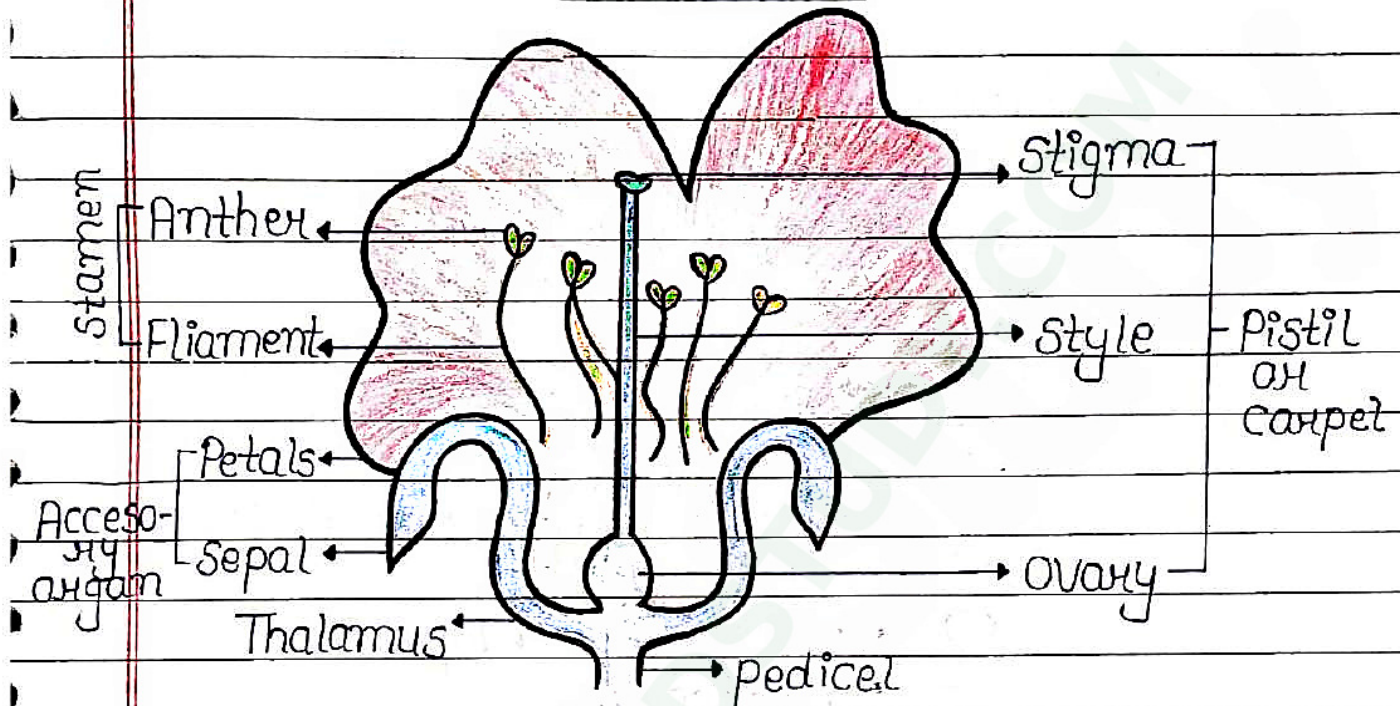


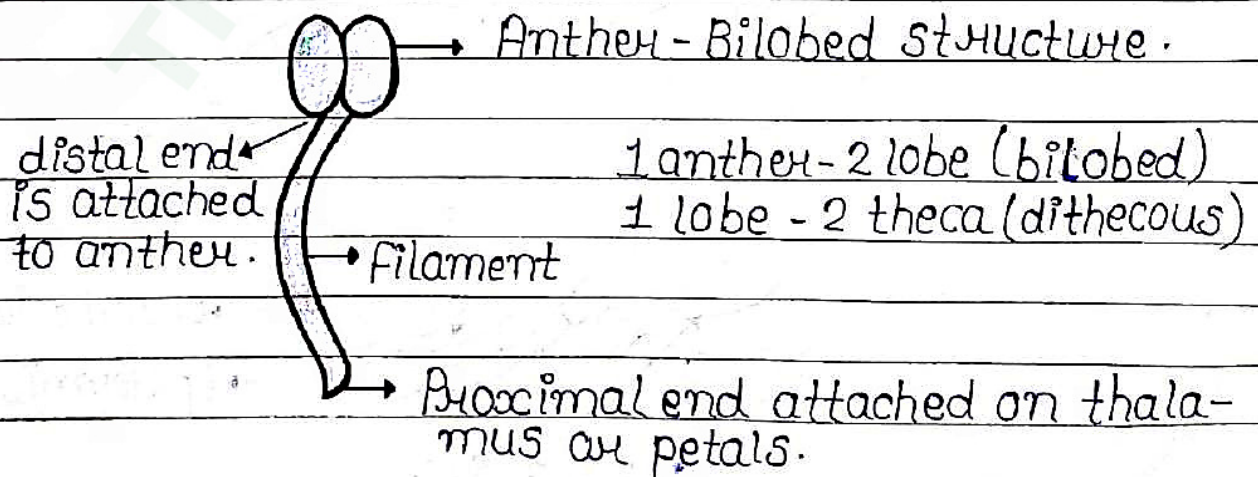
Sexual Reproduction in flowering Plants



In angiosperms the main plant body is sporophyte.

Structure of stamen :-

Stamen is consist of - the long and slender filament and bilobed Anther.



▶ Epidermis, Endothecium and middle layer provide protection, dehiscence to release pollen grains.

▶ Tapetum is binucleated (multinucleated) and have dense cytoplasm.

→ Provide nourishment to developing pollen.

→ Produce Exine.

→ Produce Pollen kit.

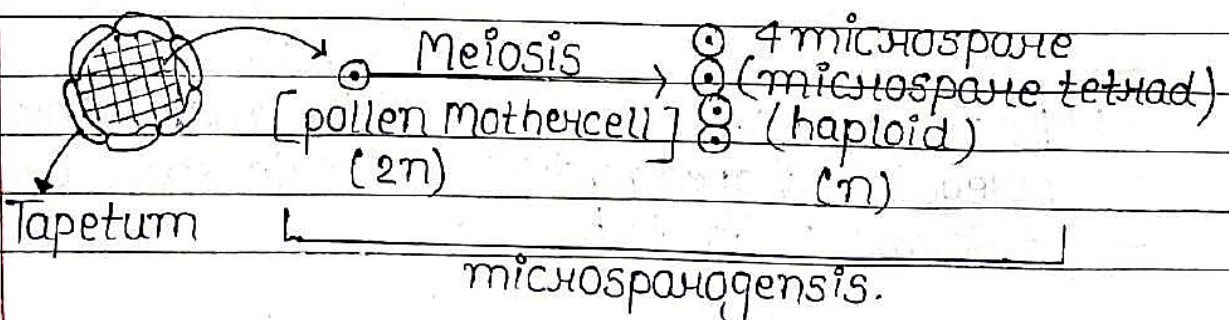
▶ Endothecium have main role in dehiscence:

Microsporogenesis :-

▶ The whole sac of a microsporangium is filled with sporogenous tissue, also known microsporangocytes.

▶ Each sporogenous tissue's cells is act as pollen Mother cell.

▶ Pollen Mother cell undergo Meiosis and produce 4 microspore which is microspore tetrad (haploid).



Male Reproductive System :-

Male Reproductive System is present in pelvis region.

Primary sex organ



Testis mixed gland

1) Produce gamete
'sperm'

2) Produce sex hormone
'Testosterone'

Secondary sex organ



1. Accessory duct -

Rete Testis, Vasa efferentia

Epididymis & Vas deference

2. Accessory Gland -

Seminal vesicles, Prostate

gland, Bulbourethral

(Cowper's gland).

3. External Genitalia -

- Penis (Male copulatory organ)
- Scrotum.

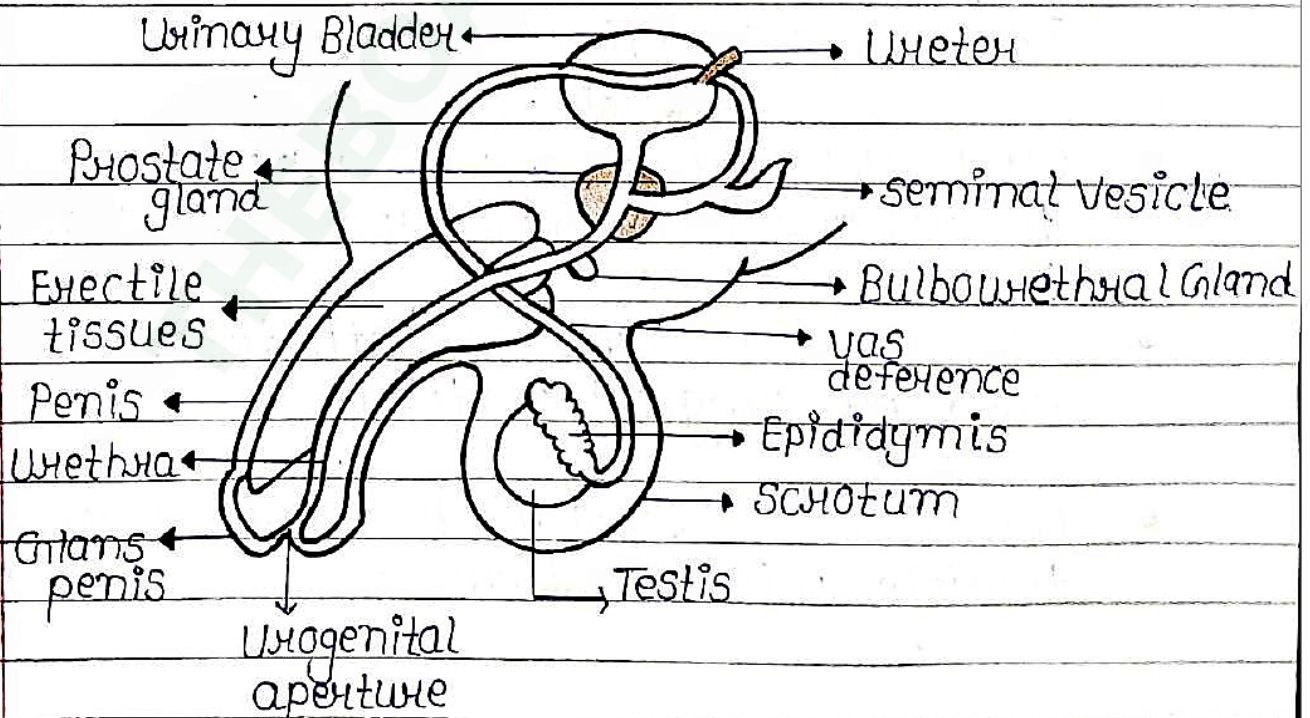
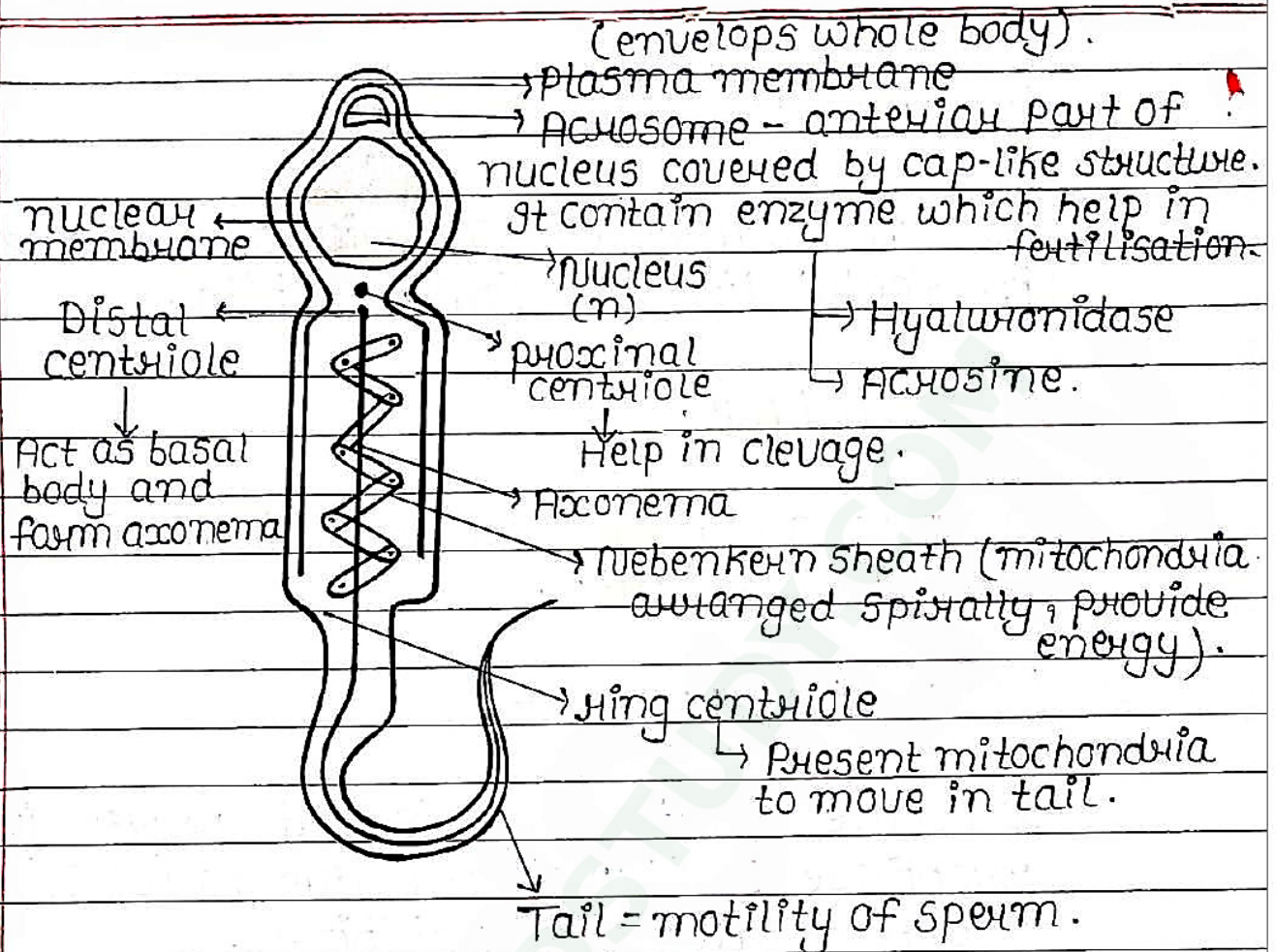


Figure: Male Reproductive system.



→ Histone protein replaced by protamine protein in sperm nucleus for better condensation and DNA stabilisation.

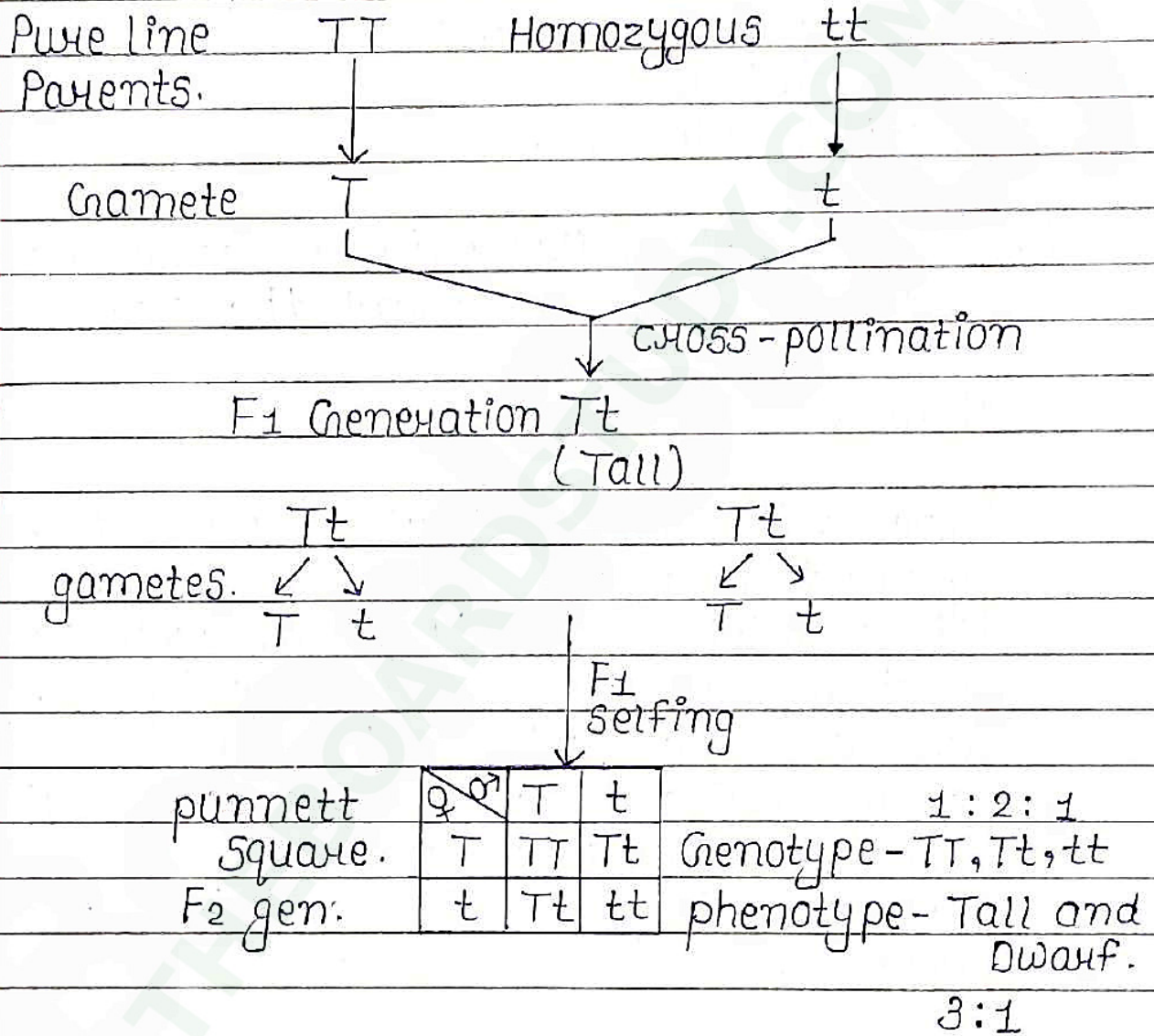
OOGENESIS :-

The process of formation of mature female gamete (Ovum) from immature germ cell (Oogonium) is known as oogenesis.

→ Oogenesis is initiated during the embryonic development stage. It takes place in 3-steps.

their parental and did not show any blending.

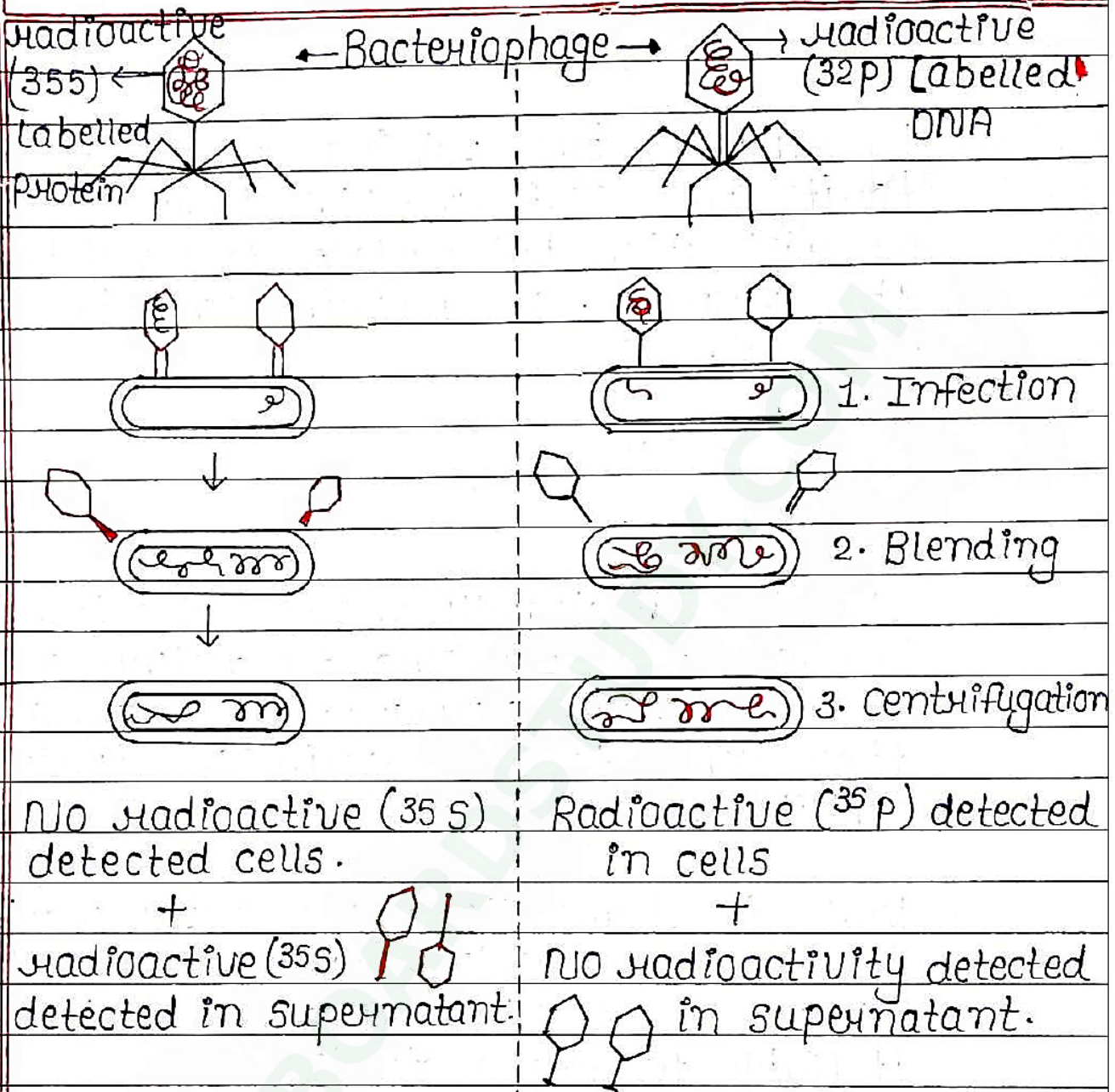
Monohybrid cross - cross to study inheritance of one character with contrasting trait is known as monohybrid cross.



Genotype is genetic constitution of an organism.

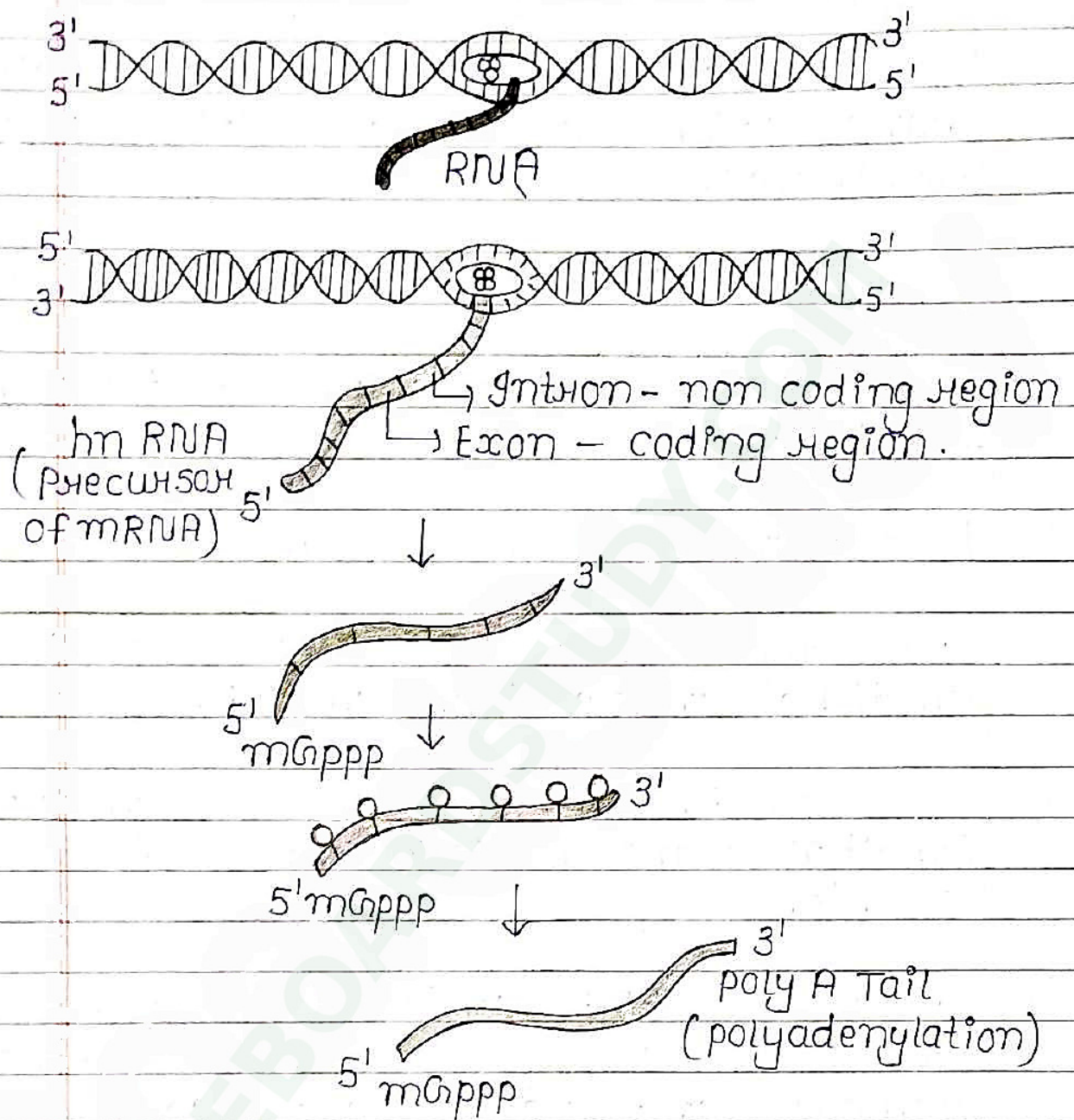
Phenotype is external appearance of an organism.

Punnett square was developed by british genetics. R.C. Punnett it is used to calculate probability of genes in cross.



Properties of Genetic Material :-

1. It should be able to generate its replica.
2. It should be stable chemically and structurally.
3. It should provide the scope for slow change (mutation) that are required for evolution.
4. It should be able to express itself in the form of mendelian character.



Genetic Code :-

The relationship of nucleotide bases and the amino acid is known as the genetic code. Genetic code is nucleotide base sequence present on RNA that are read in combination of three to code for amino acid in protein.

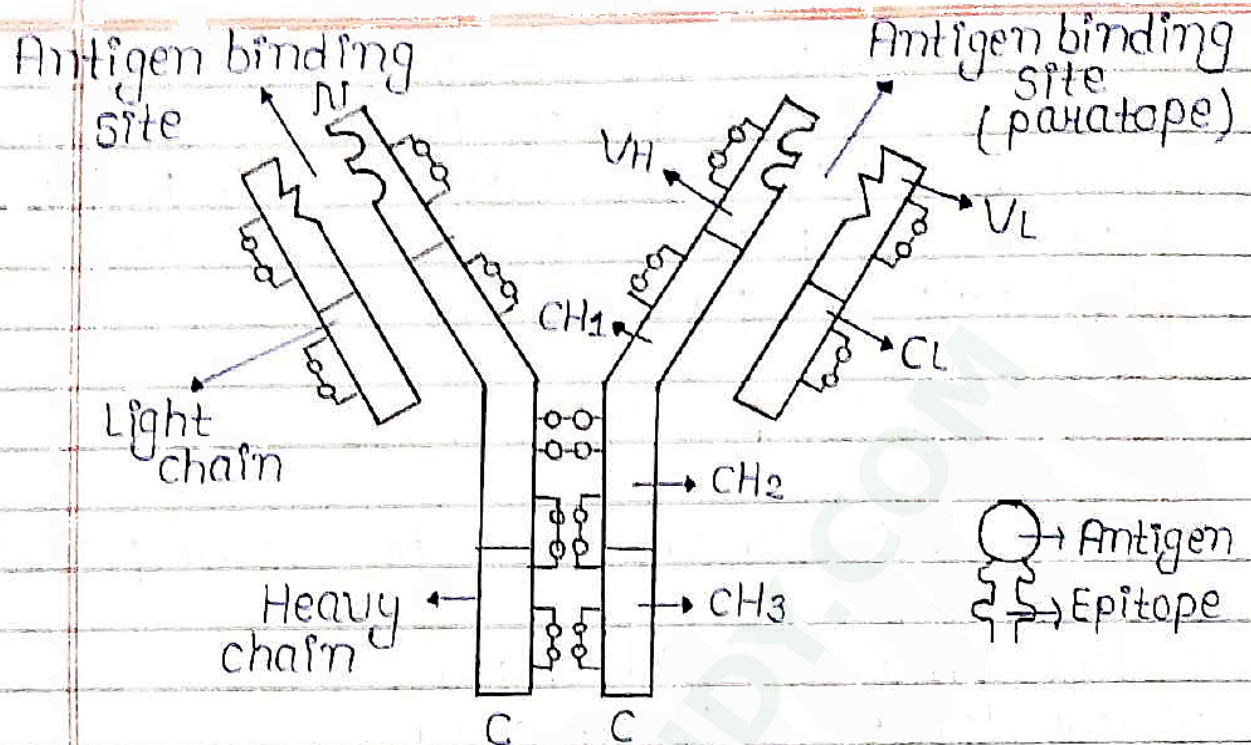


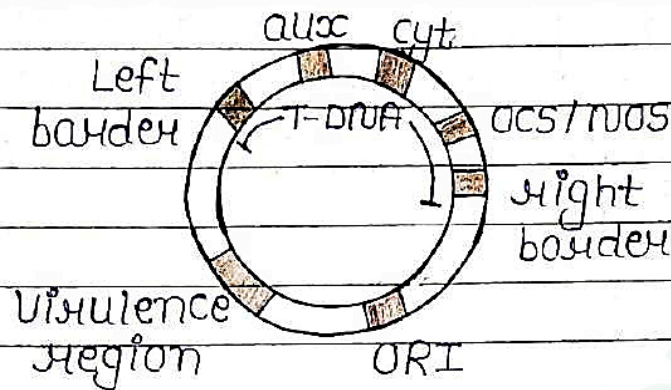
Fig: Structure of Antibody.

cell-Mediated Immunity

- It is mediated by T-cells.
- No formation of Antibody.
- React against transplant and cancerous cell as they have receptor present on cell which differentiate between self and non-self.

Humoral Immunity

- It is mediated by B-cell.
- Formation of antibodies.
- Do not react with transplant and cancerous cell.



Ti Plasmid → Remove aux and cyt part then inserted desired DNA here.

→ This modified Ti plasmid used as cloning vector and it is no more pathogenic.

Retrovirus : Disarmed Retrovirus used in animals as cloning vector.

PCR (Polymerase chain Reaction).

→ Discovered by Kary Mullis.

→ In this reaction, multiple copies of the gene (DNA) of interest is synthesised by invitro method.

Requirement :-

(i) DNA to be amplified.

(ii) Two sets of primers

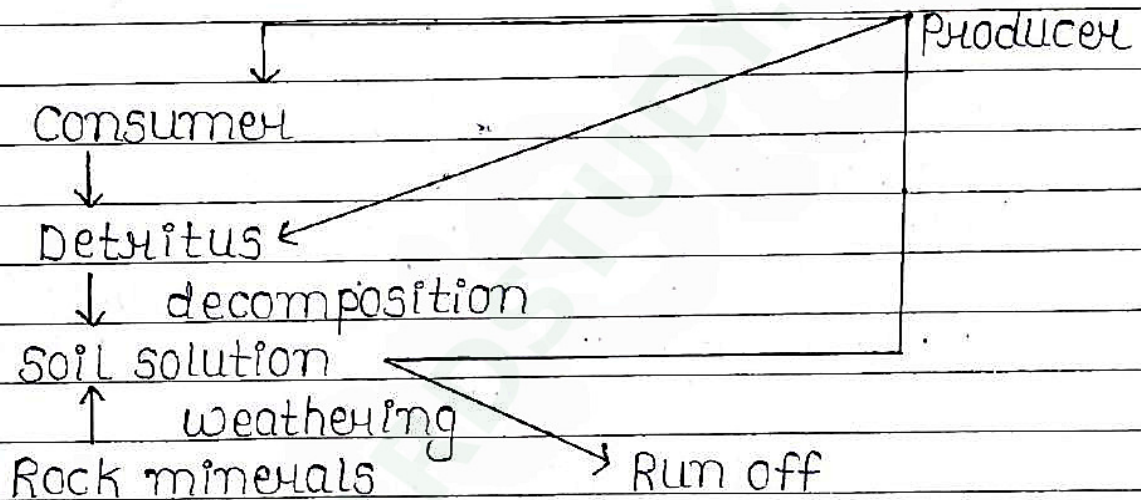
↳ Complementary to region of DNA.

Phosphorus cycle.

→ P is major constituent of —

- Biological membrane
- Nucleic Acid
- cellular energy transfer system.
- shell, bones, teeth.

→ Reservoir - rock.



Difference in C and P-cycle :-

- (1) Atmospheric input of P is smaller than C through rainfall.
- (2) Gaseous exchange of P between organism and environment are negligible.
- (3) 'P' cycle → Sedimentary cycle
'C' cycle → Gaseous cycle.