Reproduction

Process by which new individuals are formed. It ensures continuity of a species

Type

Asexual	Sexual
(1) It involve mitotic Divisions	(1) It involve meiosis divisions.
(2) Only one parent is required	(2) Two parents are required.
(3) Rapid mode of reproduction	(3) Slower mode of Reproduction
(4) Offsprings produce has no variation → generally clone.	(4) Offspring produce shows variations
(5) Not concerned with evolution	(5) Concerned with evolution.

Asexual Reproduction in Plants and Animals.

(1) Binary fission → Splitting of parent in 2 identical daughter cells e.g. Amoeba, paramecium.

(2) Multiple fission → Splitting of parent in multiple daughter cells e.g. Plasmodium.

(3) Budding → Animal produce small bud (outgrowthed body part) which grows and upon maturation → deattaches from parent body. e.g. Hydra.

(4) Fragmentation → Upon maturation → organism body breaks into multiple pieces → Fragments. Each break fragment is a new individual e.g. Spirogyra

(5) Regeneration → Animal body is broken into many pieces. But each piece can regrow into individual by using proliferative cells. e.g. Planaria.

(6) Spore formation → Spores are produced by Rhizopus which are enclosed in a bulb. When this bulb rupture → spore moves out → and under favourable condition → regrows.

Vegatitive Propagation → formation of new plant from stem, root or leaf containing buds. → These buds grows roots.

Natural Vegetative Propagation

(1) Through stem → Mint, Chrysanthemum.
(2) -"- leaf → Bryophyllum
(3) -"- roots → sweet potato, Asparagus.

Artificial Vegetative Propagation

(1) Cutting → Sugarcane, Rose
(2) Layering → Strawberry, Guava
(3) Grafting → Pear, Mango

(4) Tissue culture → Meristmatic tissue are collected from plant and are cultured in nutritive and septic medium → where they divide to form callus. This callus is transfered to another culture medium containg Root and Shoot promoting hormone → which turn callus into plantlet → Then these plantlets are placed in soil to grow mature plant.

Advantage → (1) Seedless plants can be grown by this method
(2) faster mode (3) Used to grow ornamental plants like Orchids. (4) Virus free plants can be grown.

Disadvantage → (1) There is no Variations.
(2) Parent plant diseases can be transfered to offspring.

Sexual Reproduction → Plant

Pollination → Transfer of Pollen grain from anther to stigmatic surface.

Self Pollination	Cross Pollination
(1) Transfer of pollen grain from anther to stigmatic surface of same flower or different flower of same plant.	(1) -"- -"- -"- -"- -"- -"- -"- of different flower of different plant.

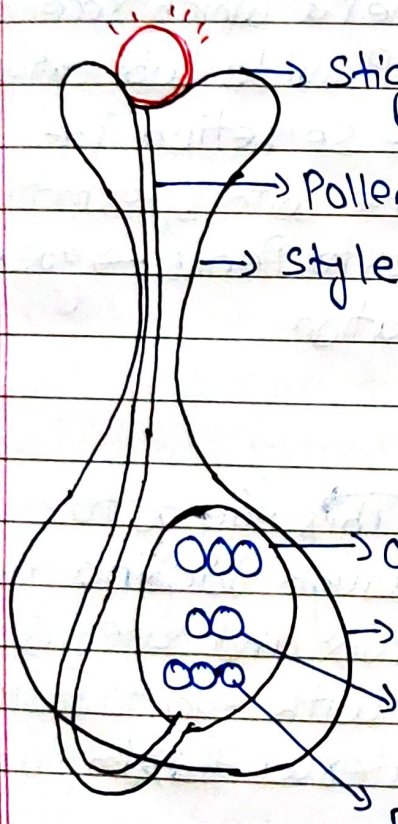
② Less Pollengrains are req.	② More Pollengrains are req.
③ No or negligible variation.	③ Variations are present.
④ Nector quality is average	④ Nector quality is excellent.

Flower → Reproductive part of plant

* Unisexual → Either male or female Reproductive parts. i.e. Stamen or pistil e.g. Papaya and watermelon
* Bisexual → Both male and female Reproductive parts i.e. stamen and pistill. e.g. Hibiscus and mustard.

♂ → Stamen → Anther + Filament

♀ → Pistil or Carpel → Stigma + Style + ovary.



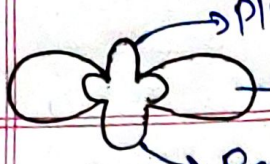
Pollengrain when land on stigma → produces pollentube which goes through style and reaches to ovule At the same time → Pollengrain divide into 1° male gamete and 2° male gamete When these gametes reaches the ovule → 1° male gamete combine with egg to form zygote → which grows later to embryo → Process is known as syngamy. And 2° male gamete combine with Polar nuclei to form endosperm → Process is known as Triple Fusion

The simultaneous fusion of 1° male gamete with egg to form zygote → Syngamy and 2° male gamete with Polar nuclei to form endosperm → Triple fusion is known as Double fertilization.

After fertilization → * Flower shed its sepal and Petal

* ovule → Seed * Ovary become fruit.

Seed



→ Plumule → Shoot formation
→ Cotyledon → Store food
→ Radicle → Root formation

② Humans → ① Male (♂)

Males contain pair of Testis → which are located in Scrotum → Provide optimum temp. for Sperm production as Sperm production req. 2 to 3°C less temp. than body. Each testis open in epiddidymus. Testis produce Sperm by the process of spermatogenesis. These sperm are temporarily stored in epiddidymus then goto Vas deferns Vas deferns open in Semical Vesicle → this ~~provide~~ add its secretion to sperm. This secretion provide nutrition to sperm. → goes to urethera which receive secretion from Prostate gland → Provide Lubricative medium for sperm mobility. These secretion i-e. Seminal vesicle and Prostate combine with sperm to produce semen. → This semen goes to Penis → goes to female genetilia during Copulation.

② female (♀)

Ovary produces egg by ovulation. This egg go to fallopian tube. Sperm enters through vagina and go to fallopian tube through cervix and uterus. In fallopian tube it combine with egg to form Zygote. This Zygote goes to uterus → Implant on its wall.

Site of fertilization → ~~uterus~~ fallopian tube.
" " - Implantation → uterus

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Menstrual cycle → Cyclic event that take place in female body during the reproductive life.

Menarch → Starting of menstrual cycle
Menopause → Stopping –" —" —" —.

Reason → Uterus prepare itself for pregnancy related changes by adding extra Layers of tissue and blood Capillaries so that incoming zygote can get easy implantation and nutrition. But if egg is implanted → uterus shed its wall. And egg + mucus + blood → menstrual Flow → comes out through vagina.

Placenta → ① Provide nutrition to foetus
② Eliminate waste of foetus.

Contraceptive Method

① mechanical or barrier → Check the entry of sperm in vagina or uterus. e.g. Condom and cervical caps.
② Intrauterine devices [IUDs] → Metal or Plastic devices which are placed in uterus e.g. Copper-T. They prevent implantations or kill sperms.
③ Chemical methods → Oral pills are taken which can on or off set ovulation. These disturb the hormonal cycle in females and cause Complication.
④ Permanent method → ① Vasectomy → Vas deferns is cut and tied ② Tubectomy → Fallopian tube are cut and tied.

Advantage

(1) Prevent S.T.D. → only Condom
(2) Limit family size which can give improved economical and living status.
(3) Maintain Health of female by avoiding burden to female body which comes through pregnancy.

S.T.D. → Sexually Transmitted Diseases
(1) Bacterial → Gonorrhoea, Syphills etc.
(2) Virus → AIDS and warts