NCERT Solution

Reproduction in Plants

Exercise

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 _____.

Answer:

(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 **fertilisation**.

(e) Seed dispersal takes place by means of **wind**, **water** and **animals.**

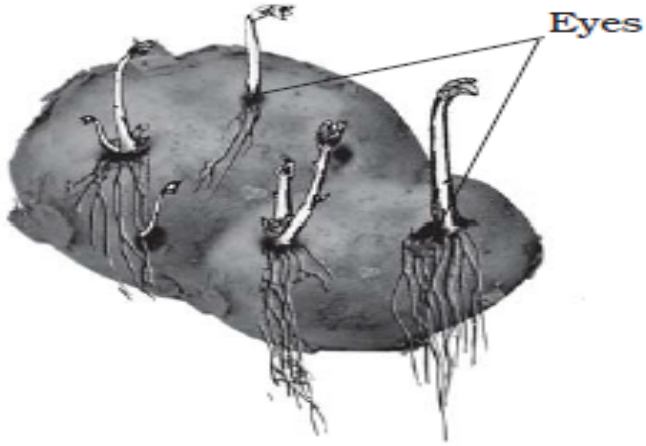
2. Describe the different methods of asexual reproduction. Give examples.

Answer:

The various methods of asexual reproduction in plants are as follows:

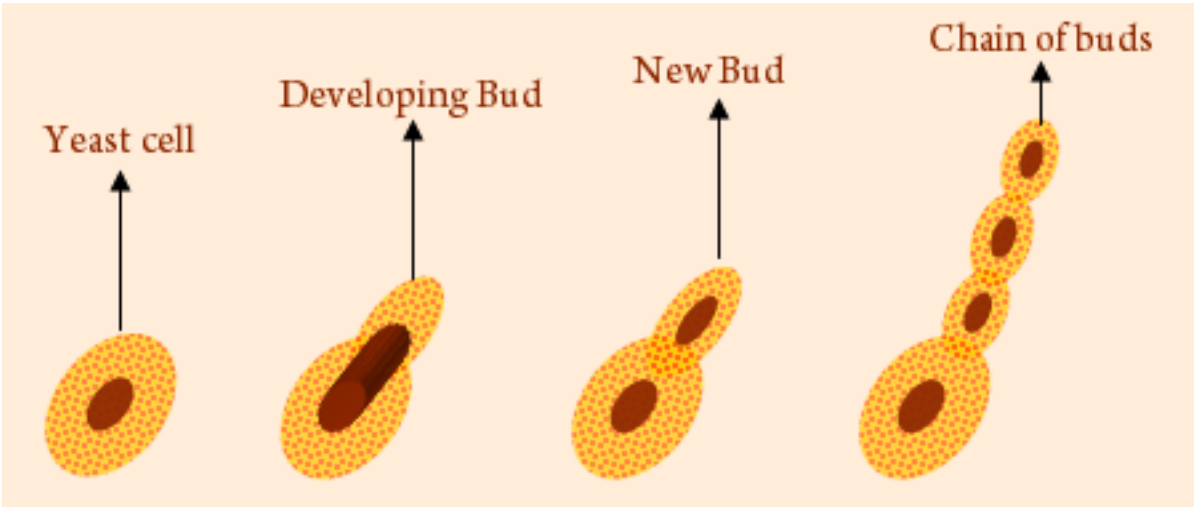
1. Vegetative propagation: It is a type of asexual reproduction in which new plants are produced from roots, stems, leaves and buds. Since reproduction is through the vegetative parts of the plant, it is known as vegetative propagation. Vegetative propagation is divided into types:

(i) Natural Vegetative propagation: This type of vegetative propagation occurs easily in nature and involves simple vegetative parts. Potato plant sprouting from an eye is a common example.

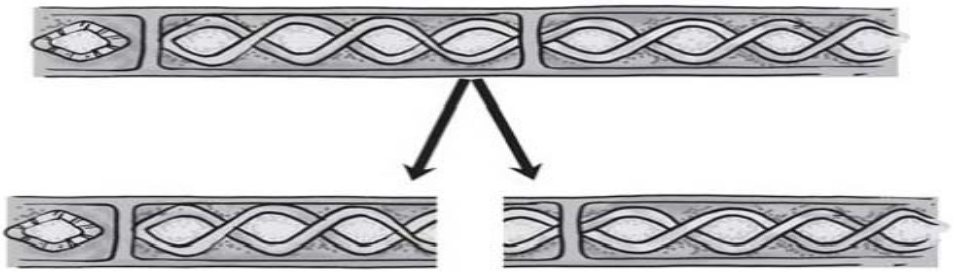


(ii) Artificial Vegetative propagation: This type of vegetative propagation is performed by manually and generally occurs in laboratory conditions. The formation of a complete plant from stem cutting of rose is a common example of this method.

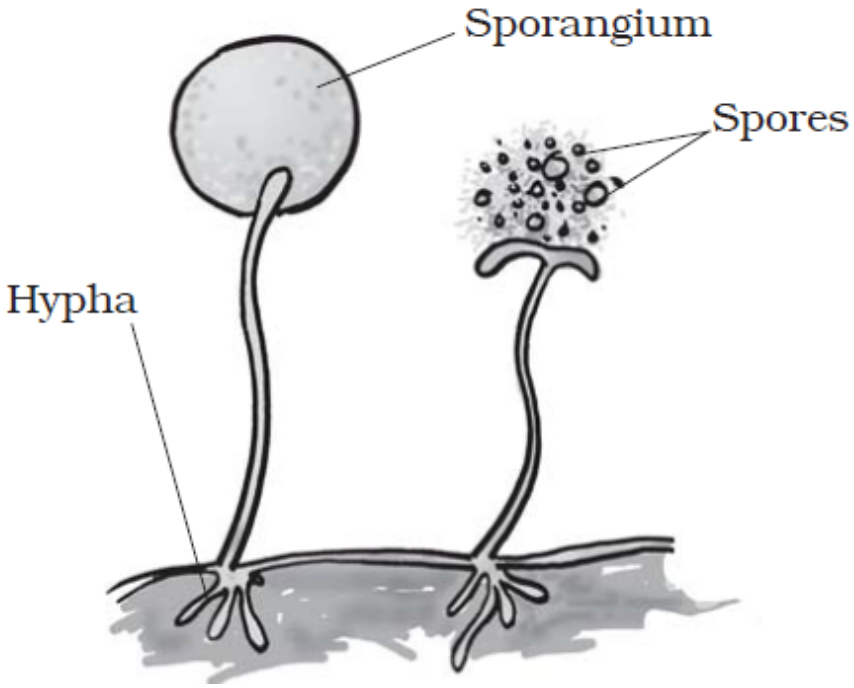
2. Budding: It involves the formation of a new individual from a bulb like projection is called bud. The bud grows and gets detached from the parent to produce a new individual. It is commonly observed in yeast.



3. Fragmentation: It is a form of asexual reproduction where a new organism is produced from the fragments of part of body. It is only mode of asexual reproduction is spirogyra.



4. Spore formation: Many non-flowering plants reproduce through the spore formation. Spores are tiny cell protected by a thick wall to withstand unfavourable conditions such as high temperature and low humidity. So they can survive for a long time. Under favourable conditions, a spore germinates and develops into a new individual. Examples: Plants such as fungi, moss and ferns also reproduce by means of spores.



3. Explain what you understand by sexual reproduction.

Answer:

Sexual reproduction is a process which involves production of seeds. It required two parents. Most of plants reproduce sexually with the help of flowers. After fertilization, the ovary grows into a fruit and other parts of the flower fall off. The fruit is the ripened ovary. The seeds develop from the ovules. The seed contains an embryo enclosed in a protective seed coat. Seeds and fruits of plants are carried away by wind, water and animals and reproduced again on the grounds.

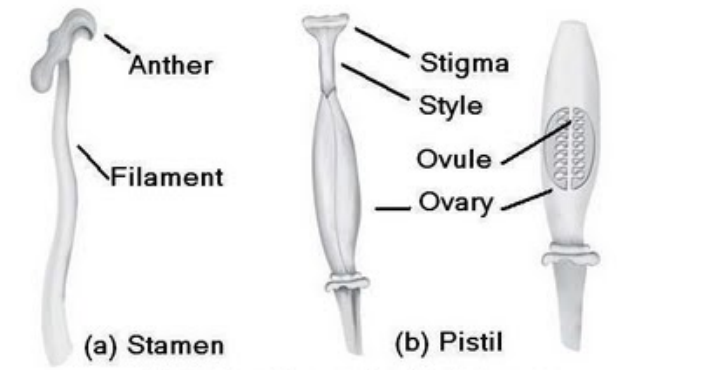
4. State the main difference between asexual and sexual reproduction.

Answer:

Asexual Reproduction	**Sexual Reproduction**
It requires only one parent.	It requires two parents.
In asexual reproduction plants can give rise to new plants without seeds	In sexual reproduction, new plants are obtained from seeds.
Newly developed plants are identical to the parent and each other.	Newly developed plants are not identical to the parent.
Special reproductive parts are not required for asexual reproduction.	Flower is the productive part of plant which contains sexual organs of a plant. These are important fro sexual reproduction.
Example are yeast , rose , potato etc.	Example are flowering plants, such as Hisbiscus, papaya, corn etc.

5. Sketch the reproductive parts of a flower.

Answer:



Reproductive parts of a Flower

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

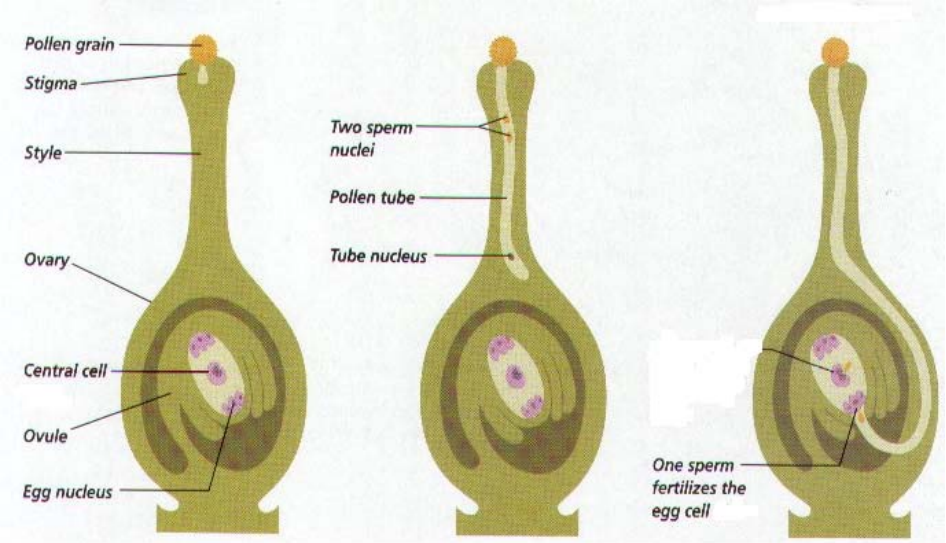
Answer:

Self-pollination	Cross-pollination
It involves the transfer of pollen from the stamen to the pistil of the same flower.	It involves the transfer of pollen from the stamen of one flower to the pistil of another flower of the same plants or that of a different plant of the same kind.
It occurs only in bisexual flowers.	It occurs only in both unisexual and bisexual flowers.

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

Answer:

When pollen grains lands on stigma, it germinates and gives rise to a pollen tube that passes through the style and reaches the ovary of the pistil. When pollen tube reaches an ovule, it releases the male gametes. A male gamete fuses with female gamete in the ovule. This process is known as fertilization. The cell which is formed after fusion of a male and female gamete is known as zygote. This zygote divides into several times in order to form the embryo present inside the seed.



8. Describe the various ways by which seeds are dispersed.

Answer:

Seed are dispersed by the following agencies:

Dispersion by animals: There are many ways by which birds and animals can disperse seeds. For example, birds and animals can eat fruits and excrete the seeds away from the parent plants. Some seeds have spines or other structures that get attached to the animal's body and carried to new sites.

Dispersion by water: many aquatic plants or plants live near water have seeds that can floats and carried away by water. For example coconut can float and disperse by water.

Dispersion by wind: Some seeds are enclosed in wing-like husks (with one or two propeller blades) or fluffy coverings that help them drift some distance away from the parent plant. For example: The seeds of maple and dandelion are winged and get dispersed by winds, drumstick and sunflower.

Dispersion by explosion: Sometimes the seeds are dispersed by the bursting of fruits with sudden jerks. Seeds get scattered away from the parent plant like castor and balsam.

9. 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

Answer:

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

Answer: (iv) .

The reproductive part of a plant is the flower.

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

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

Answer : (i)

The process of fusion of the male and the female gametes is called fertilization.

(c) Mature ovary forms the

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

Answer : (iv)

Mature ovary forms the fruit.

(d) A spore producing plant is

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

Answer : (ii)

A spore producing plant is bread mould

(e) Bryophyllum can reproduce by its

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

Answer : (ii)

Bryophyllum can reproduce by its leaves.