

NOTES

CLASS 7

SCIENCE

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REPRODUCTION IN PLANTS

Reproduction:

- The process of producing offspring by the parent is called reproduction.
- It is a biological process.
- The offspring produced can and cannot be the exact copy of the parent.

Mode of Reproduction:

- There are two modes of reproduction, asexual reproduction and sexual reproduction.

Asexual Reproduction

- Reproduction that occurs without the involvement of male and female gamete is called asexual reproduction.
- Seed is not produced in this mode of reproduction.



Different Types of the Asexual Reproductions are:

Vegetative Propagation

- Reproduction that occurs through vegetative part of the plant i.e., leaves, stems and roots is called vegetation propagation.
- Examples of organism produced by vegetative propagation are:
 - A. Onion, garlic and tulip are produced by the stems.
 - B. Sweet Potato and Dahlia are produced by the roots.
 - C. Bryophyllum is produced by leaves.

Budding

- Bud is the small bulb-like structure bulging from the yeast cell.
- Bud when it gets detached it develops into a new organism and this process of producing new organism from the bud when it gets detached is called budding.
- Examples of organisms produced by budding are yeast and hydra.

Fragmentation

- The process by which organisms get divided into a number of fragments and each fragment develops into a new individual is called fragmentation.
- Fragmentation in spirogyra is an example of this type.

Spore Formation

- The process by which organisms get divided into a number of spores and each spore develops into a new individual under favorable conditions is called spore formation.
- Spore formation in fungi, fern and bacteria are some examples of this type.

Sexual Reproduction

- Reproduction that occurs with the involvement of male and female gametes is called sexual reproduction.
- Male gamete produced by pollen grains and female gamete produced by ovary of the pistil fuses to form a zygote.
- Stigma, style and ovary together forms pistil.
- Seed is produced in this mode of reproduction.
- This reproduction occurs through the reproductive part of the plant i.e., flower.
- The flower has both male reproductive parts called stamens and female reproductive part called pistil.
- Flowers that has either pistil or stamens is called unisexual flowers and flowers that has both pistil and stamens is called bisexual flowers.

Pollination

- When pollen is transferred from the anther to the stigma of a flower is called pollination.
- When the pollen of a flower lands on the stigma of the same flower it is called self-pollination.
- When the pollen of a flower lands on the stigma of another flower it is called cross-pollination

Fertilization

- After pollination occurs fertilization, where male and female gamete fuses to form zygote and later zygote develops into embryo.
- After fertilization, fruits are developed by ovary and seeds are developed by ovules.

Seed Dispersal

- The movement of seeds by water, wind and animals is called seed dispersal.



- Examples of the seeds dispersed by animals are xanthium and urena.
- Examples of seed dispersed when the fruit burst with sudden jerk are castor and balsam.
- Seed dispersal is important because it reduces overcrowding of seeds of plants and hence each plant gets an adequate amount of water and sunlight.

Fission

Fission is a kind of asexual reproduction that happens in unicellular organisms like the amoeba. Here the single cell that is the parent will divide into two or more daughter cells. In binary fission, the single-cell will be divided into two daughter cells. In multiple fissions, the single parent cell will divide into many daughter cells.

Fragmentation

This is a kind of asexual reproduction called cloning, where the organism gets split into various fragments. Then each of the fragments will develop into a fully grown and mature individual, which are the clones of the original organism.

Budding

Budding is a kind of asexual reproduction where a new organism will develop from an outgrowth or a bud because of cell division at one particular parent organism site. This then eventually breaks away from the parent cell.

Spore Formation

Spore formation is the term that is used for reproduction through spores. The spores are microscopic and are a reproductive body. When the spores are released into the area surrounding it, this develops into plants under the conditions if they are favourable. Examples include fungi.

Vegetative Propagation is also a kind of asexual reproduction where the new plant gets produced from stems, roots, buds, and leaves.

Sexual Reproduction in Plants

Plants also have sexual reproduction. This occurs where there is a fusion of the gametes. This eventually gives seeds, which then develop into a new plant. The flowers are a part of the plant which goes through sexual reproduction. The male gametes are the pollen grains that get produced by the anthers. The female gametes are the ovule that gets produced by the pistils. When there is pollination, the male and the female gamete meet. These get fused by the process of fertilization, and then this gives birth to a new plant by the formation of fruit and seeds.

Pollination

Pollination is the process of transferring the pollen grain from the male flower parts from the anthers to the stigma that is the female part of the plant.

Types of Pollination

Pollination is of two kinds. When the pollen lands on the same flower stigma, then this is known as self-pollination. When the pollen lands on another flower's stigma, then this is cross-pollination.

SOME IMPORTANT QUESTIONS

1. Fill in the blanks:

- (a) Production of new individuals from the vegetative part of parent is called_____.
- (b) A flower may have either male or female reproductive parts. Such a flower is called_____.
- (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 _____.



- (d) The fusion of male and female gametes is termed as _____.
(e) Seed dispersal takes place by means of _____, _____ and _____.

Solution:

(a) vegetative propagation (b) unisexual flower (c) Pollination (d) fertilisation

(e) wind, water and animals.

2. Describe the different methods of asexual reproduction. Give examples.

Solution: Different methods of asexual reproduction are as follows:

Vegetative Propagation

In this asexual reproduction, new plants are produced from roots, stems, leaves and buds of the individual plant.

Examples – Tuber of potato, the rhizome of ginger.

Budding

The bud is a small projection which gradually grows and gets detached from the parent cell and forms a new yeast cell. The new yeast cell grows, matures and produces more yeast cells.

Example – Yeast.

Fragmentation

In this mode of reproduction, the growth and multiplication are done by rapidly breaking down into two or more fragments. Each fragment grows into new individuals when water and nutrients are available.

Example – Algae

Spore Formation

This reproduction is done by spores which, under favourable conditions, germinate and develop into a new individual.

Examples – Fungi like Rhizopus, Mucor, etc.

Fission

It is a type of asexual reproduction where the unicellular organism splits to form new organisms. There are two types of fission which are,

- Binary fission and Multiple fission

Examples

Unicellular organisms that undergo binary fission are amoeba, paramecium, leishmania, etc.

Plasmodium undergoes the process of multiple fission.

3. Explain what you understand by sexual reproduction.

Solution: Sexual reproduction is a method where male and female gametes fuse to form a new individual. In plants, stamens and pistils are male and female reproductive organs which bear the anthers and ovary, respectively.



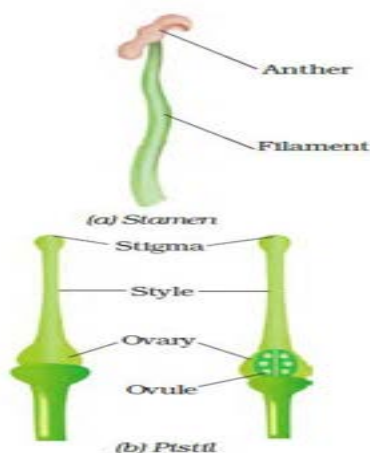
4. State the main difference between asexual and sexual reproduction.

Solution:

Asexual reproduction	Sexual reproduction
It requires only one parent	Requires a male and female parent
Daughter cells formed are identical to parents and to each other.	Newly formed offsprings show variations in comparison to the parents.
Special reproductive organs are not required	Special reproductive organs are required
Ex: Yeast, rose, jasmine	Ex: Insects, animals

5. Sketch the reproductive parts of a flower.

Solution:



6. Explain the difference between self-pollination and cross-pollination.

Solution:

Self-pollination	Cross-pollination
In self-pollination, pollen grains are transferred from the anther to the stigma of the same flower.	In cross-pollination, pollen grains are transferred from the anther of one flower to the stigma of another flower of the same kind.
Self-pollination occurs only in bisexual flowers	It occurs in both unisexual and bisexual flowers

7. How does the process of fertilisation take place in flowers?

Solution: The process of fusion of male and female gametes (to form a zygote) is called fertilisation. The zygote develops into an embryo, and the embryo undergoes mitotic cell division to form seeds.

8. Match items in Column I with those in Column II: Column I 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



Solution:

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

10. **Tick the correct answer:**

- (a) The reproductive part of a plant is the
(i) leaf (ii) stem (iii) root (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
- (c) Mature ovary forms the
(i) seed (ii) stamen (iii) pistil (iv) fruit
- (d) A spore-producing organism is
(i) rose (ii) bread mould (iii) potato (iv) ginger
- (e) Bryophyllum can reproduce by its
(i) stem (ii) leaves (iii) roots (iv) flower

Solution:

a) (iv) flower b) (i) fertilization c) (iv) fruit d) (ii) bread mould e) (ii) leaves





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