**Exercise Questions** **Page Number 141-142**

**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) 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 flower**.
(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.**
**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
- Multiple fission

**Examples**

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

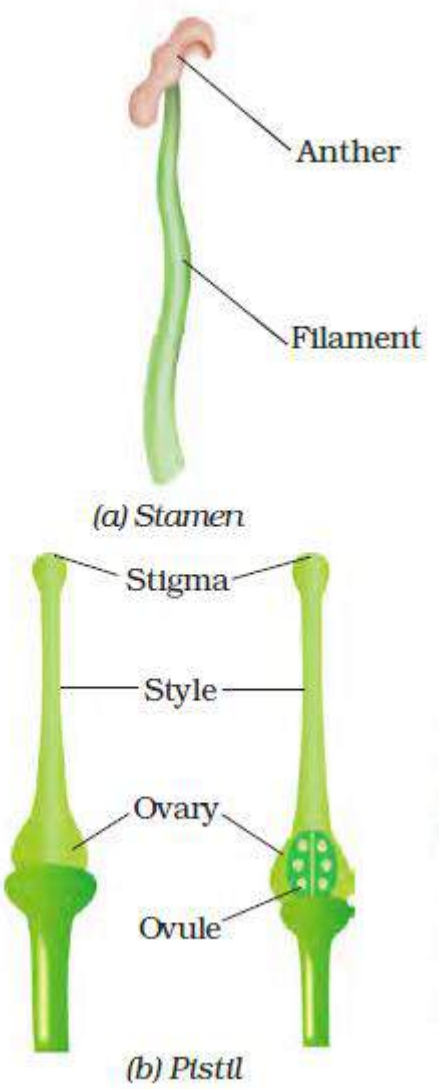
Plasmodium undergoes the process of multiple fission.

**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. Describe the various ways by which seeds are dispersed.**
**Solution:**
Seeds and fruits of plants are carried away by the wind, water and animals. Winged seeds such as those of drumstick and maple, light seeds of grasses or hairy seeds of aak (Madar) and hairy fruit of the sunflower get blown off with the wind to faraway places. Some seeds are dispersed by water. These fruits or seeds usually develop floating ability in the form of a spongy or fibrous outer coat as in coconut. Some seeds are dispersed by animals, especially spiny seeds with hooks which get attached to the bodies of animals and are carried to distant places. Examples are Xanthium and Urena. Some seeds are dispersed when the fruits burst with sudden jerks. The seeds are scattered far from the parent plant. This happens in the case of castor and balsam.

**9. 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