

**UNIT -VI: INTERNAL ORGANISATION OF PLANTS****12. HISTOLOGY AND ANATOMY OF FLOWERING PLANTS**

1 SAQ +1 LAQ =4M+8M=12M

**ROOT POINTS**

1. **Histology** is the study of different tissues in the plant body.
2. **Anatomy** is the study of internal structure and arrangement of various tissues.
3. Anatomically a plant is made up of different kinds of **tissues**.
4. Plant tissues are classified into (i) **Meristematic tissues** (ii) **Permanent tissues**.
5. Meristematic tissue comprises meristematic cells which help in the growth of the plant body.
6. Based on the location Meristematic tissues are (i) **Apical** (ii) **Intercalary** (iii) **Lateral** [IPE]
7. **Xylem** and **Phloem** are the **complex tissues**.
8. **Xylem** is meant for the **conduction of water** and **phloem** is for the conduction of **food** materials.
9. There are three types of tissue systems - **Epidermal, Ground and Vascular**.
10. The epidermal tissue systems are made of epidermal cells, stomata and the epidermal appendages.
11. **Stomata** are present on leaves and young stems. [IPE]
12. **Lenticels** are pores present on old stems and old aerial roots. [IPE]
13. The **ground tissue system** forms the main bulk of the plant.
14. It is divided into three zones - **cortex, pericycle and pith**.
15. The **vascular tissue system** is formed by the **xylem** and **phloem**.
16. **Monocot** and **dicot plants** show marked **variation** in their **internal structures**.
17. But the **anatomy** of **monocot root** and **dicot root** is more or less **similar**.
18. **Periderm**: The corky outer layer of a plant system formed as a secondary covering in response to injury or infection is called Periderm. [IPE]
19. **Epidermis** is with unicellular root hairs, cuticle. Stomata are absent.
20. **Exodermis** is with suberised cells. General cortex is parenchymatous.
21. **Endodermis** shows casparian thickenings. Pericycle is parenchymatous.
22. **Pith** or **Medulla** is scanty or absent in dicot root and well developed in monocot root.

23. **Vascular bundles** are conjoint, collateral, **open in dicots** and **closed in monocots stem**.
24. **T.S of dicot stem:** (i) Epidermis (ii) Cortex (iii) Stele [IPE]
- i) **Epidermis:** Epidermis is outer most layer.
- ii) **Cortex:** The part between epidermis and stele is called cortex.  
It is composed of (a) Hypodermis (b) General cortex (c) Endodermis
- iii) **Stele:** Stele is the central conducting cylinder.  
It is composed of (a) pericycle (b) vascular bundles (c) medulla (d) Medullary rays.
25. **T.S of Monocot Stem:** (i) Epidermis (ii) Hypodermis (iii) Ground tissue (iv) Vascular bundles
26. **T.S of dicot root:** (i) Epidermis (ii) Cortex (iii) Stele [IPE]
27. **T.S of Monocot root:** (i) Epidermis (ii) Cortex (iii) Stele [IPE]
28. The reason for **curling of grass leaves** inwards during very dry weather is [NEET 2019]  
due to **flacidity of bulliform cells**.
29. **Phloem** in gymnosperms lack **both seive tubes and companion cells**. [NEET 2019]
30. **Xylem** translocates **water, mineral salts some organic nitrogen only**. [NEET 2019]
31. The morphological nature of the edible part of coconut is **endosperm**. [NEET-2017]
32. In Bougainvillea, thorns are the modifications of **stem**. [NEET-2017]
33. Coconut fruit is a **drupe**. [NEET-2017]
34. Cortex is the region found between **epidermis and stele**. [NEET-2016]
35. Free-central placentation is found in **Dianthus**. [NEET-2016]
36. Radial symmetry is found in the flowers of **Brassica**. [NEET-2016]
37. The term 'polyadelphous' is related to **androecium**. [NEET-2016]
38. Specialised epidermal cells surrounding the guard cells are called **subsidiary cells**. [NEET-2016]
39. The standard petal of a papilionaceous corolla is also called **vexillum**. [NEET-2016]
40. Cotyledon of maize grain is called **scutellum**. [NEET-2016]
41. Stems modified into flat green organs performing the functions of leaves are known as **phylloclades**. [NEET-2016]
42. Roots play insignificant role in absorption of water in **Pistia**. [NEET-2015]
43. Vascular bundles in monocotyledons are considered closed because **cambium is absent**. [NEET-2015]

44. A major characteristic of monocot root is the presence of **vasculature without cambium.** [NEET-2015]
45. Leaves become modified into spines in **Opuntia.** [NEET-2015]
46. Keel is the characteristic feature of flower of **Indigofera.** [NEET-2015]
47. Perigynous flowers are found in **rose.** [NEET-2015]
48. An aggregate fruit is one which develops from **multicarpellary apocarpous gynoecium** [NEET-2014]
49. An example of edible underground stem is **potato.** [NEET-2014]
50. Trachieds differ from other tracheary elements in **being imperforate.** [NEET-2014]
51. Placenta and pericarp are both edible portions in **tomato.** [NEET-2014]
52. Age of a tree can be estimated by **number of annual rings** [NEET-2013]
53. Lenticels are involved in **gaseous exchange.** [NEET-2013]
54. Perisperm differs from endosperm in **being a diploid tissue** [NEET-2013]
55. As compared to a dicot root, a monocot root has **many xylem bundles.** [2012 PMT]
56. vexillary aestivation is characteristic of the family **Fabaceae.** [2012 PMT]
57. The coconut water and the edible part of coconut are equivalent to **endosperm.**[2012 PMT]
58. Water containing cavities in vascular bundles are found in **maize.** [2012 PMT]
59. Closed vascular bundles lack **cambium.** [2012 PMT]
60. The gynoecium consists of many free pistils in flowers of **Michelia.** [2012 PMT]
61. Phyllode is present in **Australian Acacia.** [2012 PMT]
62. The reason for **curling of grass leaves** inwards during very dry weather is **due to flaccidity of bulliform cells.** [NEET 2024]
63. Gymnosperms lack xylem vessels but presence of xylem vessels is the characteristic of angiosperms. [NEET 2024]