

Section - 'A'

Q1

In starting Mendel experimented on insects, birds & animals. But Mendel was a cluzymen. So he was restricted to the social people.

And then Mendel started his experiments on plants. Mendel selected the Pisum sativum for his experiment. He gave the 3 types of observations by his experiments.

2

Q-2. Genetic Code is the 3 Nitrogens
base Code of m-RNA
→ Each Code is responsible
for a specific coding of
Nitrogenous base.

→ for ex → AUG Code for
methionine.

→ Genetic Code is 2 types =:

1) Initiation Codon

2) Termination Codon / amino acid code

Initiation Codon

are responsible for starting protein chain. Initiation Codon

→ AUG & GUG Code for methionine.

→ it is also called Silent mutation.

Termination Codon

are the codon which know amino acid assigned. So when they come in m-RNA code for amino

acid Sequence.

→ This are called Non-Sense Codon b/c there is no Sense Codon

- 1) U A A
 - 2) U A G
 - 3) U G A
- are the non-Sense Codon.

Q-3

Gene bank

Gene bank is the Sequence Database. In Sequence database Collect the DNA & RNA Sequence. Sequence Database is the Biological Database that Collect Nucleotide Sequence, Protein Sequence, & Polymer Sequence.

→ Gene bank are connect with the EMBL.

→ European Molecular Biological
Laboratory has the Collect cell
the Data with the help of
Gene Bank, DNA Data Bank
of Japan.

→ Gene bank help in new
researches.

→ By the Gene bank we know
Sequence of any DNA & ~~RNA~~
RNA

Q-9 PCR → Polymerised chain Reaction.

- The PCR is a technique that is used to making millions of copy of DNA fragments.
- The first PCR was developed by Kary mullis.
- The PCR is used in molecular Biology.

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→ PCR is a tool used in laboratory & experiments.

→ its function on the 3 stages.

1) Denaturation

2) Annealing

3) Polymerised.

→ In some hours this PCR process complete.

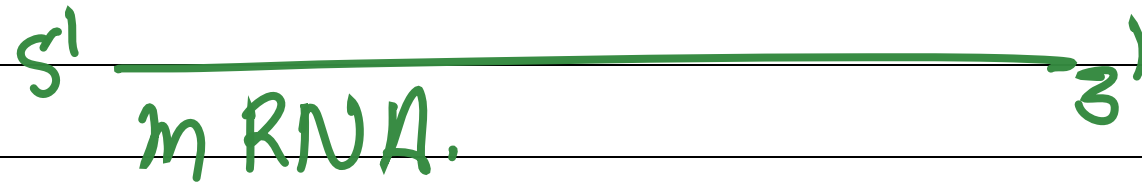
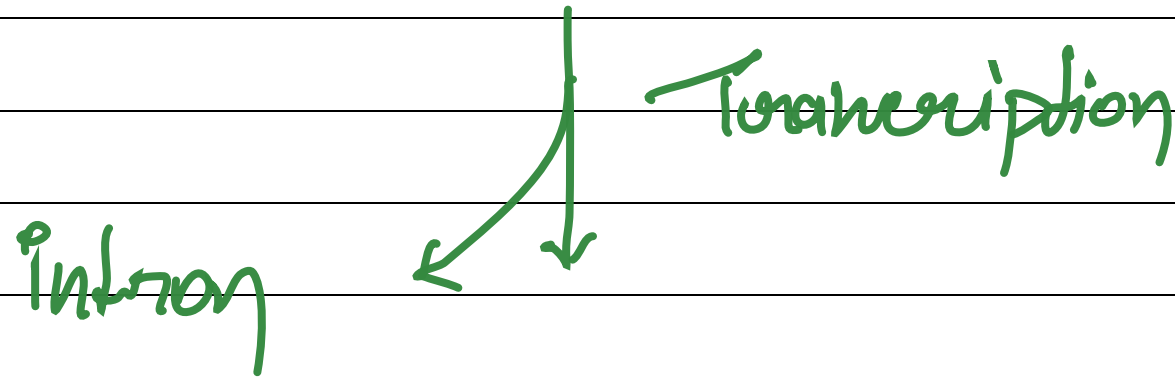
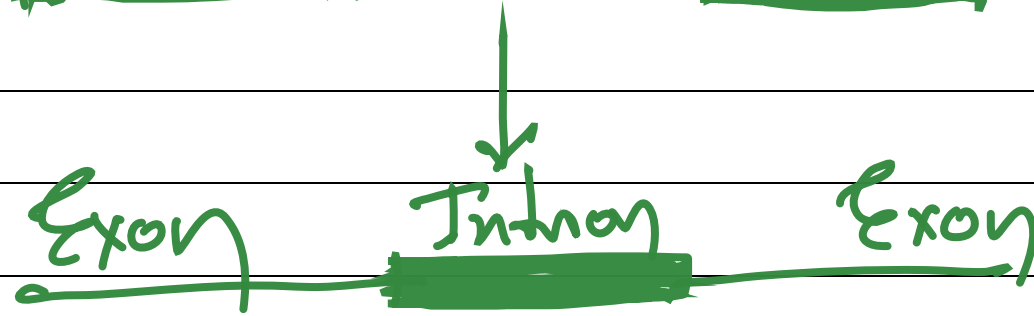
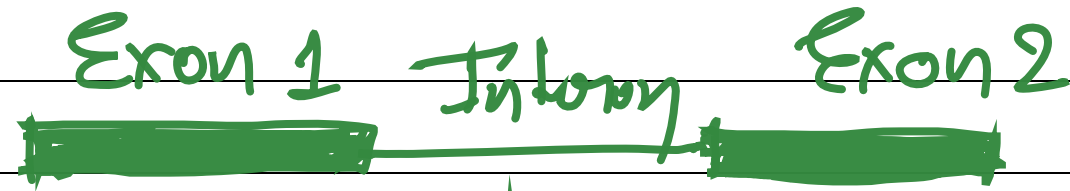
Q-5

Split Gene

A gene with interrupted sequence of nucleotide in the split gene.

→ In other words, interrupted sequence does not interrupt of any sequences.

→ it contains by the intron & exon.



Split Gene

Section 'B'

Q1

Polytene chromosome

Polytene

chromosome found in the Salivary gland.

→ It is also occurred in Nervous System of mammals.

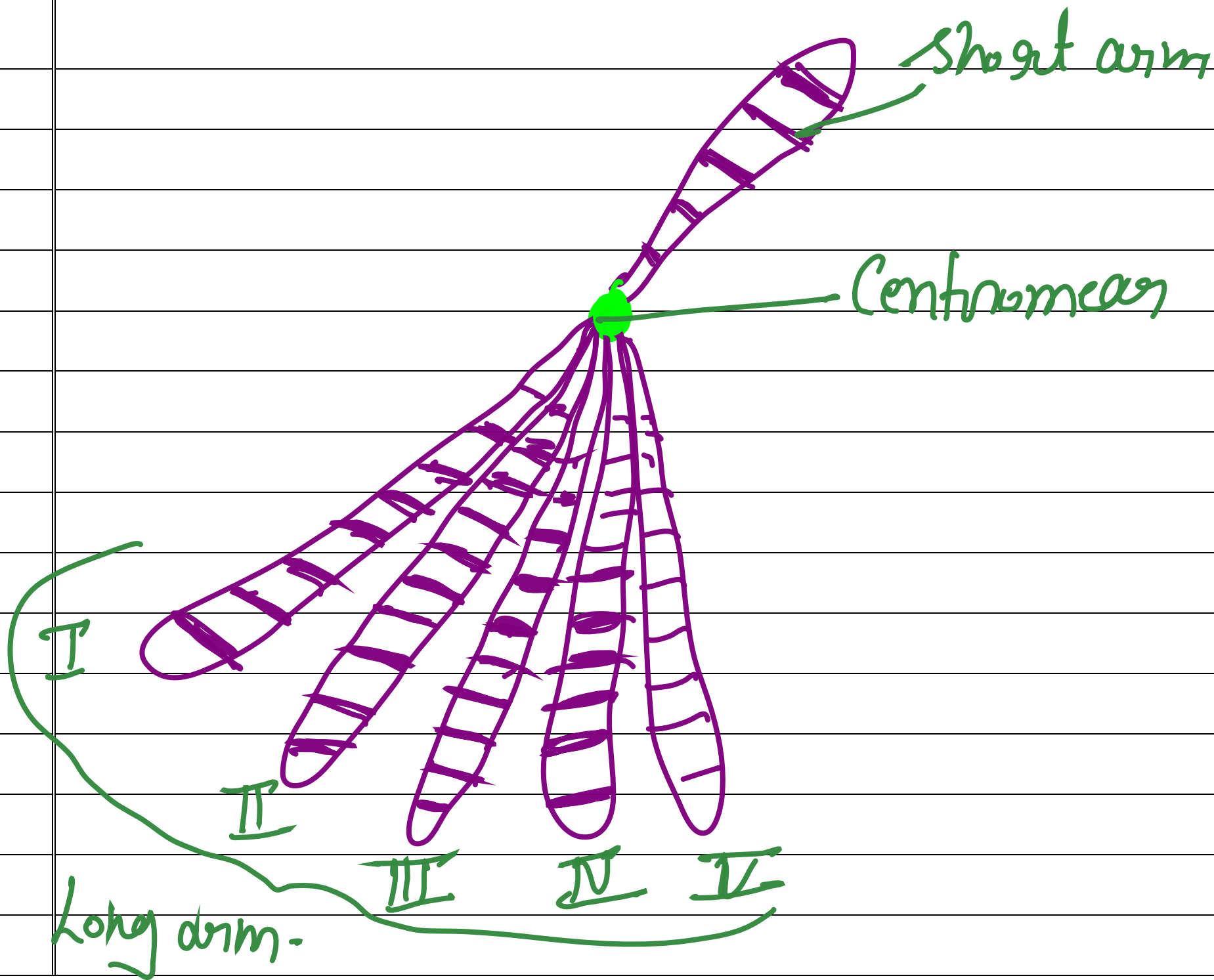
→ Polytene chromosome are smaller than the lampbrush chromosome.

→ Polytene chromosome composed with the many arms.

→ its have 5 long arm & 1 short arm.

→ This arm are attached by the centromere

→ Polytene chromosome are smaller size. This arm attached by centromere in form of clusters.



→ it is also called G R chromosome.

→ Such as the Salivary gland in the salivation of mammals. it is found in it help

→ it also help in the nervous system.

Section 'C'

Q-9. Mendelian Principle →

a clumsy men. but Mendel was
experiments on insect, moth &
other small animals. but he
restricted by the social people.

→ After that he started experiments
on the plants.

→ Mendel selected the plant
is pisum sativum.

→ He select the pea plant
b/c In this plant charac-
teristics are found -

→ In this plant cross fertilization
occured.

→ So that is the biggest reason
for selection of pea plant b/c
in this self fertilization &
cross fertilization Occured.

→ Mendel give 3 Principle.

- 1) Law of Dominance.
- 2) Law of Segregation / purity of gametes.
- 3) Law of independent Assortment.

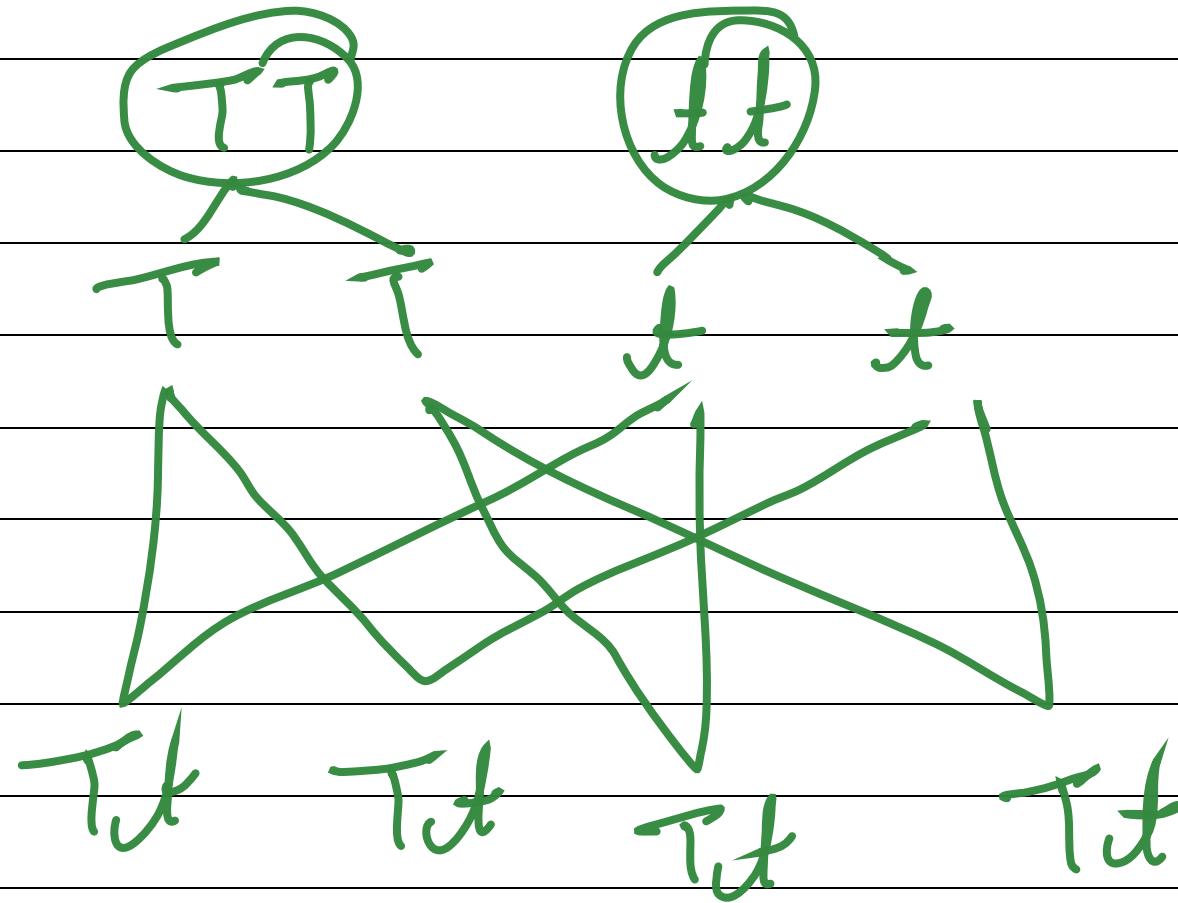
→ He give the 3 Most important principle by his experiments.

Law of Dominance

→ In this Law

if we make a crossed between two pure form of characters then only one character appeared in F_1 Generation.

→ So which character appears in F_1 Generation are called Dominant & which character are not appeared in F_1 Generation is called recessive.



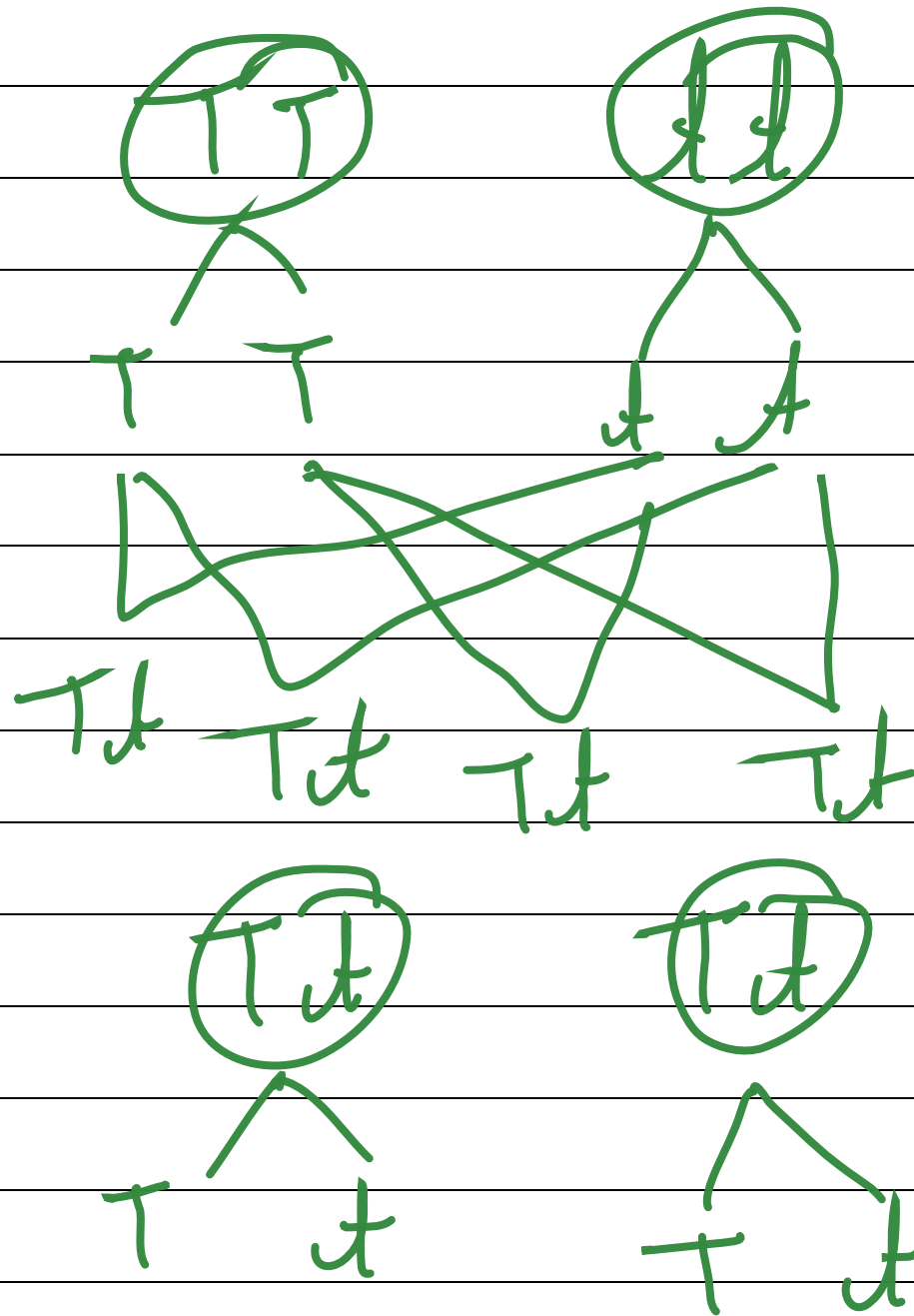
F₁
Generation

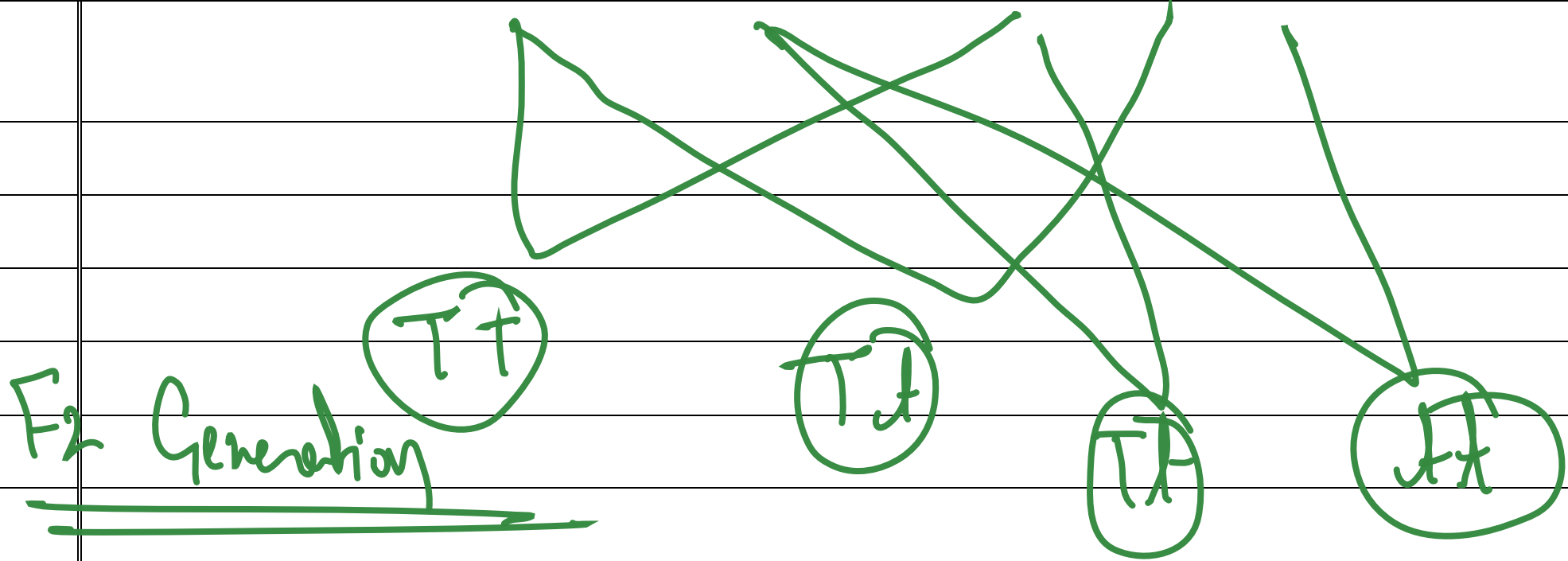
Law of Dominance

2. Law of Segregation → it is also called Purity of gametes.

In this law, which character did not appear in F_1 Generation, its reappears in F_2 Generation. b/c gametes are pure haploid. they are not finished but they are reappears in F_2 Generation.

F₁ Generation





Law of Independent Assortment

One inherited character is not affected by the other inherited character. This are found in 9:3:3:1 ratio.

⇒ Mendel Selected Only Seven characters for his experiments.

characters	Dominant	Recessive.
① Height	Tall	Dwarf
② Pod Colour	Green	Yellow
③ Pod shape	Smooth	Recessive
④ Seed Colour	Yellow	Green.
⑤ Seed shape	Smooth	Wrinkled

⑥	Colour of flowers	Red	white
⑦	Place of flower.	axial	Terminal

→ Mendel was successful in his experiment b/c they focused on Mechanism. does not focus on quality.

→ Mendel was a Mathematician so he give statistical grow data.

→ Mendel read only one character at a time.

Q.10

Numerical alteration of chromosomes

← Summary

↳ chromosomal aberration

(i) Numerical aberration

(ii) Structural aberration

Numerical aberration

↳ 1) Aneuploidy

↳ 2) Euploidy

Aneuploidy → Monoploidy

Diploidy

Poly ploidy

Euploidy → Nullisomy

Disomy

Trisomy

Tetrasomy

Chromosomal aberration → Chromosomal
aberration are due to the
changes in the chromosome
Number.

→ Chromosomal aberration are due
to changes in attachment
of chromosome.

⇒ Chromosomal aberration are
occurred when cell Division
are found.

→ In meiotic & mitotic stages chromosomal aberrations occurred. In this stage chromosomes are synthesized. So one or more chromosomes are found less numbers of chromosomes.

Numerical aberration → Numerical aberration occurred due to addition or loss of chromosomes. Numerical aberration occurred due to addition or loss of chromosomes.

Numerical alternation is the
3 types: \rightarrow

1) Monoploidy \rightarrow

only one set of chromosome occurred. In this stage this are denoted by the (x)

2) Diploidy \rightarrow


In Diploidy 2 pair of chromosome appeared. So it is called Diploidy. $(2x)$

3) Polyploidy →

In this stage
numbers of chromosome
are more than
2 of parent.
($2x$, $3x$, $4x$, $5x$)

Numbers of chromosome
are more than two.

Aneuploidy



Abnormality
chromosome.

Aneuploidy is the
the number of

