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Chapter - 1 Reproduction in Angiospermic plants

Marks - 2 (1+1)

Reproduction:

In this process producing new young one called reproduction.

Angiosperm:

In Angio derive from covering and Spermic means seed so in this plants seeds are covered and form flower so its known as flowering plants.

- In the life cycle of Angiosperm plants having "alternation of Generations"

($2n \rightarrow n \rightarrow 2n \rightarrow n \rightarrow 2n$)

(Sporophyte \rightarrow Gametophyte \rightarrow Sporophyte)

In Sporophyte plant body is divided into root, stem and leaves.

In Gametophyte plant body is the lived and develop diploid plant body.

Types of Reproduction:

- Asexual Reproduction
- Sexual Reproduction

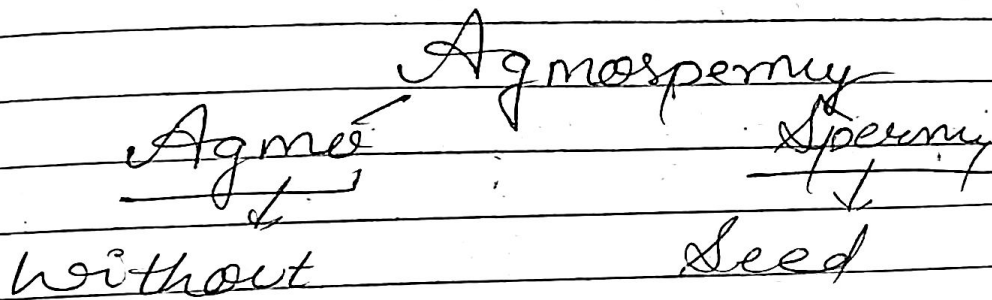
Asexual Reproduction:-

In this type of reproduction only single parent produce new young one without meiosis and fertilization. Asexual reproduction form same copy known as clone.

It include Agamospermy and vegetative reproduction.

Agamospermy:-

In this propagation or reproduction form seed but without fertilization is known as Agamospermy.



Vegetative Propagation:-

In this propagation plant reproduce new organism (plant) by vegetative organs like root, stem and leaves called vegetative propagation. Vegetative organ like root form new plant so it called propagule.

Vegetative propagation types:

- (A) Natural Vegetative propagation
- (B) Artificial Vegetative propagation

(A) Natural Vegetative propagation:

- (A) By stem → Rhizome → Ginger
 Tuber → Potatoes
 Bulbil → Garlic
 Corm → Colocassia
 Runner → Grass
 Sucker → Mint
 Stolon → Strawberry

- (B) By Root :- Neem, Jasmine, Rosewood

- (C) By leaves :- Bryophyllum, Begonia

- (D) By Reproductive Organ :-
 when Bud convert into bulbils
 ex: Agave, Dioscorea.

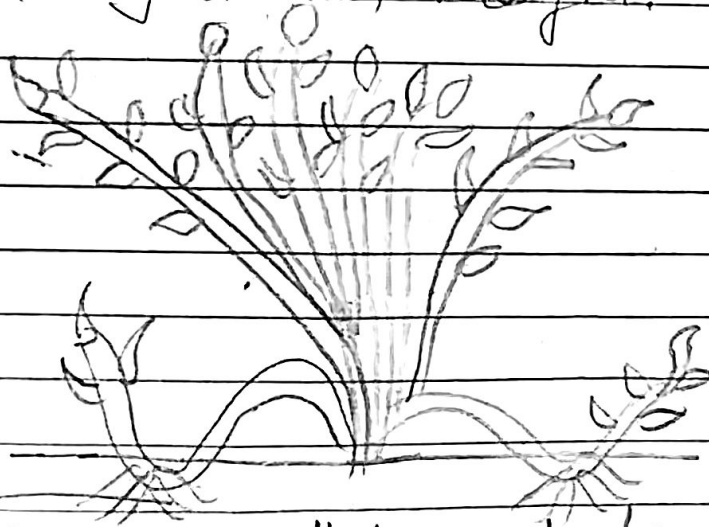
Artificial Vegetative propagation

Cutting →

- (A) Stem Cutting method stem of plant cut into small-small pieces and buried under soil form new plant.
 ex: Sugarcane, Rose, Grapes, Bougainvillea

B. Root cutting method. root form new plant ex: Lemon, Guavas, Apple, Cherry.
 2. Layering → In this method adventitious root is initiated in desired branch before separation from parent plant.

* Mound layering → Long branch with 2-3 node burrow in soil for some days. After 14-20 days, adventitious root start origination from the part of plant under soil, now separated branch from parent plant.
 ex: Jasmine, Mogra.

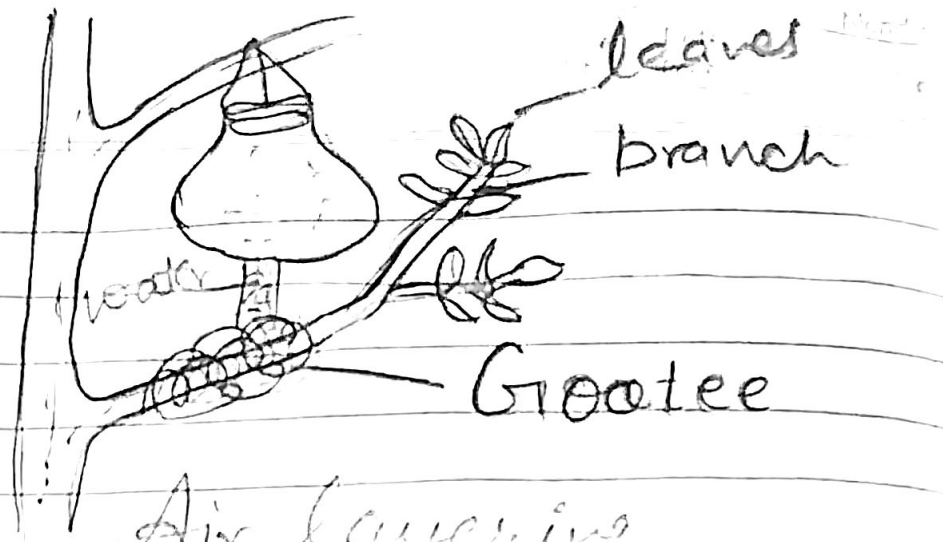


Mound layering

Mound layering (Mould)

* Air layering / Gootee → 1-2 year old branch use this method by removing bark, soaked in water so excess moisture of water remove then covered by plastic bag. So this covered part is known as Gootee.

After some time Gootee form new plant so at the time root arise from gootee separate the branch and put in soil.



Air Layering

Grafting → In this Method join 2 parts of 2 different plant, they unite to form new plant and grow.

Implanting part is Scion.

Rooted part is Stock

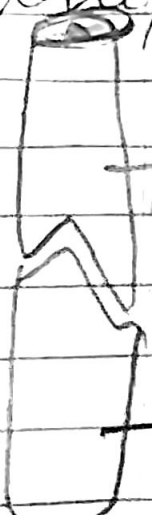
We remove the branch from scion and ~~grow~~ put it for some time.

After some time both part are join together and Cell start dividing.

Ex: Rose, Mango, Apple, lemon

Grafting

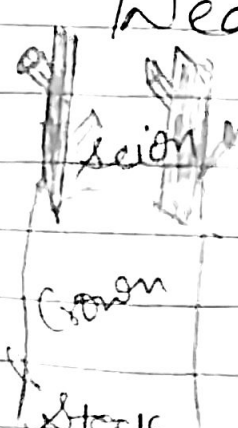
Whip/Tongue



Scion

Stock

Wedge



Scion

Crown

Stock

Crown

Bud

Crown



Scion

Stock



Scion

Stock

Whip Grafting :-

In this grafting both scion and stock are same thickness and having 'V' shaped cut is made in stock and fixed tightly. [Cut is 5-8 cm]

Wedge Grafting → Stock & Scion are same in size but

stock having 'V' shaped cut and scion having wedge shaped cut & now join together.

Crown Grafting → Stock thickness is many time more than scion

Bud Grafting →

T shape incision is made in stock and fixed tightly.

Sexual Reproduction

In Angiosperm plant sexual reproduction occur by flower.



Whorls
(border part of pedicel)

Stalk (pedicel)

When flower having all 4 types of whorl called Complete Flower ex: Pea

When flower having any one type of whorl is absent called Incomplete flower. ex: papaya

Calyx → It is the group of sepal, always green in colour.

It is the group of petal, colourful in colour, helps in pollination.

It is the group of stamen, male reproductive part. Stamen having filament, connective and anther. (Pollen sac)

It is the group of carpel or pistil. It is female reproductive part. It having stigma, style, ovary.

Non-essential whorls are:

Calyx, Corolla

Essential whorls are:

Androecium, Gynoecium