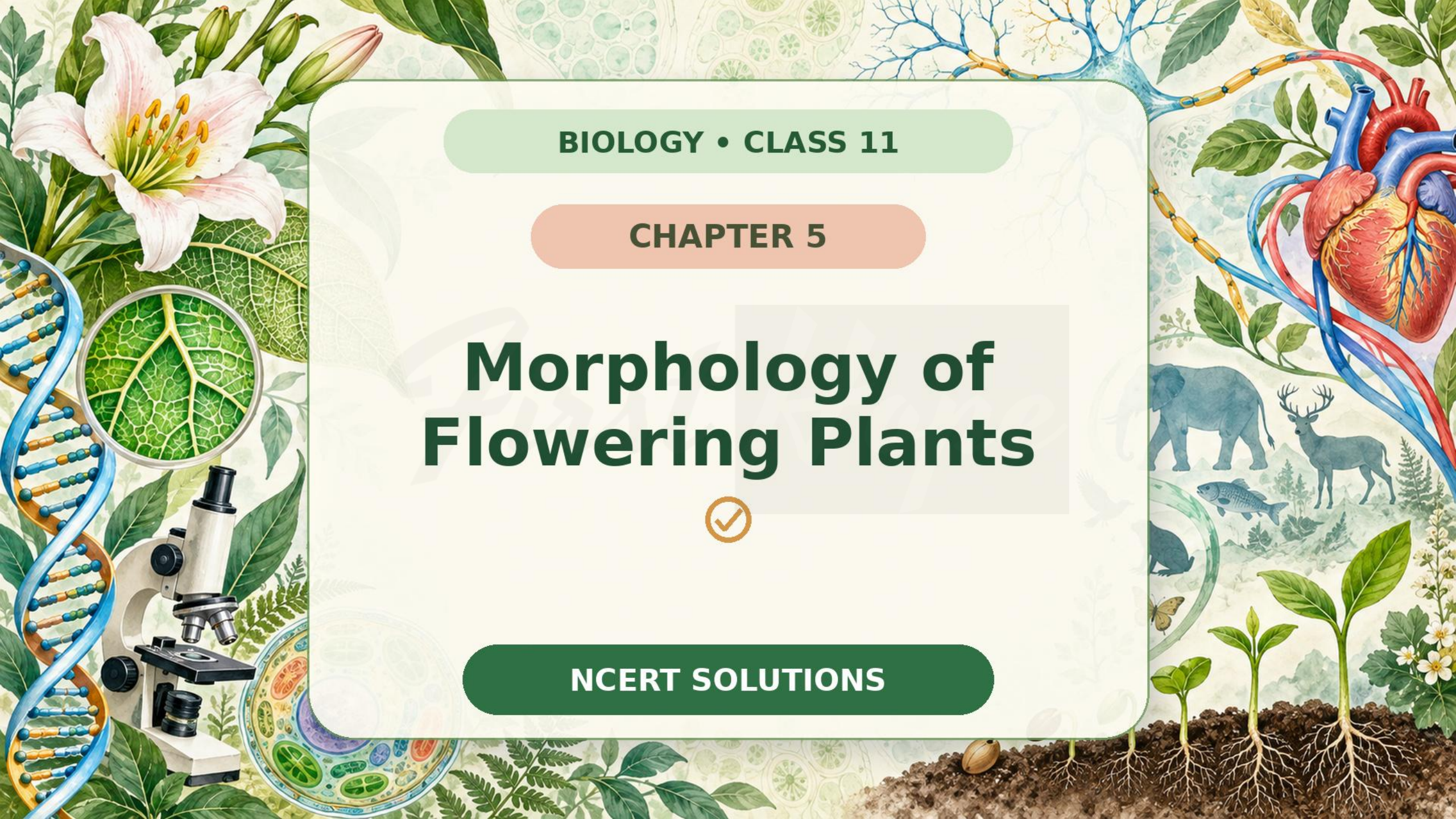




BIOLOGY • CLASS 11

CHAPTER 5

Morphology of Flowering Plants



NCERT SOLUTIONS

EXERCISE SOLUTIONS: QUESTIONS 1-2

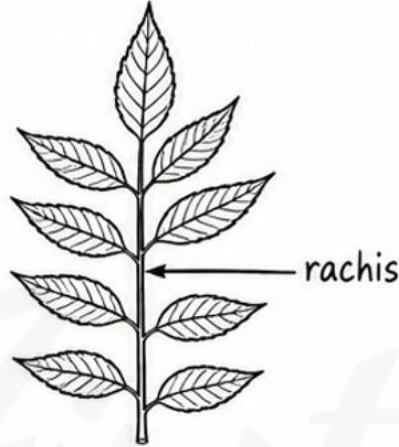
1. How is a pinnately compound leaf different from a palmately compound leaf?

Answer:

Pinnately compound:

In a pinnately compound leaf, the leaflets are arranged along a common axis called the rachis.

Example – neem.

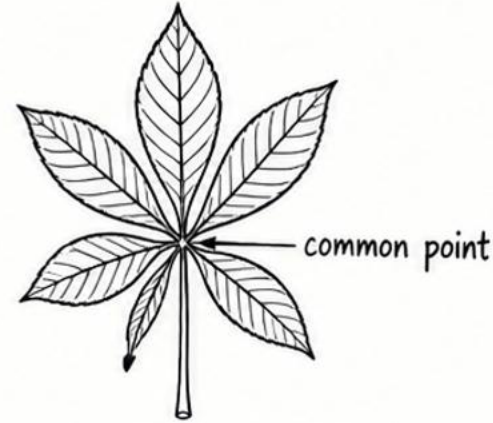


Pinnately compound leaf
(Neem)

Palmately compound:

In a palmately compound leaf, all the leaflets arise from one common point at the tip of the petiole.

Example – silk cotton.



Palmately compound leaf
(Silk cotton)

2. Explain with examples the different types of phyllotaxy.

Answer:

Alternate:

In alternate phyllotaxy, one leaf arises at each node and the leaves are arranged alternately on the stem.

Examples – China rose, mustard and sunflower.



Alternate phyllotaxy

Opposite:

In opposite phyllotaxy, two leaves arise at each node, opposite each other.

Examples – guava and Calotropis.



Opposite phyllotaxy

Whorled:

In whorled phyllotaxy, more than two leaves arise at a node.

Example – Alstonia.



Whorled phyllotaxy

EXERCISE SOLUTION: QUESTION 3 (A-D)

Question 3. Define: (a) aestivation (b) placentation (c) actinomorphic (d) zygomorphic.

Answer:

(a) Aestivation:

the arrangement of sepals or petals in a floral bud with respect to other members of the same whorl.

Answer:

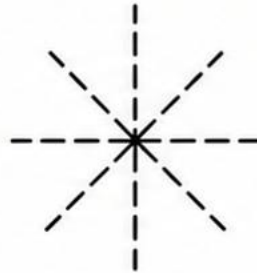
(b) Placentation:

the arrangement of ovules on the placenta inside an ovary.

Answer:

(c) Actinomorphic flower:

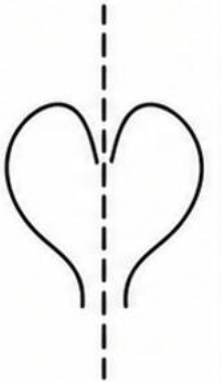
a flower that can be divided into two equal radial halves by any vertical plane passing through its centre; examples mustard and Datura.



Answer:

(d) Zygomorphic flower:

a flower that can be divided into two equal halves in only one particular vertical plane; examples pea and bean.



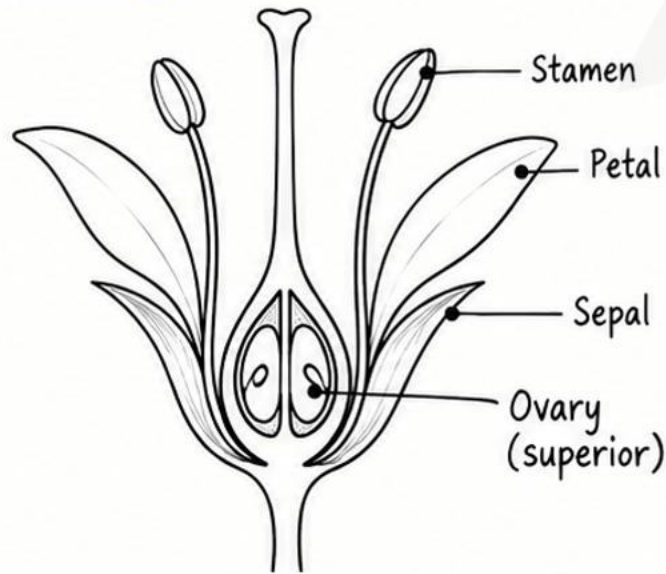
EXERCISE SOLUTION: QUESTION 3 (E-G)

Question 3. Define: (e) superior ovary (f) perigynous flower (g) epipetalous stamen.

Answer:

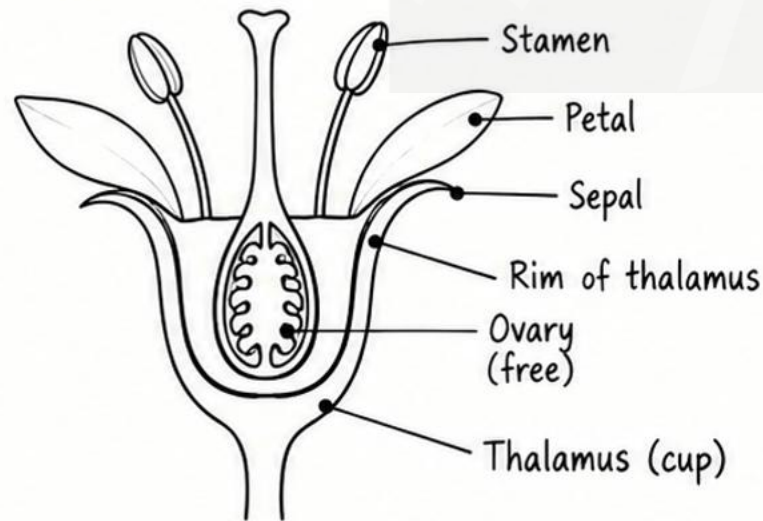
(e) Superior ovary

A superior ovary: an ovary positioned above the points of attachment of the other floral whorls. It occurs in hypogynous flowers; examples mustard and brinjal.



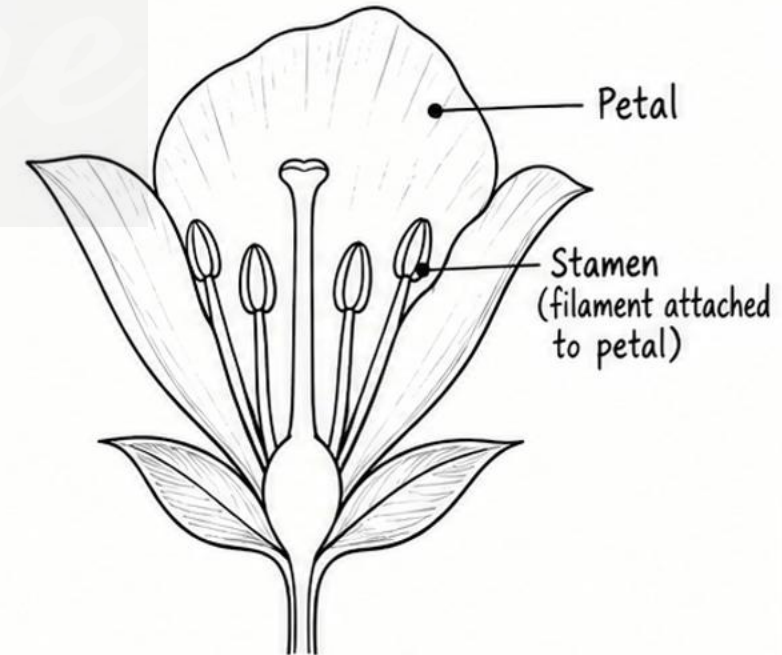
(f) Perigynous flower

A perigynous flower: the thalamus forms a cup around a FREE ovary, while sepals, petals and stamens arise from the rim. Because the ovary is not fused to the cup, it is botanically superior. Examples rose, plum and peach.



(g) Epipetalous stamen

Epipetalous stamens: stamens whose filaments are attached to the petals. Example: brinjal.



EXERCISE SOLUTION: QUESTION 4

Question 4. Differentiate: (a) racemose and cymose inflorescence (b) apocarpous and syncarpous ovary.

Answer:

(a) Racemose and cymose inflorescence:

Feature	Racemose inflorescence	Cymose inflorescence
Growth of main axis	Main axis continues to grow.	Main axis ends in a flower; growth is limited.
Position of flowers	Flowers arise laterally.	Flowers arise laterally.
Position of younger and older flowers	Younger flowers are near the apex or centre and older flowers are near the base or periphery.	Older flowers are near the apex or centre and younger flowers are near the base or periphery.
Order of flowering	Order is acropetal or centripetal.	Order is basipetal or centrifugal.
Example	Mustard.	Jasmine.

(b) Apocarpous and syncarpous ovary:

Feature	Apocarpous ovary	Syncarpous ovary
Condition of carpels	Two or more carpels are free.	Two or more carpels are fused.
Example	Lotus and rose.	Mustard and tomato.

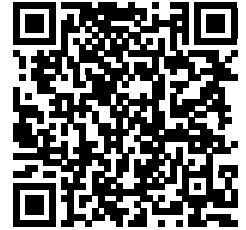


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