

# THE FLOWER

30

CH-2

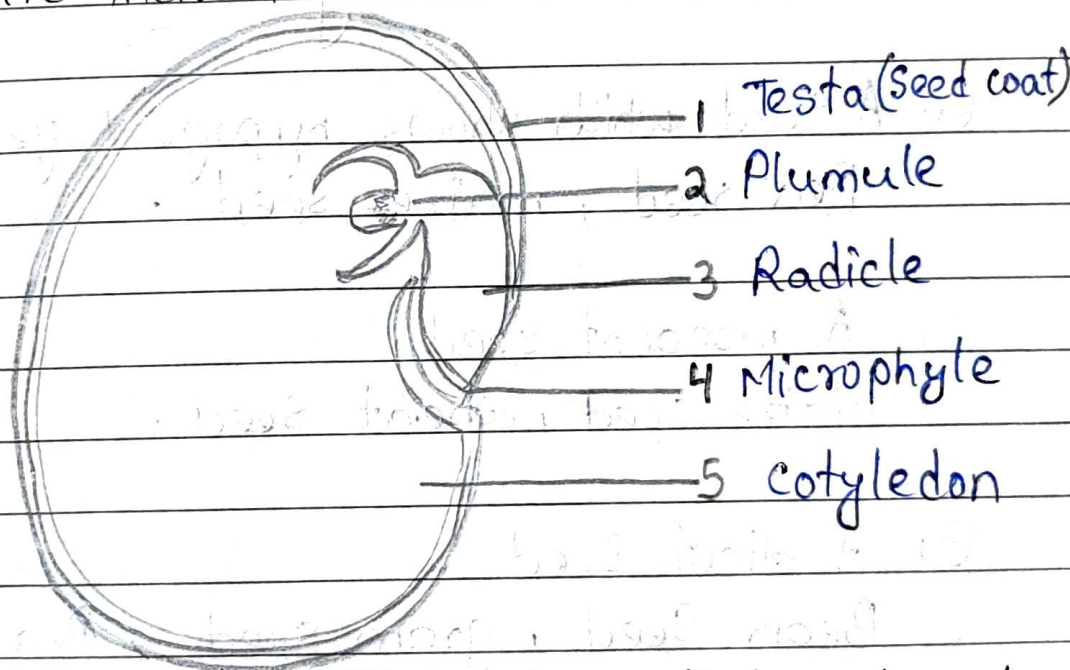
## 1. Multiple choice Questions :

- (a) In a germinating seed, the roots develop from : Radicle
- (b) In a germinating seed, the shoot develops from : Plumule
- (c) Which one of the following is a monocotyledonous seed? Maize
- (d) If the cotyledons are pushed above the soil, then such type of germination is called : Epigeal
- (e) If the cotyledons remain under the soil, then such type of germination is called : Hypogeal
- (f) Pollen is produced in the : Anther
- (g) Reproductive whorls of a flower are : stamens and Carpels
- (h) Which one of the following is a false fruit? Apple

(i) In a seed, food is generally stored in:  
Cotyledons or endosperms.

### Short Answer Questions :

1. Given below is a longitudinal section of a bean seed. Label the parts marked 1 to 5 and write their functions:



**Testa (seed coat) :** It is also called seed coat, It protects the seed from insects and bacteria as well as from a mechanical injury.

**Plumule :** Plumule develops into a shoot.

**Radicle :** It develops into the root.

Microphyle. % It absorbs as much water as it is required for germination.

Cotyledon % It contains stored food material which is used by the seedling during germination.

2. Name the following %

(a) A seed which shows hypogeal germination %  
Pea seed, maize seed.

(b) A monocot seed.  
Maize seed, wheat seed.

(c) A dicot seed.  
Bean seed, gram seed, Pea seed.

(d) A seed which shows epigeal germination  
Bean seed, castor seed, tamarind seed.

3. Differentiate between the following pairs of terms % —

(a) Radicle

Plumule

(i) The radicle is the embryonic root of the plant.

(i) Plumule is the embryonic shoot of the plant.

(ii) Radicle is the first part of the seedling.

(ii) Plumule grows after the radicle.

(iii) The radicle makes the root of the plant.

(iii) Plumule makes the plant shoot.

(iv) Radicles are negatively phototropic.

(iv) Plumule is positively phototropic.

(b) Hilum

micropyle

(i) Hilum is the elliptical scar found on the seed marking a point of attachment of the funicle.

(i) Micropyle is the small opening in the integuments of the ovule which enable the sperms to access the ovum during fertilization.

(ii) In monocot seeds hilum is partially covered by the caruncle.

(iii) Hilum is the point which attaches the ovule to the placenta.

(c)

### Testa

(i) It is the outermost protective covering of the seed.

(ii) It is brownish colour

(ii) In monocot seeds micropyle is totally covered by the caruncle.

(iii) Water absorbed through the micropyle into the embryo during germination of seeds.

### Tegmen

(i) It is the inner protective covering of the seed ~~present below the testa~~ ~~is the inner~~

(ii) It is whitish colour.

4. Give two functions of a fruit.

- Ans. \*
- \* It stores food material
  - \* It attracts animals that help in dispersing the seeds to distant places.
  - \* It protects the immature seeds from animals and extreme climatic conditions.

5. Match the Column :

Column A

Column B

- |               |  |
|---------------|--|
| (a) Radicle   | (i) shoot                                |
| (b) Plumule   | (ii) Store food material                 |
| (c) Cotyledon | (iii) Root                               |
| (d) Testa     | (iv) Absorb water needed for germination |
| (e) Micropyle | (v) Protection of Seed.                  |

6. Radicle emerges out of the seed earlier than plumule. State one advantage served by this.

Ans. \* It is the embryological roots of plants which will help in absorption of nutrients and water for development of plumule.

\* It will result in better grip in soil and will help in development of plant.

7. State True or false :-

(a) Some seeds have no cotyledons. false

(b) Warmth is necessary for the germination of seeds? True

(c) All seeds have two cotyledons. false

(d) Oxygen is necessary for the germination of seeds. True

8. State one function of the following :-

- (a) Radicule : The radicle is the embryonic root of the plant, and grows downward in the soil. It is the first thing to emerge from a seed and down into the ground to allow the seeds to suck up water and send out its leaves so that it starts photosynthesizing.
- (b) Cotyledons : Cotyledons are the first part of a plant to emerge from the seed. They are formed within the seed along with the endosperm.
- (c) Endosperm : An endosperm is the tissue that is produced inside the seeds of most flowering plants. The endosperm surrounds the embryo. It is basically the food storage for the seed.
- (d) Micropyle : The micropyle helps in absorbing the water at the time of germination of the seed. ~~The~~ ~~is~~ ~~the~~ The root emerges through micropyle during germination.



9. The three conditions necessary for germination of seeds are (tick the correct answer) :

(a) Oxygen, suitable temperature and water.

(b) Good soil, water and air.

(c) Good soil, suitable temperature and light.

(d) Light, oxygen and temperature.

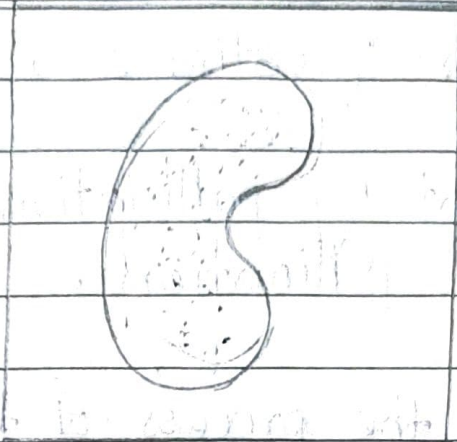
(e) Oxygen, carbon dioxide and light.

10. Name the part of the seed from which the following are given out :

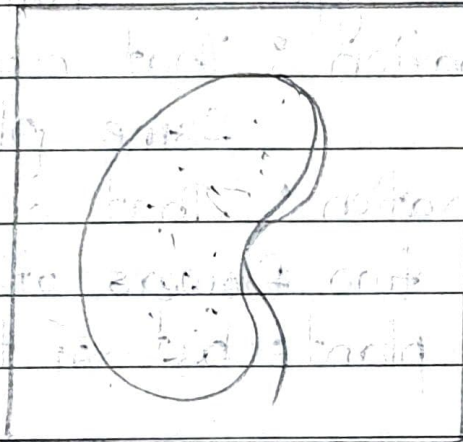
(a) Roots : Radicle

(b) Leaves : plumule gives rise to shoot bearing leaves.

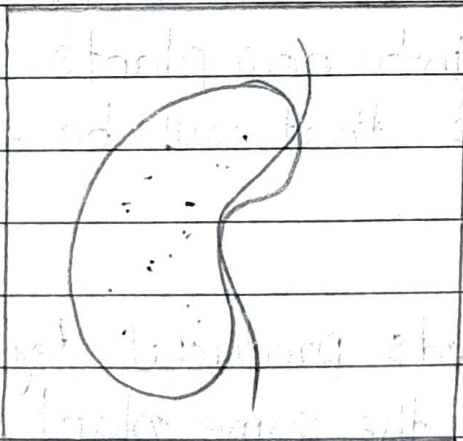
11. Draw labelled diagrams to show the three stages in the germination of any seed you have observed.



Complete Seed



Radicle emerged



plumule emerged

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## Long Answer Questions :

1. What is meant by pollination? Name the two types of pollination.

Ans. Pollination is the process of transfer of Pollen grains from anther to stigma.

The two types of Pollination are:-

\* Self pollination : That occurs within the same plant.

\* cross-pollination : That occurs between two flowers of two different plants but of the same kind.

2. Imagine all the seeds produced by a plant happen to fall under the same plant and sprout into new plants. Mention any two problems that will be faced by the new plants :

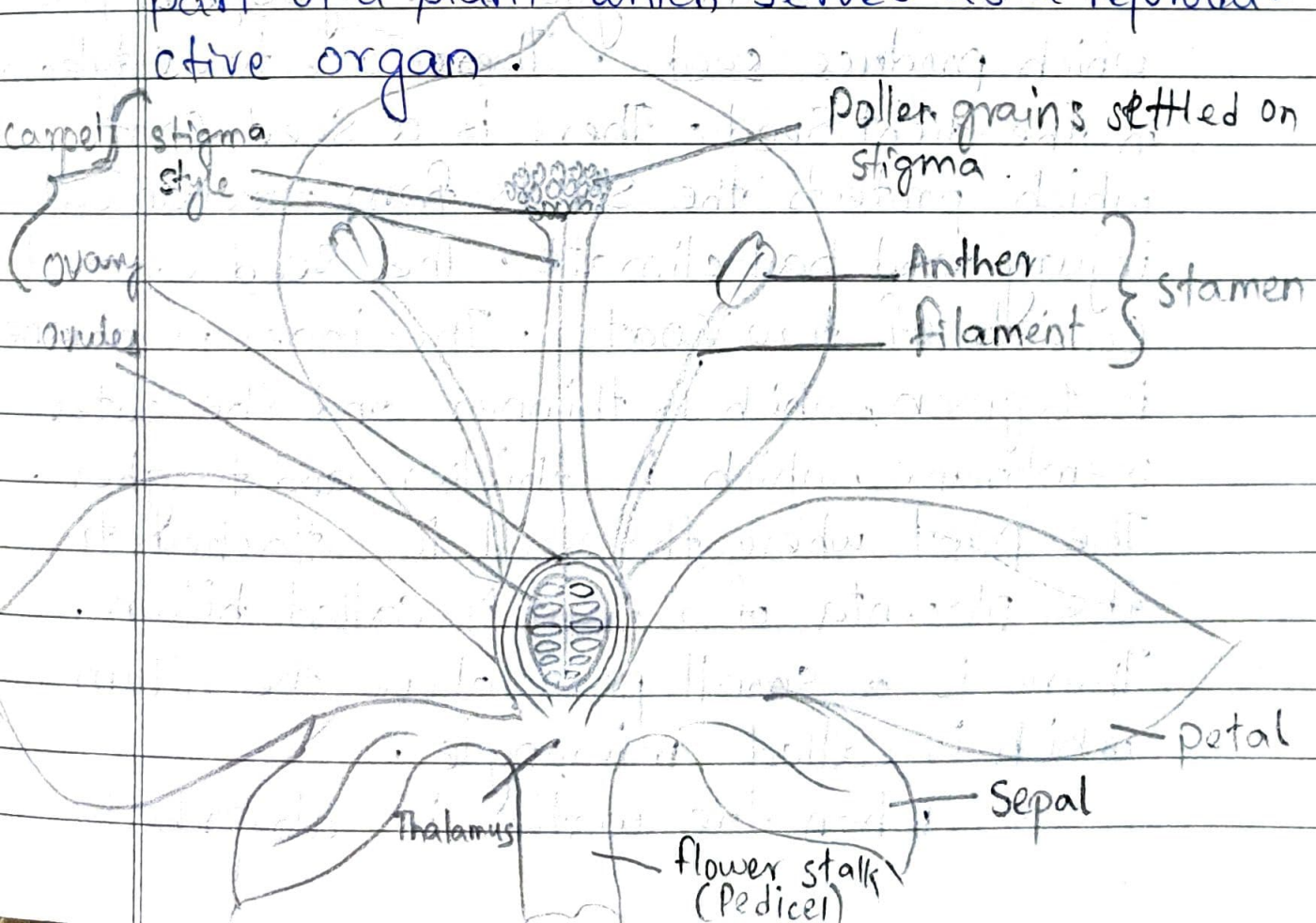
Ans. If all the seeds produced by a plant happen to fall under the same plant and sprout into new plants then in this situation plants will face the following problems: —

\* A large number of plants will grow at the same place which will provide only limited water and minerals to the plants.

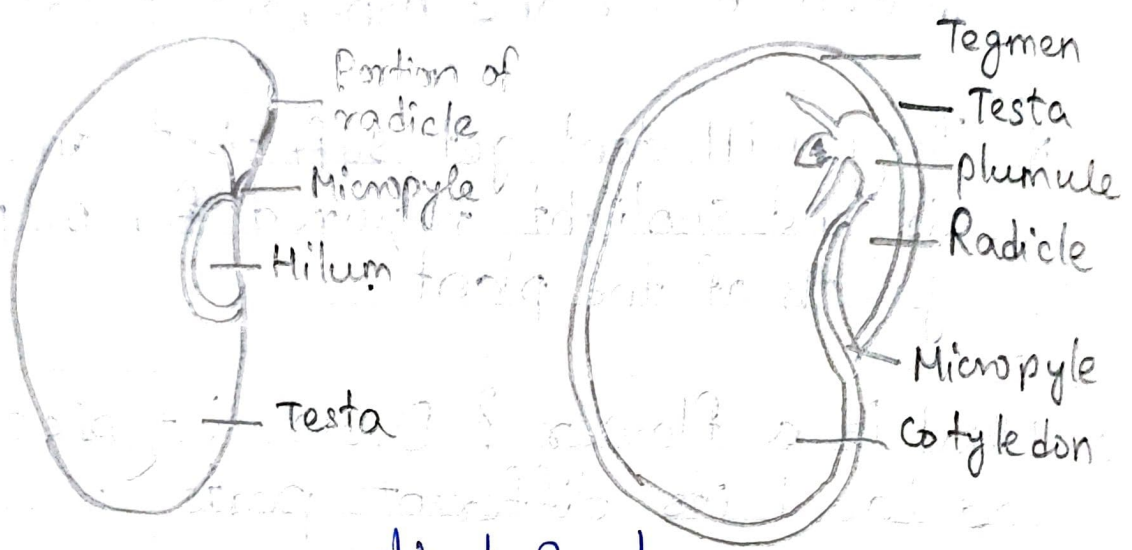
\* They will not get sufficient amount of air and sunlight required for proper growth of the plant.

3. What is a flower? Draw a typical flower and label its different parts.

Ans. A flower is the most beautiful and colourful part of a plant which serves as a reproductive organ.



4. With the help of a suitable labelled diagram, describe the structure of a dicot seed.



dicot Seed

The dicots are the type of angiosperm plants which produce seeds. There are two cotyledons in the dicot seed. There is a seed coat which protects the seeds from mechanical injury and bad climate. The seed coat consists of two coats. The inner membrane is tegmen, which is thinner and the outer membrane, which is thicker and tougher. The point where the seed is attached to the placenta of a fruit is called hilum. There is a small pore above the hilum which is called micropyle.

When the water is absorbed

through the micropyle, there is a development of radicle and plumule. The radicle forms the root and the plumule forms the shoot.

The region between the plumule and micropyle is called epicotyl and the region between the radicle and micropyle is called hypocotyl.

5. Define germination? Name the two types of germination. Explain with examples.

Ans. The process by which an embryo within the seed becomes active and grows into a young plant is called germination. Water, air and favourable temperature are the three necessary conditions for the germination of a seed.

There are two types of germination. They are :

\* Hypogeal germination : In this kind of germination, the cotyledons do not come out of the soil surface. The epicotyl elongates pushing the plumule out of the soil.

Ex - maize, rice, ground nut.

\* Epigeal germination % In this kind of germination the cotyledons are brought above the soil due to elongation of the hypocotyle.

Here the cotyledons, besides food storage, also perform photosynthesis till the seedling becomes independent.

Ex - bean, papaya, tamarind, cucumber

6. What are the three conditions necessary for the germination of seeds.

Ans. The three conditions necessary for the germination of seeds are water, air and suitable temperature.

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7. Give the ~~name~~ main differences between hypogeal and epigeal germination.

Ans.

HYPOGEEAL

EPIGEEAL

\* Cotyledons remain below the ground.

\* Cotyledons are pushed above the ground.

\* Epicotyl elongates faster than hypocotyl, hence cotyledons remain below.

\* Hypocotyl elongates faster than epicotyl. Hence cotyledons get pulled above.

\* Ex - maize, rice, groundnut.

\* Ex - bean, tamarind, Papaya, cucumber.

8. State the location of the following in a flower.

(a) Sepals : Sepals are the green outermost part of a flower.

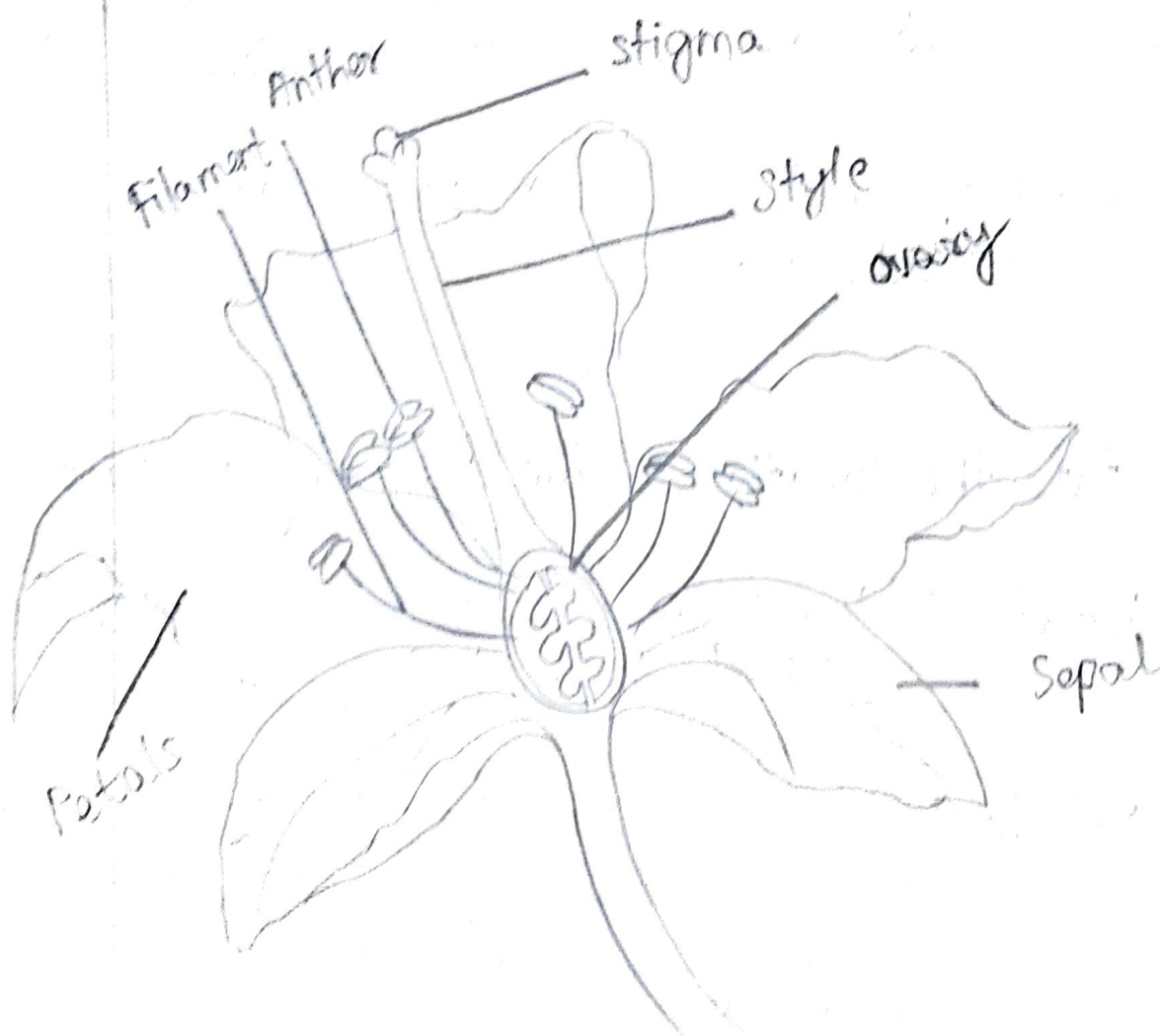
(b) Petals : This forms the second inner whorl. Petals are the large, fragrant and brightly coloured parts of the flower.



(c) Anthers : It is located in the third whorl of the flower. The filament of the stamen bears the anther at its tip.

(d) stigma : It is located in the fourth and the innermost whorl of the flower. The style bears the stigma at its tip.

9. Given below is the diagram of a typical flower. Label the parts marked by guidelines.



10. Give the difference in the function between the following parts :

(a)

Ovary

Ovule

\* It is the female reproductive part of the flower

\* It is present inside the ovary.

\* It develops into a fruit

\* It develops into seed.

(b) Petal and Sepal

Petal

Sepal

\* Petal is present in the second inner whorl of the flower.

\* It is the outer most whorl of a flower.

\* Petals are usually coloured or white but never green. It makes the flower attractive and attracts the insects for pollination.

\* Sepals are green leaf like structures. They enclose the inner part of the flower to provide necessary protection to growing bud.

(c) Filament and style

Filament

- \* Filament is a thin thread like structure which bears the anther on its tip.

style

- \* style bears an expanded stigma at its tip and transfers the male gametes of the pollen grain into the ovary.

d) Pollen grains and ovule

Pollen grains

- \* Pollen grains contain the male gametes
- \* Pollen grains germinate to produce pollen tubes, which carry the male gametes to the ovary.

ovule

- \* Ovule contains the female gametes.
- \* After fertilization the ovule develops into a seed.

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