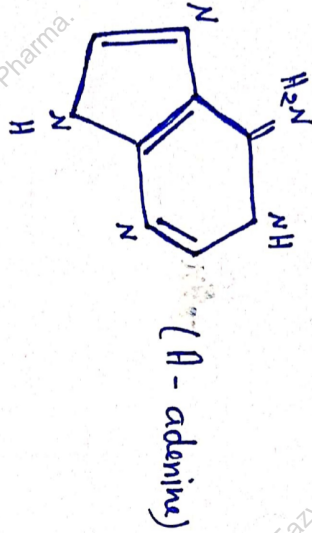
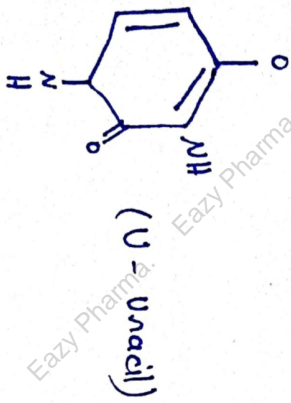


(C-cytosine)

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* function of RNA →



1) m-RNA →

- if DNA if genetic message - gas help help
- if protein synthesis if help help
- etc.....

2) r-RNA →

- Protein synthesis if help help
- etc.....

3) t-RNA →

- t-RNA specific amino acid

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Thank you 😊

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(complete)

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THANK YOU.

By Dr Firoz khan

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