REPRODUCTION IN PLANTS

Chapter: - 12th

SCIENCE

CLASS: - 7TH

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Chapter: 12
Reproduction in Plants

Q1: Fill in the blanks:

(a) Production of new individuals from the vegetative part of parent is called vegetative propagation**_.**

(b) A flower may have either male or female reproductive parts. Such a flower is called unisexual**_.**

(c) The transfer of pollen grains from the anther to the stigma of the same or of another flower of the same kind is known as _ Pollination**_.**

(d) The fusion of male and female gametes is termed as Fertilization**.**

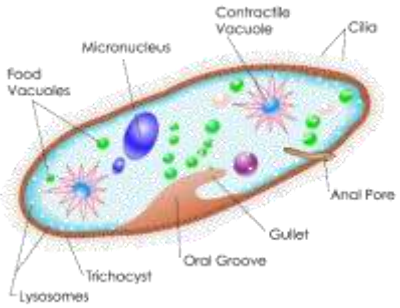
(e) Seed dispersal takes place by means of _ Wind**, _**water **and _**Animal**.**

Q2: Describe the different methods of asexual reproduction. Give examples.

Ans: Different methods of asexual reproductions are: -

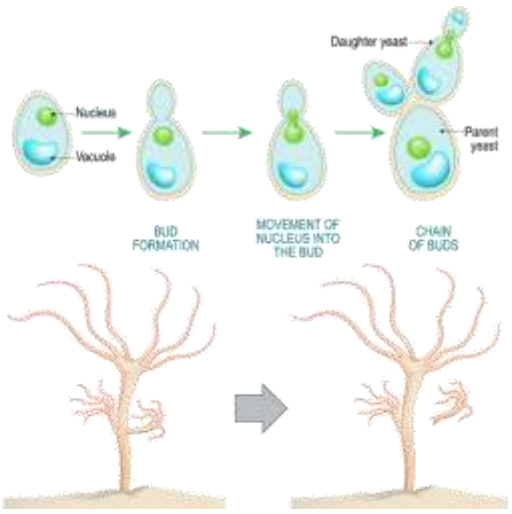
(a) **Binary Fission:** This is the simplest form of asexual reproduction, commonly found in single-celled organisms such as bacteria and protists. The parent cell divides into two equal-sized daughter cells.

Example: - Paramecium



(b) **Budding:** In this method, a small outgrowth or bud forms on the parent organism, which eventually grows and develops into a genetically identical offspring.

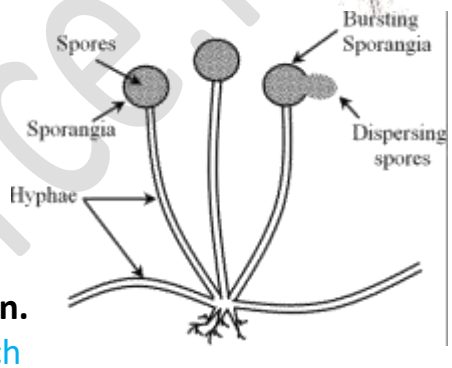
Example: - yeast and Hydra



(c) **Fragmentation:** This method involves the splitting of the parent organism into two or more fragments, with each fragment capable of regenerating into a complete individual.
Example: - In many plants, such as ferns and mosses.

(d) **Vegetative Reproduction:** In this method, new individuals are produced from vegetative parts of the parent organism, such as stems, roots, or leaves.
Example: - potatoes, strawberries etc.

(e) **Spore formation:** Spores are asexual reproductive bodies. Spores are typically small, single-celled structures that are capable of developing into new individuals under favourable conditions.
Example: - fungi, algae.



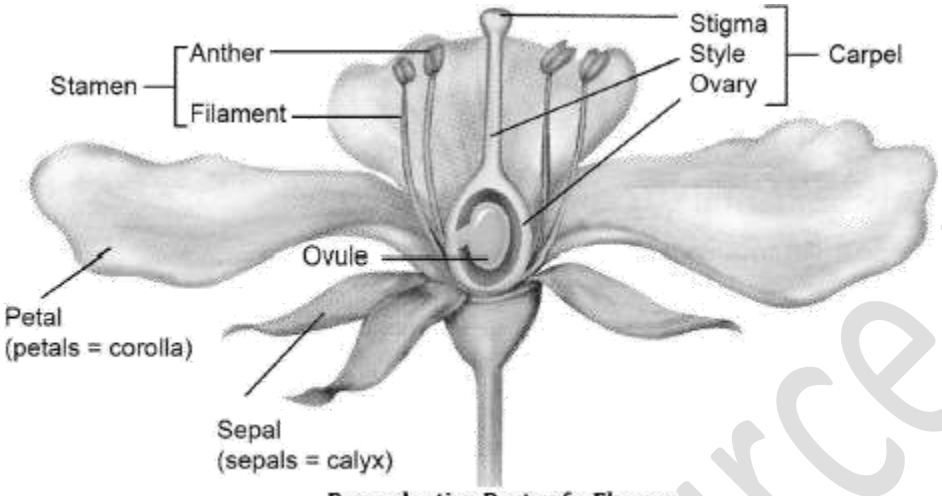
Q3: Explain what you understand by sexual reproduction.
Ans: Sexual reproduction is a mode of reproduction in which offspring are produced through the fusion of gametes from two parents, typically a male and a female. It involves the transfer and combination of genetic material, resulting in offspring that inherit a combination of traits from both parents. Sexual reproduction is a fundamental process in plants, animals.

Q4: State the main difference between asexual and sexual reproduction.
Ans: The main difference between asexual and sexual reproduction.

Asexual Reproduction	*Sexual reproduction*
(a) It involves only one parent.	**It involves the contribution of genetic material from two parents**
(b) It produces offspring that are genetically identical or nearly identical.	**It produces offspring that inherit a combination of genetic material from both parents, leading to genetic variation among the offspring.**
(c) Offspring that are genetically similar to the parent and lack genetic diversity.	**offspring with genetic variation, which enhances their adaptability, evolutionary potential, and ability to respond to environmental challenges.**

Q5: Sketch the reproductive parts of a flower.

Ans:



Reproductive Parts of a Flower

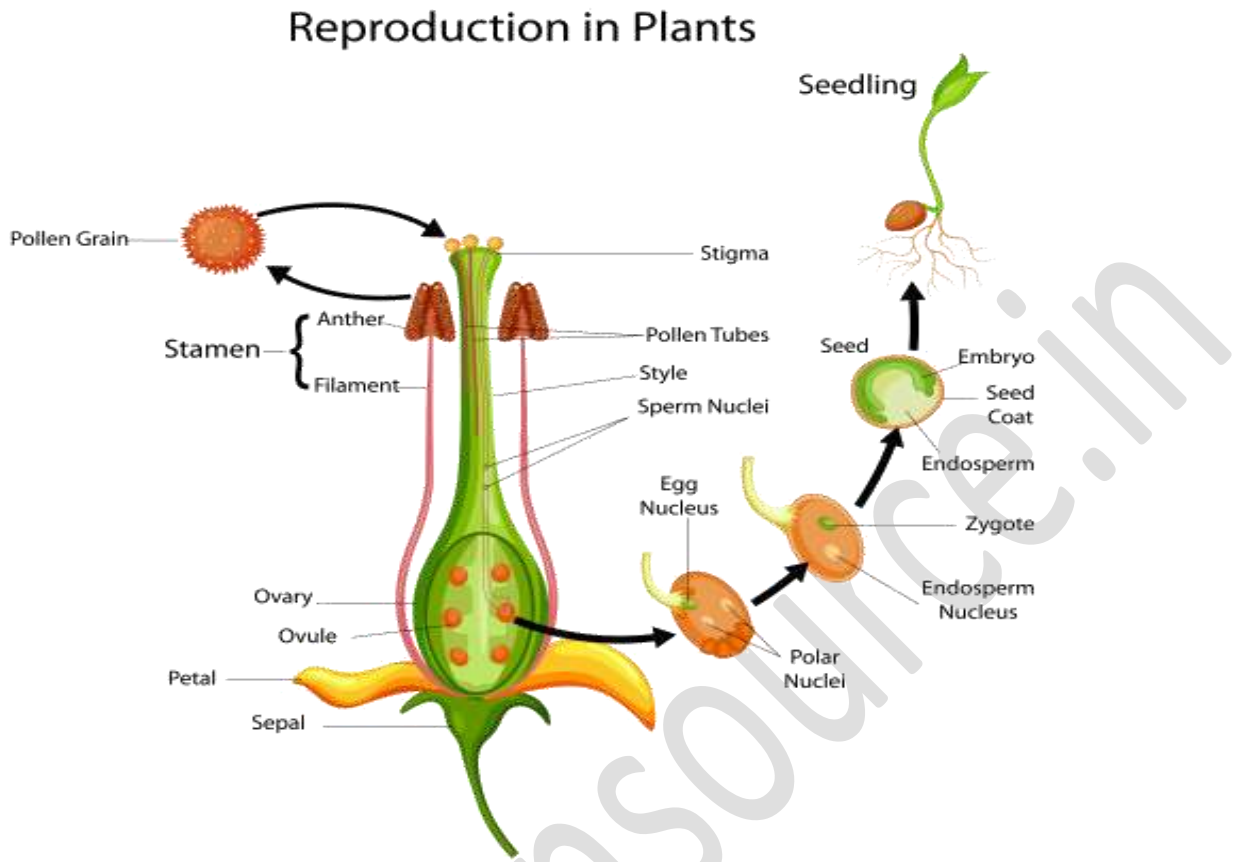
Q6: Explain the difference between self-pollination and cross-pollination.

Ans: The difference between self-pollination and cross-pollination: -

self-pollination	*cross-pollination*
(a) Pollen is transferred from the anther to the stigma of the same flower or another flower on the same plant.	**Pollen is transferred from the anther of one flower to the stigma of a different flower on a different plant.**
(b) It leads to genetically identical or very similar offspring, reducing genetic variation.	**Promotes genetic diversity among offspring.**
(c) Requires less energy and resources since no external agents are needed for pollen transfer.	**Typically requires the assistance of external agents, such as wind, water, insects, or animals, for pollen transfer.**
(d) Common in self-pollinating plants like wheat, rice, peas, and tomatoes.	**Common in cross-pollinating plants like apple trees, cherry trees, roses, and sunflowers.**

Q7: How does the process of fertilisation take place in flowers?

Ans: Fertilization in flowers is how flowers make new seeds. First, pollen from the male part of the flower moves to the female part, either with the help of insects, wind, or other things. The pollen makes a tiny tube that grows down to the eggs inside the flower's ovary. The ovary around the ovule becomes a fruit, protecting the seeds inside. When the seeds are ready, the fruit can open up, or animals and wind can carry the seeds away. This helps the seeds find new places to grow into big plants.



Q8: Describe the various ways by which seeds are dispersed.

Ans: Seeds are dispersed in various ways to ensure the survival and distribution of plant species.

(a) Wind Dispersal: Some plants have lightweight seeds with structures like wings, parachutes, or tufts of hair that enable them to be carried by the wind.
Example: - Maple trees

(b) Water Dispersal: Seeds that can float or survive in water are dispersed through rivers, streams, and oceans.
Example: Coconuts seed.

(c) Animal Dispersal: - Seeds may have hooks, spines, or barbs that attach to the fur, feathers, or scales of animals or Certain animals like squirrel's hoard seeds by burying them in the ground for later consumption.

(d) Self-Dispersal: - Some plants have mechanisms that allow them to disperse seeds without relying on

external agents. These mechanisms can include explosive pods or capsules that forcefully eject the seeds, as seen in touch-me-not plants or violets.

(e) **Human Dispersal:** Humans have played a significant role in the dispersal of seeds, intentionally or unintentionally. Humans have transported seeds across vast distances through activities such as agriculture, trade, and gardening.

Q9: Match items in Column I with those in Column II:

Column I	Column II
(a) Bud	(i) Maple
(b) Eyes	(ii) Spirogyra
(c) Fragmentation	(iii) Yeast
(d) Wings	(iv) Bread mould
(e) Spores	(v) Potato
	(vi) Rose

Ans:

Column I	*Column II*
1. Bud	(iii) Yeast
2. Eyes	(v) Potato
3. Fragmentation	(ii) Spirogyra
4. Wings	(i) Maple
5. Spores	(iv) Bread mould

Q10: Tick the correct answer:

(a) The reproductive part of a plant is the

(i) Leaf

(ii) Stem

(iii) Root

(iv) Flower

Ans: (iv) Flower

(b) The process of fusion of the male and the female gametes is called

(i) fertilisation
(ii) pollination
(iii) reproduction
(iv) seed formation

Ans: (i) fertilisation

(c) Mature ovary forms the

(i) seed
(ii) stamen
(iii) pistil
(iv) Fruit

Ans: (iv) Fruit

(d) A spore producing organism is

(i) rose
(ii) bread mould
(iii) potato
(iv) ginger

Ans: (ii) bread mould

(e) Bryophyllum can reproduce by its

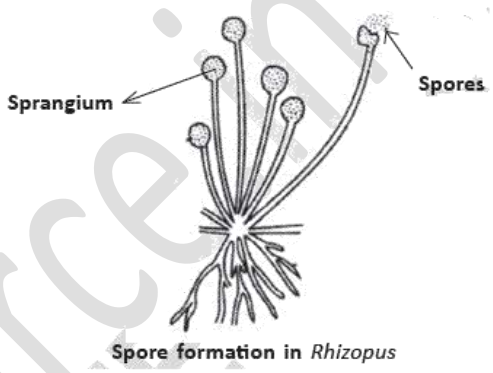
(i) stem
(ii) leaves
(iii) roots
(iv) flower

Ans: (ii) leaves

Key Words

1. **Asexual reproduction: -** Asexual reproduction is a process by which offspring are produced without the involvement of gametes or the combination of genetic material from two parents.

2. **Spore: -** A reproductive structure produced by certain organisms (such as bacteria, fungi, and plants) that can develop into a new individual without fusion with another reproductive cell.

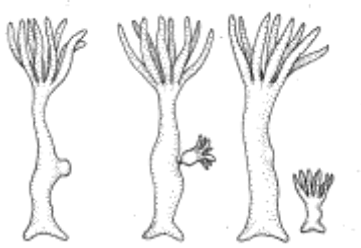


Spore formation in *Rhizopus*

3. **Sporangium:** A structure in which spores are produced, typically found in plants, fungi, and some bacteria.

4. **Vegetative propagation:** A form of asexual reproduction in plants where new individuals are produced from vegetative parts (such as stems, leaves, or roots) of the parent plant.

5. **Budding: -** A form of asexual reproduction where a new organism develops as an outgrowth or bud from the parent organism.



6. **Fragmentation: -** A type of asexual reproduction where an organism breaks into fragments, and each fragment can develop into a new individual.

7. **Hypha:** A filamentous structure found in fungi, forming the main body and facilitating nutrient absorption.

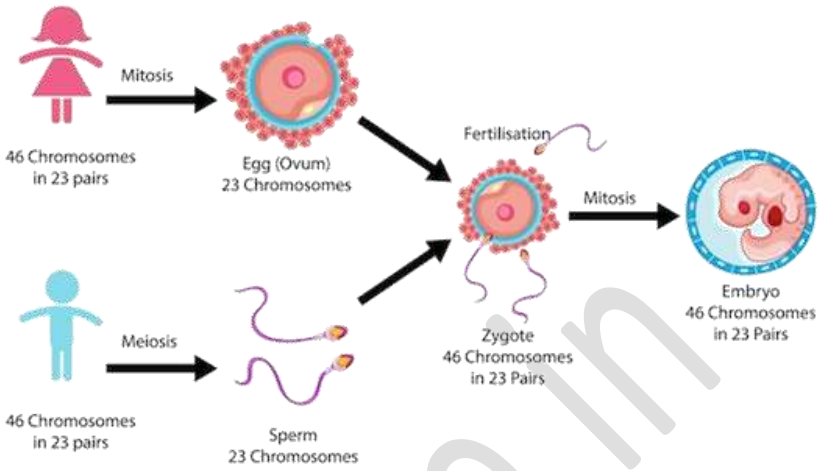
8. **Gametes:** Specialized reproductive cells (sperm and egg) that fuse during fertilization to form a new organism.

9. **Sexual reproduction:** A type of reproduction that involves the fusion of gametes from two parents, leading to offspring with a combination of genetic traits.

10. **Ovule:** A structure found in plants that contains the female gamete and develops into a seed after fertilization.

11. **Fertilisation: -** The process of fusion of male and female gametes (sperm and egg) to form a zygote.

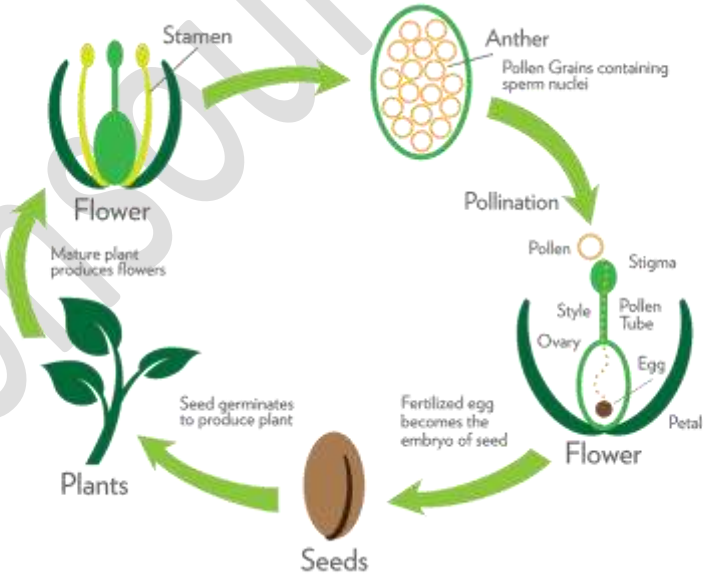
12. **Zygote:** The cell formed by the fusion of sperm and egg during fertilization, which develops into an embryo.



13. **Embryo: -** The early stage of development in multicellular organisms, following fertilization and preceding birth or hatching.

14. **Pollen grain:** The male gametophyte in seed plants, containing the male gametes and transferred to the female reproductive structure for fertilization.

15. **Pollen tube:** A structure formed by the pollen grain to transport the male gametes to the female reproductive structure during fertilization.



16. **Pollination:** The transfer of pollen from the male reproductive organ to the female reproductive organ in plants, leading to fertilization.

17. **Seed dispersal:** The process by which seeds are spread or scattered away from the parent plant, facilitating their germination and survival in new locations**.**