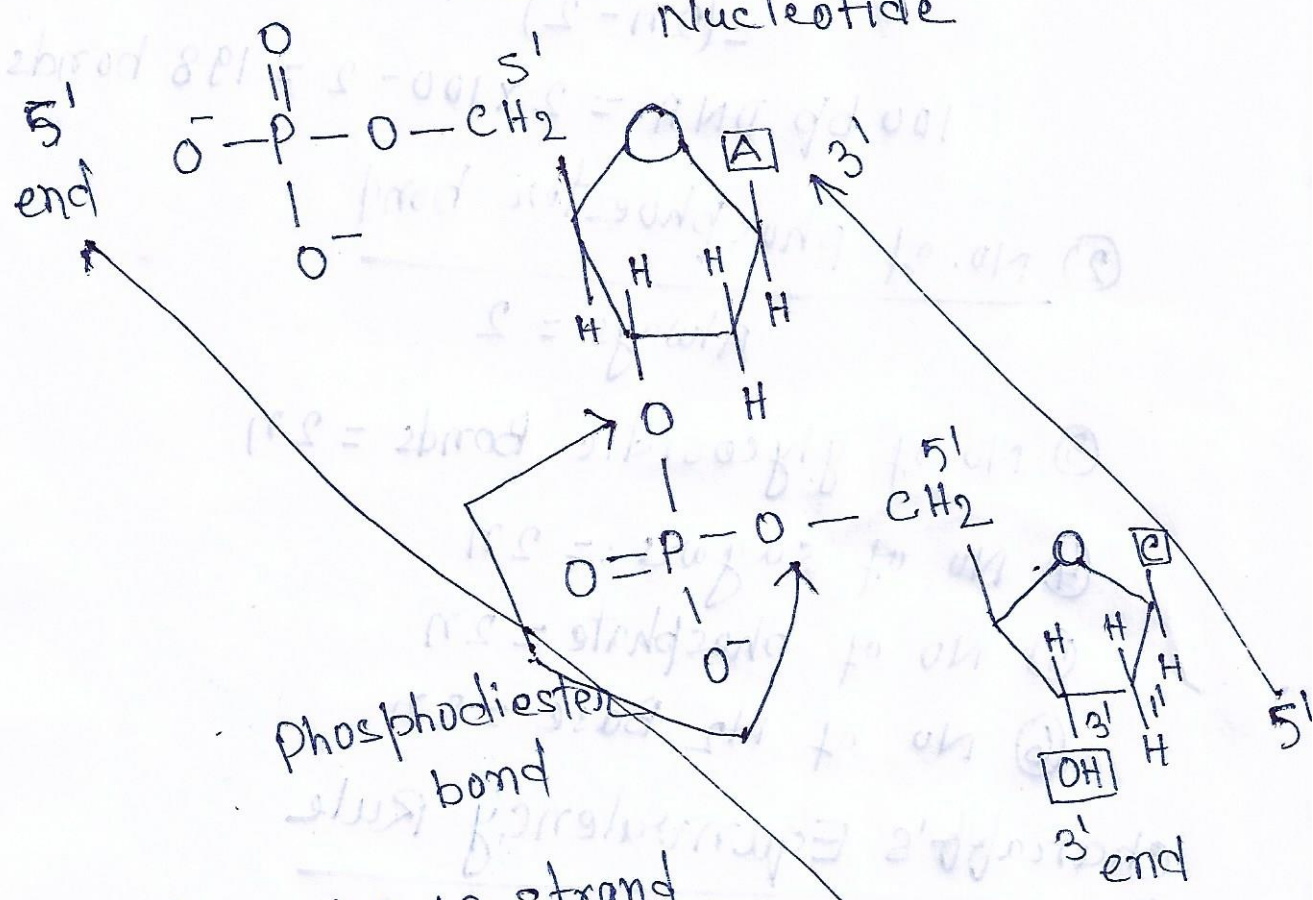
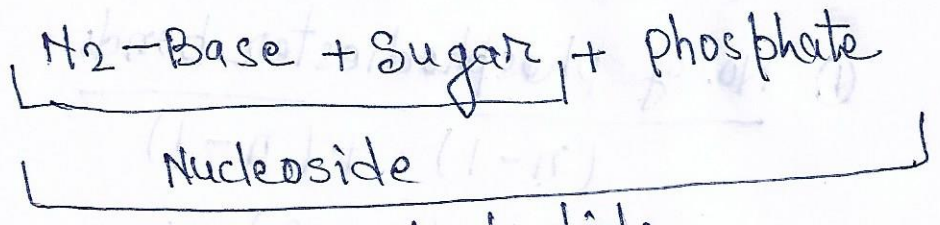


Dr. Mahesh Prasad Yadav
Dept. of Zoology
Class - XII
Subject - Biology

DATE 20.07.2020

GENETICS

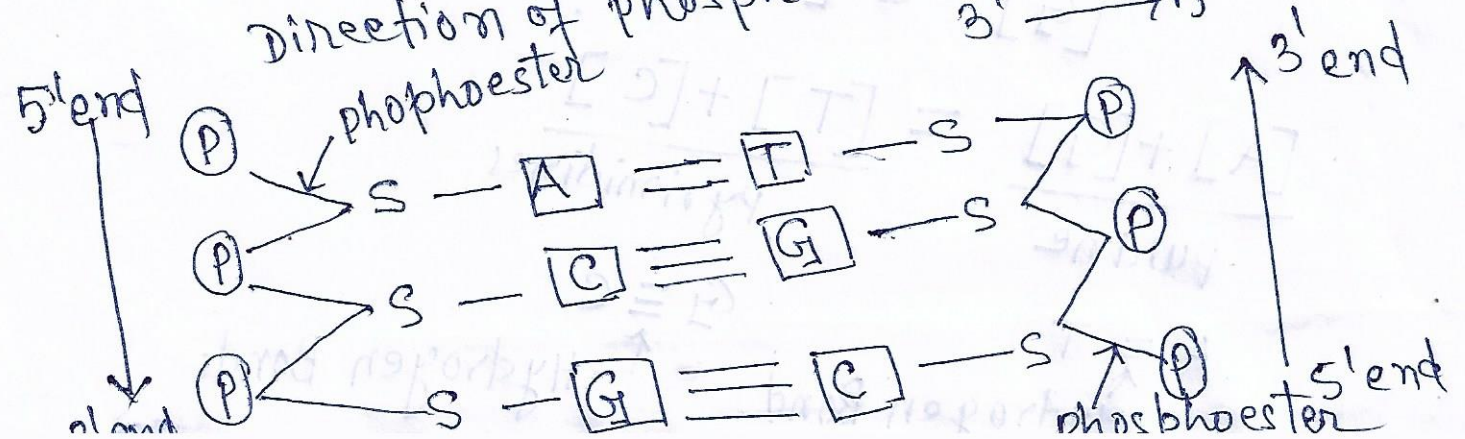
Topic → Molecular Basis of Inheritance



Direction of DNA strand

5' → 3'

Direction of phosphodiester bond ;
3' → 5'



Molecular basis of Inheritance

3 base pair long
Double strand DNA

(n=3)

① No. of phosphodiester bonds

$$(n-1) + (n-1)$$

$$= (2n-2)$$

$$100 \text{ bp DNA} = 2 \times 100 - 2 = 198 \text{ bonds}$$

② No. of phosphoester bond

Always = 2

③ No of glycosidic Bonds = 2n

④ No of sugars = 2n

⑤ No of phosphate = 2n

⑥ No of N₂ Base = 2n

Charabtt's Equivalency Rule

$$[A] = [T]$$

$$[G] = [C]$$

$$\frac{[A] + [G]}{\text{Purine}} = \frac{[T] + [C]}{\text{Pyrimidines}}$$



↑
Hydrogen Bond



↑
Hydrogen Bonds

DNA - Term was given by Zacharias

- Negatively charged

- Double strand

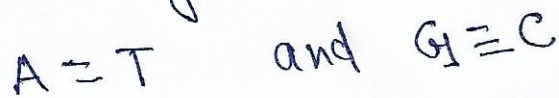
- structure of DNA was studied by x-ray crystallography, done by Wilkins & Franklin

- Watson and Crick proposed Double Helix

Structure of DNA

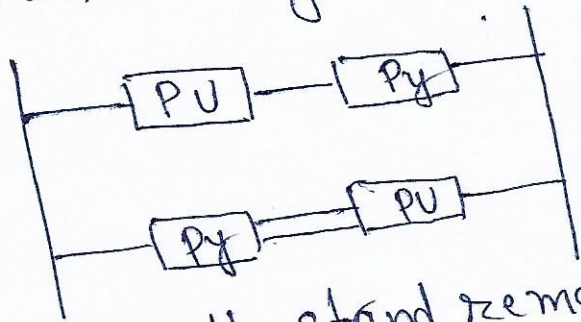
Feature of DNA

- Complementary base pairing rule



- Antiparallel strand

- A purine always base pair with pyrimidine



- That is why both strands remain parallel/equidistant

- Hydrogen bonds between N₂-Bases provide stability to the double helix

- plan of one base pair stacks over the other, this provides additional stability to double helix