

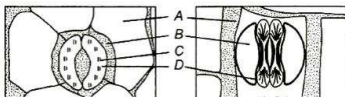
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BIOLOGY

## ANATOMY OF FLOWERING PLANTS

### Single Correct Answer Type

- Cambium activity is
  - More active towards the periphery of stem
  - More active towards the lateral sides of stem
  - More active towards the inner side of stem
  - Same on the both sides
- Cambium is a type of
  - Apical meristem
  - Intercalary meristem
  - Lateral meristem
  - Permanent of mature meristem
- Pith is a central part of the ground tissues generally made up of
  - Parenchyma
  - Collenchyma
  - Chlorenchyma
  - Sclerenchyma
- Interfascicular cambium is found
  - Between pith and vascular bundle
  - Between two vascular bundles
  - In the vascular bundle
  - Outside the bundle
- Meristematic tissue are
  - Premature having ability of division
  - Mature does not have ability of division
  - Premature not having ability of division
  - Complex differentiating in xylem, phloem and cambium
- I. The 1° and 2° phloem get gradually crushed due to the continued formation and accumulation of 2° xylem  
II. 1° xylem remains more or less intact in or near the centre  
III. Secondary growth results in an increase in the length of the axis  
Select the correct statements
  - I and II
  - II and III
  - I and III
  - I, II and III
- Cork is used as the stopper for bottles, for shock absorption and insulation because of
  - It is light and compressible
  - Non-reactive
  - Sufficiently resistant to fire
  - All of the above
- Medullary rays are formed by the
  - Radially placed parenchymatous cells between vascular bundles
  - Longitudinally placed parenchymatous cells between vascular bundles
  - Laterally placed parenchymatous cells between vascular bundles
  - Obliquely placed parenchymatous cells between vascular bundles
- Identify A to D in the given diagram and choose the correct option



- A-Epidermal cell, B-Guard cell, C-Subsidiary cell, D-Chloroplast
- A-Epidermal cell, B-Subsidiary cell, C-Chloroplast, D-Guard cell

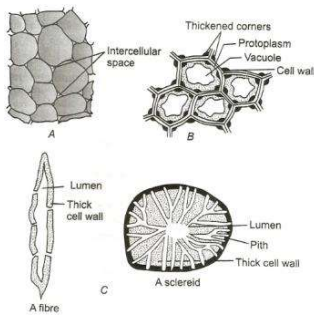
- c) A-Epidermal cell, B-Chloroplast, C-Subsidiary cell, D-Guard cell  
d) A-Guard cell, B-Chloroplast, C-Subsidiary cell, D-Epidermal cell
10. The jute fibres anatomically are  
a) Bast fibres                      b) Cortical fibres                      c) Xylem fibres                      d) Pith fibres
11. The merismatic tissue responsible for the cutting of vascular tissue (xylem and phloem) is called  
a) Cork cambium                      b) Vascular cambium                      c) Lateral meristem                      d) Endodermis
12. Secondary phloem of a dicot root is made up of  
I. sieve tube  
II. companion cell  
III. phloem parenchyma  
Select the correct option for given statement  
a) I and II                      b) II and III                      c) I and III                      d) All of these
13. The internal structure of a plant stem is observed. There is a discontinuous ring of angular collenchyma below the epidermis. Type of vascular bundles are of the same type as in the stems of solanaceous plants. Sieve tube elements possess simple sieve plates, identify the plant.  
a) *Helianthus*                      b) *Cucurbita*                      c) *Zea mays*                      d) *Hydrilla*
14. The innermost layer of cortex is called  
a) Epidermis                      b) Casparian strips                      c) Endodermis                      d) Pericycle
15. Amphistomatic leaf is  
a) Dicotyledonous leaf                      b) Monocotyledonous leaf  
c) Both (a) and (b)                      d) None of these
16. Which is not a characteristic of plant cell walls?  
a) Found only in the sporophyte phase of life cycle  
b) Among other compounds contains compounds built of simple sugars  
c) May contain enzymes that are biologically active  
d) Often contain strengthening polymers
17. The ring arrangement of vascular bundle is the characteristic feature of  
a) Dicot root                      b) Monocot root                      c) Monocot stem                      d) Dicot stem
18. Primary meristem is  
a) Apical meristem                      b) Intercalary meristem  
c) Root apical meristem and shoot apical meristem                      d) Both (a) and (b)
19. I. These tissue are found as layers or patches  
II. It consists of cells which are thickened at the corners  
III. It often contains chloroplast  
IV. Intercellular spaces are absent  
V. They provide mechanical support to growing parts of plants  
The above characters are attributed to  
a) Vascular tissue                      b) Collenchyma  
c) Parenchyma                      d) Simple sclerenchyma
20. Examples for lateral meristems are  
a) Phellogen and procambium                      b) Fascicular cambium and procambium  
c) Procambium and dermatogen                      d) Fascicular cambium and cork cambium
21. Medullary or pith ray is the  
a) Radial strip of parenchyma which is present between vascular bundles  
b) Radial strip of collenchyma which is present between vascular bundles  
c) Radial strip of sclerenchyma which is present between vascular bundles  
d) The another name of stele
22. Which of the function in the given options does not belongs to the monocot root?  
a) Conduction of water from the root hairs to the inner tissue  
b) Storage of food

- c) The outer most layer or layers of the cortex produce protective exodermis in the older roots  
d) Presence of secondary growth
23. Conjoint vascular bundles are common in  
a) Roots                                      b) Stems                                      c) Leaves                                      d) Both (b) and (c)
24. Periderm is produced from  
a) Cork cambium                              b) Procambium                              c) Secondary cortex                              d) Vascular cambium
25. In stem, the xylem is  
a) Exarch                                      b) Mesarch                                      c) Endarch                                      d) All of these
26. Root apical meristem is derived from the  
a) Plumule part of embryo  
b) Scutellum part of embryo  
c) Radical part of embryo  
d) Endosperm part of embryo
27. Which of the following plants shows multiple epidermis?  
a) *Croton*                                      b) *Allium*                                      c) *Nerium*                                      d) *Cucurbita*
28. The growth of root and stem in length with the help of apical meristem is called ...A.... Apart from primary growth most dicotyledonous plant exhibit an increase in girth called ...B...  
Choose the correct combination of A, B and C in respect to the above paragraph  
a) A-primary growth; B-secondary growth                              b) A-secondary growth; B-primary growth  
c) A-secondary growth; B-tertiary growth                              d) A-primary growth; B-tertiary growth
29. Which of the following statement is correct?  
a) Study of the internal structure is called anatomy  
b) Plants have cells as the basic unit cells, are organised into tissues  
c) Tissues are organised into organs  
d) All of the above
30. In monocotyledonous stem, the vascular bundles are  
a) Conjoint and open  
b) Conjoint and closed  
c) Scattered through out the ground tissue  
d) Both (b) and (c)
31. Select the wrong statements  
I. Primary and secondary phloem gets crushed during secondary growth  
II. During secondary growth, primary xylem remains more or less intact  
a) I is correct and II is incorrect                                      b) II is correct and I is incorrect  
c) Both are incorrect                                      d) Both are correct
32. I. Fat  
II. Protein  
III. Sugar  
IV. Salt  
Which of the above is/are present in higher concentration with the meristematic cells?  
a) Only I                                      b) I and II                                      c) Only IV                                      d) III and IV
33. G H Shull observed inbreeding depression in a plant. Miller and Letham isolated a hormone from the immature seeds of that plant. Which of the following characters is not associated with the plant?  
a) Atactostelic condition in stem  
b) Bundle sheath in leaf  
c) Chromosomal number of endospermous cell is 30  
d) Medulla absent in the root
34. The position of protoxylem in leaf is  
a) Adaxial                                      b) Abaxial  
c) Surrounded by metaxylem                                      d) Lateral

35. The inner, darker and harder portion of secondary xylem that cannot conduct water, in an older dicot stem, is called  
a) Alburnum                      b) Bast                              c) Wood                              d) Duramen
36. The cells arranged in multiple layers between the epidermis and pericycle is called  
a) Pith                              b) Stele                              c) Medullary rays                      d) Cortex
37. Hardness of seed coats is due to the presence of  
a) Sclerenchymatous fibres                      b) Sclereids  
c) Bast                              d) Stone cells
38. Epidermis is derived from  
a) Cambium                      b) Primary xylem                      c) Secondary xylem                      d) Protoderm
39. The activity of cambium in plants is under the control of  
a) Many physiological factors  
b) Many environmental factors  
c) Only water availability  
d) Both (a) and (b)
40. Bark includes  
I. phellogen  
II. phellem  
III. secondary phloem  
IV. secondary xylem  
Select the correct combination  
a) Only I                      b) I, II and III                      c) Only III                      d) All of these
41. Initiation of lateral roots and vascular cambium during secondary growth organs occurs due to activity of  
a) Endodermis                      b) Pericycle                      c) Casparian strip                      d) Periderm
42. I. Sunflower seed  
II. A wheat leaf  
III. Pea plant  
IV. Leaf blade of grass  
Bulliform cells are present in which of the above plants?  
a) I and II                      b) II and III                      c) III and IV                      d) II and IV
43. I. Vessel, II. Tracheids, III. Companion cells  
Which of the following is/are living cells?  
a) I and II                      b) Only III                      c) II and III                      d) Only I
44. Vascular bundles, in which xylem and phloem occur as separate bundles are known as  
a) Collateral                      b) Bicollateral                      c) Radial                      d) Amphivasal
45. In old trees, the greater part of secondary xylem is dark brown due to the  
a) Deposition of inorganic material                      b) Deposition of organic material  
c) Activity of cambium                      d) Activity of secondary xylem
46. Conjunctive tissue is made up of  
a) Parenchymatous cells, *i.e.*, in between the xylem and phloem                      b) Sclerenchymatous cells, *i.e.*, in between the xylem and phloem  
c) Collenchymatous cells, *i.e.*, in between the xylem and phloem                      d) Merismatic cells, *i.e.*, in between the xylem and phloem
47. I. Peripheral vascular bundles are smaller than the centrally located vascular bundles  
II. Phloem parenchyma is absent  
III. Water parenchyma cavities are present within the vascular bundles  
Which of the above characters belong to the monocotyledonous stem?  
a) I and II                      b) II and III  
c) III and I                      d) I, II and III
48. Early wood is formed in dicot plant during

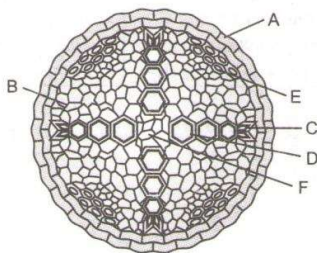
- a) Spring season                      b) Winter season                      c) Autumn season                      d) Summer season
49. The meristem which is particularly present in the mature regions of roots and shoots and produce woody axis and appear later than the primary meristem is called  
a) Secondary meristem                      b) Intercalary meristem  
c) Apical meristem                      d) Tertiary meristem
50. A monocot stem with secondary growth is  
a) *Lilium*                      b) *Cocos*                      c) *Yucca*                      d) *Asparagus*
51. Vessels are absent in this angiosperm.  
a) *Mangifera*                      b) *Magnolia*                      c) *Dillenia*                      d) *Drimys*
52. Conjoint collateral closed vascular bundle is found in  
a) Monocot stem                      b) Monocot root                      c) Dicot stem                      d) Dicot root
53. Palisade parenchyma is absent in leaves of  
a) *Sorghum*                      b) Mustard                      c) Soyabean                      d) Gram
54. The tunica-carpus theory was proposed by  
a) Hofmeister                      b) Nagelli                      c) Strasburger                      d) Schmidt
55. Alburnum is otherwise known as  
a) Periderm                      b) Sapwood                      c) Heartwood                      d) Bark
56. Roots apical meristem occupies the ...A... of roots, while shoot apical meristem occupies the distant most region of the ...B... axis  
Complete the above sentence with the correct combination of A and B  
a) A-tip; B-stem                      b) A-side; B-stem  
c) A-laterally; B-root                      d) A-tip; B-meristematic
57. Vascular bundle in the laves of dicots are surrounded by  
a) Epidermis                      b) Bundle sheath cells                      c) Pericycle                      d) Both (a) and (c)
58. Intercalary meristem is a derivative of  
a) Lateral meristem                      b) Promeristem                      c) Primary meristem                      d) Secondary meristem
59. Exchange of gases between the outer atmosphere and internal tissue of the stem takes place by (in dicot stem)  
a) Lenticels                      b) Stomata                      c) Hydathodes                      d) Pneumatophores
60. A nail is driven into the trunk of a 30 years old tree at a point 1 m above the soil level. The tree grows in height at the rate of 0.5m a years. After three years, nail will be  
a) 1 m above the soil                      b) 1.5 m above the soil  
c) 2 m above the soil                      d) 2.5 m above the soil
61. Intrafascicular cambium is present in between the  
a) Primary xylem and secondary xylem                      b) Secondary phloem and primary xylem  
c) Primary xylem and secondary phloem                      d) Primary xylem and secondary phloem
62. In dicotyledonous roots, the initiation of lateral roots takes place in  
a) Endodermal cells                      b) Cortical cells                      c) Epidermal cells                      d) Pericycle cells
63. The roots of angiosperms show exarch xylem and their stems have endarch bundles. These are continuous throughout the change occurs in  
a) Epicotyl region                      b) Hypocotyl region                      c) Upper part of root                      d) Lower part of stem
64. The stele found in monocot is  
a) Haplostele                      b) Atactosteles                      c) Dictyosteles                      d) Actinosteles
65. Largest number of chloroplast is found in  
a) Palisade tissue                      b) Spongy tissue                      c) Transfusion tissue                      d) Bundle sheath cells
66. Ground tissue includes  
a) All tissues except epidermis and vascular bundles  
b) Epidermis and cortex  
c) All tissues internal to endodermis  
d) All tissues external to endodermis

67. Cambium is present in between  
 a) Phloem and xylem  
 b) Permanent mature cells  
 c) Collenchyma and sclerenchyma  
 d) Collenchyma and parenchyma
68. All the following statements regarding sieve tube elements are true except  
 a) Their end walls have perforated sieve plates which become impregnated with lignin at maturity  
 b) They possess peripheral cytoplasm as well as a large vacuole  
 c) Distinct proteinaceous inclusions, the P-proteins are seen evenly distributed throughout the lumen  
 d) Long, slender, tube-like structures arranged in longitudinal series
69. 'Exarch' is the condition of vascular bundles in which  
 a) Protoxylem lies toward the outside and metaxylem lies inward  
 b) Metaxylem lies toward the outside and protoxylem lies inward  
 c) Metaxylem lies toward the lateral side and protoxylem lies inward  
 d) Protoxylem lies toward the lateral side and metaxylem lies inward
70. Select the correct statements  
 I. Epidermal call have small amount of cytoplasm and a large vacuole  
 II. Waxy layer cuticle is absent in roots  
 III. Root hairs are unicellular, while stem hairs/trichomes are multicellular  
 IV. Trichomes are branched/unbranched, soft/stiff and secretory or transpiration preventive  
 V. Guard cells are dum-bell-shaped in dicots and bean-shaped in monocots (*e.g.*, grass)  
 a) All except I and II  
 b) All except III  
 c) All except II and IV  
 d) All except IV
71. In dicot root, the vascular cambium are  
 a) Completely secondary in origin  
 b) Completely primary in origin  
 c) Secondary as well as primary in origin  
 d) Does not exist
72. I. Annual rigs are formed as a result of seasonal environmental conditions  
 II. Tracheids/vessels elements are larger during periods when water is abundant  
 III. Tracheids/vessels elements have thicker wall during periods of water deprivation  
 IV. Wood formed in the previous years is darker than newer wood  
 Select the combination of correct statements from the options given below  
 a) I and II  
 b) II and IV  
 c) I, II and III  
 d) II, III and IV
73. Select the incorrect statements  
 I. Excessive loss of water is prevented by epidermis  
 II. Stomata develop from epidermal tissue  
 III. Photosynthesis is one of the primary function of leaf ground tissue  
 a) I and II  
 b) II and III  
 c) III and I  
 d) None of the above
74. Which element of xylem is the characteristic feature of angiosperms?  
 a) Tracheids  
 b) Phloem  
 c) Vessels  
 d) Xylem fibre
75. As compared to the dicot root, monocotyledon root have  
 a) More xylem bundles  
 b) More phloem bundles  
 c) Less phloem bundles  
 d) Less xylem bundles
76. The function of a vessel is conduction of  
 a) Food  
 b) Water and minerals  
 c) Hormones  
 d) All of these
77. Complex tissue includes  
 a) Collenchyma  
 b) Apical meristem  
 c) Conducting tissue  
 d) Idioblast
78. Identify the types of simple tissue given in the diagram *A, B* and *C*



- a) A-Parenchyma, B-Sclerenchyma, C-Collenchyma
- b) A-Parenchyma, B-Collenchyma, C-Sclerenchyma
- c) A-Sclerenchyma, B-Collenchyma, C-Parenchyma
- d) A-Sclerenchyma, B-Parenchyma, C-Collenchyma

79. In the diagram of TS of stele of dicot root, the different parts have been indicated by alphabets, choose the answer in which these alphabets correctly match with the parts they indicate.

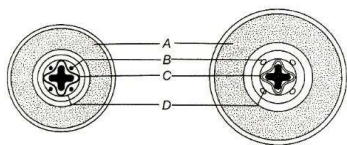


- a) 1. Endodermis, B- Conjunctive tissue, C- Metaxylem, D- Protoxylem, E- Phloem, F- Pith
- b) 1. Endodermis, B- Pith, C- Protoxylem, D- Metaxylem, E- Phloem, F- Conjunctive tissue
- c) 1. Pericycle, B- Conjunctive tissue, C- Metaxylem, D- Protoxylem, E- Phloem, F- Pith
- d) 1. Endodermis, B- Conjunctive tissue, C- Protoxylem, D- Metaxylem E- Phloem, F- Pith

80. The layer of cells outside the phloem meant for giving rise to the root branches is called
- a) Cambium
  - b) Carpus
  - c) Endodermis
  - d) Pericycle
81. Arrange the following plants in ascending order based on the number of xylem strands in their roots.
- I. *Trapa* II. *Pisum* III. *Castanea* IV. *Nicotiana*
- a) II, IV, III, and I
  - b) III, IV, II, and I
  - c) IV, III, I, and II
  - d) I, IV, II and III
82. 'Quiescent centre theory' was proposed by
- a) Nagelli
  - b) Schmidt
  - c) Hanstein
  - d) Clowes
83. In an annual ring, the light coloured part is known as
- a) Early wood
  - b) Late wood
  - c) Heartwood
  - d) Sapwood
84. In roots the
- a) Protoxylem lies towards the periphery
  - b) Metaxylem lies towards the pith (centre)
  - c) Both (a) and (b)
  - d) Endarch condition is found
85. Epidermis is often covered with a waxy thick layer called
- a) Cuticle
  - b) Suberin
  - c) Supporting cell
  - d) All of these
86. I. Protection of internal tissue  
 II. Prevention of entry of any harmful organism  
 III. Minimising surface transpiration  
 IV. Protection against excessive heating up  
 These are the functions of which of the following?
- a) Epidermis
  - b) Cortex
  - c) Hypodermis
  - d) Cuticle
87. In a woody dicotyledonous tree, which of the following parts will mainly consist of primary tissues?
- a) Stem and root
  - b) All parts

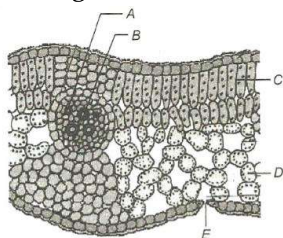
- c) Shoot tips and root tips  
 d) Flowers, fruits and leaves
88. Old stem on *Combretum* has  
 a) Inter and intraxylary phloem  
 b) Inter and extraxylary phloem  
 c) Intra and extraxylary phloem  
 d) All of the above
89. Atactostele type of stele is found in  
 a) Dicot  
 b) Monocots  
 c) Both (a) and (b)  
 d) Only in gymnosperm
90. I. Sieve tube conduct organic food longitudinally  
 II. Xylem parenchyma cells stores food and help in lateral conduction of sap  
 Select the correct option  
 a) I is incorrect, but II is correct  
 b) II is incorrect, but I is correct  
 c) I and II are correct  
 d) I and II are incorrect
91. Growth rings are formed due to activity of  
 a) Extrastelar cambium    b) Intrastelar cambium    c) Interstelar cambium    d) Both (b) and (c)
92. Water impermeable, waxy material secreted by endodermal cells is called  
 a) Lignin    b) Suberin    c) Conjunctive tissue    d) Pectin
93. Tyloses are balloon-like ingrowths in vessels developing from the adjoining  
 a) Fibres through pits on vessel wall  
 b) Fibres through the general surface of vessel wall  
 c) Parenchyma through pits on vessel wall  
 d) Parenchyma through the general surface of vessel wall
94. Select the correct statement from the following  
 a) The cells of the permanent tissue do not generally divide  
 b) Permanent tissues having all cells similar in structure and function are called simple tissues  
 c) Permanent tissues having many different types of cells are called complex tissues  
 d) All of the above
95. Tissues involved in secondary growth is/are  
 I. intercalary stem  
 II. vascular cambium  
 III. cork cambium  
 Select the correct options from below  
 a) I and II    b) II and III    c) I and III    d) I, II and III
96. Which is a characteristic of dicots?  
 a) Roots develop from radicle  
 b) Secondary growth usually absent  
 c) Floral parts in multiple of three  
 d) Parallel leaf veins
97. Identify the plant parts whose transverse section shows a clear and prominent pith.  
 a) Dicot and monocot stems  
 b) Dicot stem and monocot root  
 c) Dicot and monocot roots  
 d) Dicot stem and dicot root
98. A tree grows at the rate of 0.5 m per year. What will be the height of the board fixed at 1.5 m above the base five years ago?  
 a) 4.0 m    b) 3.5 m    c) 1.5 m    d) 4.5 m
99. Mesophylls of monocotyledon leaf are not differentiated into  
 a) Palisade tissue  
 b) Spongy parenchyma  
 c) Bulliform cells  
 d) Both (a) and (b)
100. In the given diagram of secondary growth of dicot root, identify *A* to *D* and choose the correct option



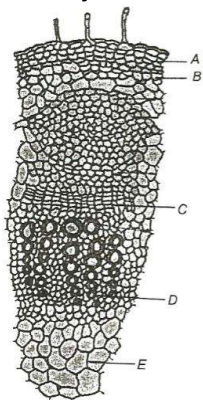


- a) A-Cortex, B-Primary phloem, C-Cambial ring, D-Protoxylem  
 b) A-Cortex, B-Primary phloem, C-Cambial ring, D-Pericycle  
 c) A-Cortex, B-Primary phloem, C-Primary xylem, D-Pericycle  
 d) A-Cortex, B-Primary phloem, C-Primary xylem, D-Protoxyleme
101. Anatomically fairly old dicotyledonous root is distinguished from the dicotyledonous stem by  
 a) Absence of secondary xylem  
 b) Absence of secondary phloem  
 c) Presence of cortex  
 d) Position of protoxylem
102. Dendrochronology is  
 a) Secondary growth  
 b) Apical growth  
 c) Seasonal variation  
 d) Determination of age of tree
103. Vascular tissues in flowering plants develop from  
 a) Phellogen  
 b) Plerome  
 c) Periblem  
 d) Dermatogen
104. In dicot, leaves, protoxylem elements  
 a) Face toward the abaxial surface  
 b) Face toward adaxial side  
 c) Are surrounded by metaxylem  
 d) Are scattered in the middle
105. The wood with lower density is ...A... and that of higher density is ...B...  
 Choose the correct combination of options for A and B  
 a) A-autumn wood; B-spring wood  
 b) A-spring wood; B-autumn wood  
 c) A-autumn wood; B-blate wood  
 d) A-spring wood; B-early wood
106. The protoxylem and metaxylem in the stem lies towards  
 a) The pith and root centre, respectively  
 b) The periphery and root centre, respectively  
 c) The root centre and periphery of organ, respectively  
 d) The pith and periphery of organ, respectively
107. Central part of root occupied by parenchymatous (thin or thick walled) cells is called  
 a) Pith  
 b) Endodermis  
 c) Pericycle  
 d) Meristem
108. The histogens are classified on the basis of  
 a) Cells they contain  
 b) Cells they give rise to future tissue  
 c) Meristematic activity  
 d) Cell division
109. Which tissue gives rise to secondary growth?  
 a) Apical meristem  
 b) Adventitious roots  
 c) Germinating seed  
 d) Vascular cambium
110. Generally the silica is deposited on the free sides of  
 a) Dorsiventral leaves  
 b) Monocotyledonous leaves  
 c) Isobilateral leaves  
 d) Both (b) and (c)
111. Monocot root differ from dicot root because of  
 a) Radial vascular bundle  
 b) Large and well-developed pith  
 c) Polyarch xylem bundle  
 d) Both (b) and (c)
112. The vascular bundle, where the phloem is surrounded by xylem is known as  
 a) Amphivasal  
 b) Bicollateral  
 c) Amphicribal  
 d) Radial
113. In rhizome of *Pteridium*, stele, which is composed of two or more than two concentric rings of vascular bundles is called  
 a) Polycyclic  
 b) Siphonostele  
 c) Ectophloic siphonostele  
 d) Cladosiphonostele
114. Stomatal apparatus consists of

- a) Stomatal aperture      b) Guard cell      c) Subsidiary cells      d) All of these
115. The apical meristem of the root is present  
 a) Only in adventitious root      b) In all the roots  
 c) Only in radicals      d) Only in tap roots
116. Among the following attributes of xylem, which are mainly mechanical in function?  
 a) Xylem fibre      b) Xylem parenchyma      c) Tracheids      d) Vessels
117. The quiescent centre in root meristem serves as a  
 a) Site for storage of food which is utilized during maturation  
 b) Reservoir of growth hormones  
 c) Reserve for replenishment of damaged cells of the meristem  
 d) Region for absorption of water
118. On the basis of their structure and location, tissue system is of ..... in plants  
 a) 2 types      b) 3 types      c) 4 types      d) 5 types
119. In the given TS dicot leaf, identify A to E and choose the correct option

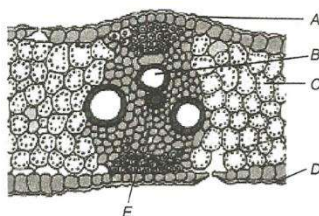


- a) A-Phloem, B-Xylem, C-Palisade mesophyll, D-Spongy mesophyll, E-Stomata  
 b) A-Phloem, B-Xylem, C-Palisade mesophyll, D-Spongy mesophyll, E-Stomata  
 c) B-Xylem, A-Phloem, C-Palisade mesophyll, D-Spongy mesophyll, E-Stomata  
 d) B-Xylem, A-Phloem, C-Palisade mesophyll, D-Spongy mesophyll, E-Hydathodes
120. In the previous question  
 The diagram I stomata belongs to ...A...  
 The diagram II stomata belongs to ...B...  
 a) A-monocots leaf; B-dicots      b) A-dicots leaf; B-monocots  
 c) A-angiosperm; B-gymnosperm      d) A-gymnosperm; B-angiosperm
121. Identify A to E in the given diagram and choose the correct option



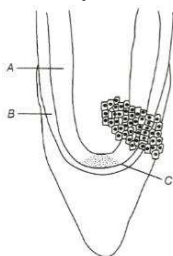
- a) A-Collenchyma, B-Sclerenchyma, C-Cambium, D-Protoxylem, E-Pith  
 b) A-Sclerenchyma, B-Collenchyma, C-Cambium, D-Protoxylem, E-Pith  
 c) A-Parenchyma, B-Collenchyma, C-Cambium, D-Protoxylem, E-Pith  
 d) A-Collenchyma, B-Parenchyma, C-Cambium, D-Protoxylem, E-Pith
122. Lateral roots develop from primordia originated by the division of  
 a) Pericycle cells lying opposite to protoxylem points  
 b) Pericycle cells lying between two protoxylem points  
 c) Endodermal cells lying between two protoxylem points  
 d) Endodermal cells lying opposite to protoxylem points

123. Companion cells in plants are associated with  
 a) Vessels                      b) Sperms                      c) Sieve elements                      d) Guard cells
124. Science, which deals with the study of ageing is known as  
 a) Teratology                      b) Gerontology                      c) Limnology                      d) Palaeontology
125. The term leptome is used for  
 a) Xylem                      b) Phloem                      c) Endodermis                      d) Pericycle
126. Grass elongates after cutting (moving) due to  
 a) Primary meristem                      b) Secondary meristem  
 c) Apical meristem                      d) Intercalary meristem
127. Which of the following would be in significant amount in xylem sap?  
 a) Sugar                      b) Nitrates                      c) Phosphates                      d) Water
128. The secondary meristem initiates  
 a) Basal growth                      b) Transverse growth                      c) Radial growth                      d) Vertical growth
129. Xylem fibres are made up of  
 a) Sclerenchyma cells with thin walls  
 b) Sclerenchyma cells with thick wall  
 c) Parenchyma cells with thin wall  
 d) Sclerenchyma cells with no obliteration in central lumen
130. Removal of ringwood of tissue outside the vascular cambium from the tree trunk kills it because  
 a) Water cannot move up  
 b) Food does not travel down and root become starved  
 c) Shoot become starved  
 d) Annual rings are not produced
131. Prickles  
 I. don't have vascular supply  
 II. are epidermal in origin  
 III. help in climbing  
 Select the right combination of statements from the given options  
 a) I and II                      b) II and III                      c) I and III                      d) I, II and III
132. Which one of the following is well-developed present in hydrophytes?  
 a) Aerenchyma                      b) Collenchyma                      c) Stomata                      d) Root system
133. In dicot stem, secondary growth is due to the activity of  
 a) Apical meristem                      b) Lateral meristem                      c) Cork                      d) Bark
134. The meristem responsible for extra stelar secondary growth in dicot stem is  
 a) Interfascicular cambium                      b) Intrafascicular cambium  
 c) Intercalary meristem                      d) Phellogen
135. Casparian thickenings are found in the cells of  
 a) Pericycle of the root                      b) Endodermis of the root  
 c) Pericycle of the stem                      d) Endodermis of the stem
136. In the given TS of monocot leaf, identify A to E. Choose the correct option



- a) A-Abaxial epidermis, B-Xylem, C-Mesophyll, D-Adaxial epidermis, E-Phloem                      b) A-Abaxial epidermis, B-Phloem, C-Mesophyll, D-Adaxial epidermis, E-Xylem
- c) A-Adaxial epidermis, B-Phloem, C-Mesophyll, D-Abaxial epidermis, E-Xylem                      d) A-Adaxial epidermis, B-Xylem, C-Mesophyll, D-Abaxial epidermis, E-Phloem

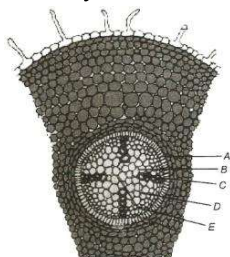
137. Length of petiole increases due to division of  
 a) Apical meristem                      b) Lateral meristem                      c) Intercalary meristem                      d) All of these
138. Phytotron is  
 a) A controlled condition chamber for tissue                      b) Leaf culture process  
 c) Special culture of plants                      d) Root culture process
139. The tissue which perpetuates itself by active cell division is  
 a) Permanent tissue                      b) Ground tissue                      c) Meristematic tissue                      d) Vascular tissue
140. Amphivasal vascular bundle possess  
 a) Xylem around phloem  
 b) Phloem around xylem  
 c) Phloem on both sides of xylem  
 d) Phloem towards centre and xylem towards periphery
141. Trichomes are epidermal hairs of  
 a) Primary root                      b) Primary stem                      c) Primary leaves                      d) Secondary root
142. I. Protection of internal tissues  
 II. Protection leaves from microbes  
 III. Gaseous exchange  
 IV. Reduction in the rate of transpiration through epidermal cells due to trichomes  
 Which of the function of epidermis is/are relevant from the above given statements?  
 a) Only II                      b) I and II                      c) II and III                      d) I, II, III and IV
143. Identify *A*, *B* and *C* indicated in diagram of root apex given below



- a) A-Vascular bundle, B-Epidermis, C-Root apical meristem  
 b) A-Cortex, B-Epidermis, C-Root apical meristem  
 c) A-Cortex, B-Protoderm, C-Root apical meristem  
 d) A-Cortex, B-Epidermis, C-Root apical meristem
144. In flowering plants, the main water transporting elements are  
 a) Tracheids                      b) Vessels                      c) Fibres                      d) Both (a) and (b)
145. The vertical section of a dorsoventral leaf through the lamina shows three main parts namely, epidermis, ...A... and vascular system. The epidermis, which covers the upper surface is ...B... and lower surface is covered by ...C... of the leaf.  
 Choose the correct combination of A, B and C  
 a) A-mesophyll, B-adaxial epidermis, C-abaxial epidermis                      b) A-endodermis, B-adaxial epidermis, C-abaxial epidermis  
 c) A-endodermis, B-abaxial epidermis, C-adaxial epidermis                      d) A-mesophyll, B-abaxial epidermis, C-adaxial epidermis
146. I. Epidermis  
 II. Mesophyll  
 III. Vascular system  
 Which of the above component is made up of parenchyma and have chlorophyll?  
 a) I and II                      b) Only I                      c) Only III                      d) Only II
147. Which of the following is not a part of epidermal tissue system?  
 a) Companion cells                      b) Trichomes                      c) Root hairs                      d) Guard cells
148. Which of the following statements is true?

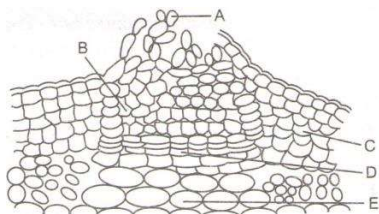
- a) The collenchyma occurs in layers below the epidermis in monocotyledonous plants  
 b) Sclerenchyma cells are usually dead and without protoplasts  
 c) Xylem parenchyma cells are living and thin-walled and their cell walls are made up of lignin  
 d) The companion cells are specialised sclerenchymatous cells
149. The age of tree by counting annual rings is called  
 a) Dendrochronology      b) Ageing      c) Chronology      d) Countrology
150. Lignification is associated with  
 a) Xylem      b) Phloem      c) Parenchyma      d) Chlorenchyma
151. Conducting tissue for the transport of water and minerals from the roots to the stems and leaves is called  
 a) Xylem      b) Phloem      c) Parenchyma      d) Collenchyma
152. Abaxial surface of the leaf generally bears  
 a) Less stomata than adaxial epidermis      b) More stomata than adaxial epidermis  
 c) Equal stomata than adaxial epidermis      d) Hairs to absorb the minerals
153. Open vascular bundles  
 a) Have cambium in between the primary and secondary xylem  
 b) Have cambium in between the primary and secondary phloem  
 c) Have cambium in between the xylem and phloem  
 d) Don't have cambium in between xylem and phloem
154. The lacunae in vascular bundle of monocot stem is  
 a) Amucilage canal      b) A large-sized vessel  
 c) Lysigenous water cavity      d) Metaxylem
155. Complementary cells are associated with  
 a) Lenticels      b) Hydathodes      c) Rhytidome      d) Bark
156. In which of the following, root system is poorly developed?  
 a) Phaene      b) *Hydrilla*      c) Halophyte      d) Xerophyte
157. Heartwood differs from sapwood in  
 a) Presence of rays and fibres      b) Absence of vessels and parenchyma  
 c) Having dead and non-conducting elements      d) Being susceptible to pests and pathogens
158. The sclerenchyma of the hypodermis in the *Pinus* needle helps in  
 a) Increasing the absorptive surface of the cell      b) Checking transpiration  
 c) Mechanical support      d) Photosynthesis
159. Which one of the following is not a lateral meristem?  
 a) Intrafascicular cambium      b) Interfascicular cambium  
 c) Phellogen      d) Intercalary meristem
160. In dicot stem, vascular bundles are  
 a) Numerous scattered      b) Arranged in a ring  
 c) Without cambium      d) Surrounded by bundle sheath
161. Which of the following statements are true?  
 I. Uneven thickening of cell wall is characteristic of sclerenchyma.  
 II. Periblem forms the cortex of the stem and the root.  
 III. Tracheids are the chief water transporting elements in gymnosperms.  
 IV. Companion cell is devoid of nucleus at maturity.  
 V. The commercial cork is obtained from *Quercus suber*.  
 a) I and IV      b) II and V      c) III and IV      d) II, III and V
162. Which of the above following are simple tissues?  
 I. Parenchyma  
 II. Collenchyma  
 III. Sclerenchyma  
 a) I and II      b) II and III      c) I and III      d) I, II and III
163. Non-articulated laticifers are found in

- a) *Nerium*                      b) *Papaver*                      c) *Hevea*                      d) *Achras*
164. I. Epidermal cells  
II. Stomata  
III. Trichomes  
IV. Root hairs  
These are the attributes of  
a) Epidermal tissue system                      b) Ground tissue system  
c) Fundamental tissue system                      d) Vascular tissue system
165. The large empty and colourless cells present at intervals on the upper surface of grass leaf are called  
a) Bulliform cells                      b) Palisade parenchyma  
c) Spongy parenchyma                      d) Accessory cells
166. Velamen is found in  
a) *Vanda*                      b) *Rosa*                      c) *Viscum*                      d) *Santalum*
167. The functions of sieve tubes are controlled by  
a) Cytoplasm of sieve tube cells                      b) Nucleus of sieve tube cells  
c) Nucleus of companion cells                      d) Cytoplasm of companion cells
168. Which of the following have sunken stomata?  
a) *Nerium*                      b) *Mangifera*                      c) *Hydrilla*                      d) *Zea mays*
169. The meristem, in which the cells divide in several planes is  
a) Plate meristem                      b) Rib meristem                      c) Mass meristem                      d) Lateral meristem
170. Cambium activity is highest in  
a) Autumn                      b) Spring                      c) Winter                      d) Rain
171. During the formation of primary plant body specific regions of apical meristem produces  
a) Dermal tissue                      b) Ground tissue                      c) Vascular tissue                      d) All of these
172. Vascular bundle, in which two patches of phloem are present on both sides of xylem is  
a) Collateral                      b) Bicollateral                      c) Concentric                      d) Radial
173. Vascular bundle with cambium is called  
a) Closed                      b) Open                      c) Exarch                      d) Endarch
174. Compound sieve plates are found in  
a) *Cucurbita*                      b) *Vitis*                      c) *Magnolia*                      d) *Corchorus*
175. From evolutionary point of view, tracheids and sieve cells are more primitive than tracheae and sieve tubes respectively. The angiosperms have  
a) Tracheae and sieve tubes                      b) Tracheids, tracheae and sieve tubes  
c) Tracheae, sieve cells and sieve tubes                      d) Tracheids, tracheae and sieve cells
176. I. Phloem transports the food materials usually from the leaves to other parts of the plant  
II. Phloem in the angiosperm is composed of sieve tube elements, companion cells, phloem parenchyma and phloem fibres  
Identify which of the following statement is correct and select the correct option  
a) I and II are correct                      b) I and II are incorrect  
c) I is correct, but II is incorrect                      d) II is correct, but I is incorrect
177. The outermost layer of dicotyledonous root is called  
a) Cortex                      b) Epidermis                      c) Cambium                      d) Periderm
178. Identify *A* to *E* in the given diagram



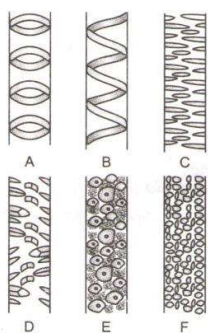
- a) A-Endodermis, B-Pericycle, C-Protoxylem, D-Metaxylem, E-Pith      b) A-Endodermis, B-Pericycle, C-Protoxylem, D-Pith, E-Metaxylem
- c) A-Endodermis, B-Pericycle, C-Pith, D-Protoxylem, E-Metaxylem      d) A-Endodermis, B-Pith, C-Pericycle, D-Protoxylem, E-Metaxylem
179. Choose the wrong statement from the following
- Axillary/terminal bud develops from apical meristem
  - Merismatic activity occurs at stem apex/root apex
  - Permanent tissues are produced by primary and secondary meristem
  - None of the above
180. I. It is resistant to microorganisms  
 II. It comprises dead elements  
 III. It comprises highly lignified cell wall  
 IV. It is the peripheral part  
 V. It is dark and tough  
 Which of the above property doesn't belong to heart wood?
- I and II
  - Only IV
  - Only V
  - III and I
181. Tracheids
- Are the dominant cell types of xylem in angiosperms
  - Are primarily found in mosses and liverworts
  - Are responsible for water conduction and support in many land plants
  - First appeared during Palaeozoic era
182. I. Usually cortex of stem is formed during secondary growth of the stem  
 II. It is a couple of layer thick  
 III. It is made up of thin walled rectangular cells  
 Select the incorrect statements
- I and II
  - II and III
  - I and III
  - None of these
183. Jute is mainly composed of
- Xylem
  - Secondary bast fibre
  - Phloem
  - Cortex
184. Which of the following cells are studied during translocation of solutes?
- Sieve tube cells
  - Companion cells
  - Phloem fibre
  - Xylem fibre
185. Stellar regions are formed from
- Periblem
  - Plerome
  - Dermatogen
  - Tunica
186. Casparian strips are present in the ..... of the root.
- Epiblema
  - Cortex
  - Pericycle
  - Endodermis
187. Cork cambium gives rise to
- Phellogen and secondary cortex
  - Phellogen, phelloderm and secondary cortex
  - Cork and phellogen
  - Cork and secondary cortex
188. Simple sieve plate with single perforation is present in
- Cucurbita*
  - Prunus*
  - Pyrus*
  - Vitis*
189. Root caps are absent in
- Mesophytes
  - Xerophytes
  - Hydrophytes
  - Lithophytes
190. Which cells possess chloroplast and regulate the opening and closing of stomata?
- Cuticle cell
  - Stomatal cell
  - Guard cell
  - Subsidiary cell
191. Bamboo and grasses elongate by the activity of
- Secondary meristem
  - Lateral meristem
  - Apical meristem
  - Intercalary meristem
192. At maturity, the sieve plates become impregnated with
- Cellulose
  - Pectin
  - Suberin
  - Callose
193. Cells of collenchyma have thickened corners due to the deposition of
- Cellulose
  - Hemicellulose
  - Pectin
  - All of these
194. Complex tissues are

- a) Made up of more than one kind of cells  
 b) Xylem and phloem  
 c) Both (a) and (b)  
 d) None of the above
195. In a vascular bundle, if xylem vessels develop in a centripetal fashion, the xylem is likely to be  
 a) Mesarch                      b) Centrarch                      c) Endarch                      d) Exarch
196. In monocot roots, which type of vascular bundles are found?  
 a) Collateral, conjoint and closed                      b) Radial with exarch xylem  
 c) Bicollateral, conjoint and closed                      d) Radial with endarch xylem
197. All the tissues on the innerside of the endodermis constitutes together to form  
 a) Vascular bundle                      b) Conjunctive tissue                      c) Pith                      d) Stele
198. The cork is impervious to water due to  
 a) Lignin deposition in the cell wall  
 b) Compactness of cell  
 c) Suberin deposition in the cell wall  
 d) All of the above
199. I. Vascular tissue  
 II. Cork cambium  
 III. Xylem and phloem elements  
 IV. Parenchyma and sclerenchyma  
 Choose the correct combination for heterogenous tissue  
 a) I and II                      b) II and IV                      c) II and III                      d) Only III
200. Vascular bundle having phloem at the centre encircled by xylem is known as  
 a) Bicollateral                      b) Conjoint collateral                      c) Amphivasal                      d) Amphicribal
201. In dicotyledonous root, the cortex consists of  
 a) Sclerenchymatous tissue                      b) Collenchymatous tissue  
 c) Parenchymatous tissue                      d) Endodermis tissue
202. Which of the following is true?  
 a) Vessels are unicellular and with narrow lumen  
 b) Vessels are multicellular and with wide lumen  
 c) Tracheids are unicellular and with wide lumen  
 d) Tracheids are multicellular and with narrow lumen
203. Choose the correct combination of labelling of a lenticels



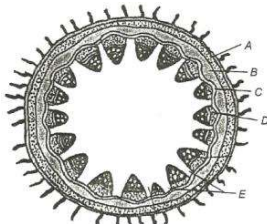
- a) **A**-Pore, **B**- Secondary cortex, **C**-Cork cambium, **D**- Cork, **E**-Complementary cells  
 b) **A**-Pore, **B**- Cork cambium, **C**- Cork, **D**- Secondary cortex, **E**- complementary cells  
 c) **A**-Pore, **B**-Cork, - Complementary cells    **D**- Cork cambium, **E**- Secondary cortex,  
 d) **A**-Pore, **B**- Complementary cells , **C**- Cork, **D**- Cork cambium, **E**- Secondary cortex,
204. Meristematic tissue in vascular bundle is  
 a) Phellem                      b) Procambium  
 c) Interfascicular cambium                      d) Fascicular cambium
205. The following diagrams show the types of secondary thickening in the xylem vessels. Identify the types labelled from A to F. Choose the correct option from those given.





- a) A-Spiral, B-Annular, C-Reticulate, D-Scalariform, E-Pitted with border, F-Pitted, simple  
 b) A-Annular, B-Spiral, C-Scalariform, D-Reticulate, E-Pitted with border, F-Pitted, simple  
 c) A-Annular, B-Spiral, C-Scalariform, D-Reticulate, E-Pitted, simple, F-Pitted with border  
 d) A-Spiral, B-Annular, C-Scalariform, D-Reticulate, E-Pitted with border, F-Pitted, simple
206. P-proteins are associated with  
 a) Sieve tube elements  
 b) Xylem parenchyma  
 c) Trichomes  
 d) Tracheids and vessels
207. A bicollateral vascular bundle has the following arrangement of tissues.  
 a) Outer phloem → Outer xylem → Middle cambium → Inner xylem → Inner phloem  
 b) Outer cambium → Outer phloem → Middle xylem → Inner phloem → Inner cambium  
 c) Outer phloem → Outer cambium → Middle xylem → Inner cambium → Inner phloem  
 d) Outer xylem → Outer cambium → Middle phloem → Inner cambium → Inner xylem
208. Permanent or mature cells are formed by  
 a) Cell division in the primary meristem  
 b) Cell division in the secondary meristem  
 c) Both (a) and (b)  
 d) Specialisation of secondary meristem
209. Intercalary meristem results in  
 a) Secondary growth  
 b) Primary growth  
 c) Apical growth  
 d) None of these
210. Mark the correct sequence of layers found in root anatomy.  
 a) Epiblema, cortex, endodermis, pericycle  
 b) Cortex, epiblema, pericycle, endodermis  
 c) Epiblema, cortex, pericycle, endodermis  
 d) Cortex, epiblema, endodermis, epidermis
211. In monocot stem, which of the following is absent?  
 a) Endodermis  
 b) Hypodermis  
 c) Cortex  
 d) Both (a) and (b)
212. Consider the following statements and choose the correct option.  
 I. The thread like cytoplasmic strands, running from one cell to other is known as plasmodesmata.  
 II. Xylem and phloem constitute the vascular bundle of the stem.  
 III. The first formed xylem elements are described as metaxylem.  
 IV. Radial vascular bundles are mainly found in the leaves.  
 a) I is true, but II, III and IV are false  
 b) II is true, but I, III and IV are false  
 c) III is true, but I, II and IV are false  
 d) I and II are true, but III and IV are wrong
213. In the leaf, vascular bundles are found in the  
 a) Veins  
 b) Palisade tissues  
 c) Lower epidermis  
 d) Upper epidermis
214. The annular and spirally thickened conducting elements generally develop in the protoxylem when the root or stem is  
 a) maturing  
 b) Elongating  
 c) widening  
 d) Differentiating
215. Damaged sieve tubes are sealed by deposition of  
 a) Pectin  
 b) Callose  
 c) Suberin  
 d) Lignin
216. Arrange the following in the order of their location from periphery to centre in the entire dicotyledonous plant body.  
 I. Fusiform cells II. Trichoblasts III. Collocytes IV. Tyloses

- a) IV , I, II, III,                      b) II , III , I, IV                      c) III , II, I, IV                      d) I , IV, III, II
217. Cork tissue arises from  
 a) Periderm                      b) Phellogen                      c) Phelloderm                      d) Phellem
218. As secondary growth proceeds in a dicot stem, the thickness of  
 a) Sapwood increases  
 b) Heartwood increases  
 c) Both sapwood and heartwood increase  
 d) Both sapwood and heartwood remains the same
219. A mature sieve tube differs from a vessel in  
 a) Lacking a functional nucleus                      b) Absence of lignified walls  
 c) Being nearly dead                      d) Lacking cytoplasm
220. Cork cambium of dicot originates from  
 a) Epiblema                      b) Pericycle  
 c) Cambium of vascular bundles                      d) Endodermis
221. Parenchymatous cells are usually present in the  
 I. pericycle  
 II. pith  
 III. medullary rays  
 IV. primary root  
 V. secondary root  
 VI. primary stem  
 VII. secondary stem  
 Select the correct combinations from the given options  
 a) All except I and III                      b) All except V and VII  
 c) All except II and IV                      d) All except VI and III
222. What differentiates leaf of dicots from monocots?  
 a) Parallel venation  
 b) Differentiation of palisade and spongy parenchyma  
 c) Stomata only on upper side  
 d) Stomata both on upper and lower sides
223. In dicotyledonous root  
 a) 3 to 6 xylem and phloem patches are found  
 b) 4 to 8 xylem and phloem patches are found  
 c) 2 to 4 xylem and phloem patches are found  
 d) 5 to 6 xylem and phloem patches are found
224. Simple tissues which occurs in layers below the epidermis in dicotyledonous plants are  
 a) Simple parenchyma                      b) Complex parenchyma  
 c) Collenchyma                      d) Simple tissue
225. Intercalary meristem is found between the  
 a) Mature tissue                      b) Apical root meristem  
 c) Shoot meristem                      d) Two nodes
226. Maximum number of vascular bundles are present in  
 a) Monocot stem                      b) Monocot root                      c) Dicot stem                      d) Dicot root
227. Identify A to E in the given TS of dicot stem and choose the correct option



- a) A-Hypodermis, B-Chlorenchyma, C-Endodermis, D-Pericycle, E-Medullary rays  
 b) A-Hypodermis, B-Parenchyma, C-Endodermis, D-Pericycle, E-Medullary rays  
 c) A-Hypodermis, B-Sclerenchyma, C-Endodermis, D-Pericycle, E-Medullary rays  
 d) A-Hypodermis, B-Sclerenchyma, C-Endodermis, D-Pericycle, B-Parenchyma
228. In dicot root, the cork cambium is formed with the help of  
 a) Cortex                                      b) Pericycle                                      c) Epidermis                                      d) Endodermis
229. Quiescent centre is a  
 a) Weak zone                                      b) Active zone                                      c) Inactive                                      d) Strong base
230. In monocot stem, the hypodermis is  
 a) Parenchymatous                                      b) Sclerenchymatous  
 c) Collenchymatous                                      d) Meristematic
231. Bulliform cells are the modification of  
 a) Abaxial epidermis cell                                      b) Adaxial epidermis cell  
 c) Mesophyll                                      d) Vascular tissue
232. In dicot stem, secondary xylem lie towards the ...A... and secondary phloem lie towards the ...B...  
 Choose the correct combination of options for A and B  
 a) A-pith; B-periphery                                      b) A-periphery; B-pith  
 c) A-periphery; B-laterally                                      d) A-pith; B-laterally
233. In which of the following, the phloem is located only on the outer side of the xylem  
 a) Open vascular system                                      b) Closed vascular system  
 c) Conjoint vascular system                                      d) Radial vascular system
234. Which meristem is responsible for the production of secondary tissues?  
 a) Primary meristem                                      b) Root apical meristem  
 c) Shoot apical meristem                                      d) Secondary meristem
235. Wood is  
 a) Primary phloem                                      b) Primary xylem                                      c) Secondary xylem                                      d) Secondary phloem
236. Sclerenchyma mainly provides  
 a) Storage tissue to the plants  
 b) Mechanical support to the organs of plants  
 c) Secretory tissue to the plants  
 d) Strength to monocot plants, specially their abundance in the layers below the epidermis
237. Bicollateral conjoint vascular bundles have  
 a) Xylem and phloem, which are arranged in an alternate manner on different radii  
 b) Xylem and phloem, which are situated at the same radius and it has two groups of phloem along the two sides of xylem (inside and outside)  
 c) Xylem and phloem in same radius but it has only one group phloem outside the xylem  
 d) Phloem surrounds the xylem tissues
238. I. Made up of sclerenchymatous cells  
 II. Generally absent in primary phloem  
 III. Much elongated and pointed  
 Given above characters belongs to which of the following?  
 a) Phloem fibre                                      b) Xylem fibre                                      c) Companion cells                                      d) Sieve cells
239. I. It is made up of elongated, compactly arranged cells  
 II. It is usually single layered  
 III. It is parenchymatous  
 IV. Large vacuole is present  
 Which of the above characters belong to the epidermis?  
 a) All except I                                      b) All except III and IV                                      c) All except II                                      d) All of these
240. I. They may be branched or unbranched and soft or stiff  
 II. They may be secretory and help in preventing water loss due to transpiration

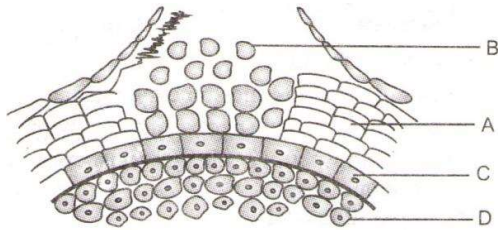
Which of the above characteristics belongs to trichomes

- a) Only I                                      b) Only II                                      c) I and II                                      d) None of these

241. In young stem, the vascular cambium is

- a) Single layered                              b) Bilayered                                      c) Trilayered                                      d) Does not exist

242. In the diagram of lenticel, identify the parts indicated as A, B, C, D



- a) A-Phellem, B-Complementary cell, C-Phellogen, D-Phelloderm  
 b) A-Phellem, B-Complementary cells, C-Phelloderm, D-Periderm  
 c) A-Complementary cells, B-Phellogen, C-Phelloderm, D-Periderm  
 d) A-Complementary cells, B-Phellem, C-Periderm, D-Phelloderm

243. Fascicular, interfascicular and extra-stelar cambium together constitutes

- a) Ground meristem                              b) Apical meristem                              c) Intercalary meristem                              d) Lateral meristem

244. Secondary phloem remains functional generally

- a) For one year                                      b) For less than one year  
 c) For many years                                      d) As long as plant is alive

245. New protective layers formed after the crushing or breaking of cortical and epidermal layers due to increase in the girth of stem by vascular cambium. These new layers collectively called as

- a) Phellogen                                      b) Cork cambium                                      c) Periderm                                      d) Phelloderm

246. Which of the following tissues consist of living cells?

- a) Vessels                                      b) Tracheids                                      c) Companion cells                                      d) Sclerenchyma

247. In barley stem, vascular bundles are

- a) Open and scattered                                      b) Closed and scattered  
 c) Open and in a ring                                      d) Closed and radial

248. I. Pith is large and well-developed in monocots

II. Monocot root don't undergo any secondary growth

In accordance to the above statements, identify the correct one

- a) I is incorrect, but II is correct  
 b) II is incorrect, but I is correct  
 c) I and II are incorrect  
 d) I and II are correct

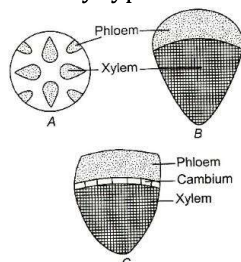
249. Aerenchyma is helpful in plants by

- a) Providing buoyancy in hydrophytes                                      b) Absorption in stilt roots  
 c) Giving mechanical strength to plants                                      d) Giving flexibility to plants

250. Cells having no power of cell division are formed by

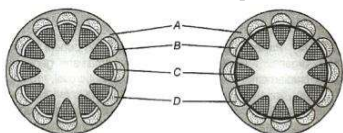
- a) Primary meristem                                      b) Fascicular cambium                                      c) Cork cambium                                      d) All of these

251. Identify type of vascular bundle with respect to A, B and C figure



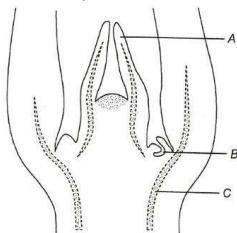
- a) A-Conjoint closed, B-Conjoint open, C-Radial                                      b) A-Radial, B-Conjoint open, C-Conjoint closed  
 c) A-Radial, B-Conjoint closed, C-Conjoint open                                      d) A-Conjoint open, B-Conjoint closed, C-Radial

252. Velamen and spongy tissue is found in  
 a) Breathing roots            b) Parasitic roots            c) Tuberous roots            d) Epiphytic roots
253. In previous question, the given diagram is the TS of  
 a) Root and belongs to monocot  
 b) Stem and belongs to monocot  
 c) Root and belongs to dicot  
 d) Stem and belongs to dicot
254. I. Youngest secondary phloem is just outside the cambium, while youngest secondary xylem is present inside the cambium  
 II. Oldest secondary phloem is just inside the primary phloem, while oldest secondary xylem is just above pith  
 III. Secondary medullary ray passes through both secondary xylem and secondary phloem  
 Select the incorrect statement from above  
 a) I and II                      b) II and III                      c) III and I                      d) None of these
255. Collenchyma is  
 a) Living and contains protoplasm                      b) Dead and hollow  
 c) Dead and filled with reserve food                      d) Living and contains no reserve food
256. The stele is composed of  
 a) Vascular bundle                      b) Pith and vascular bundle  
 c) Cortex and endodermis                      d) Pith and cortex
257. Vascular cambium of dicot root originates from the tissue located just below...A... bundles, a portion of pericycle tissue above the ...B... forming a complete continuous wavy ring, which later becomes ...C...  
 Choose the correct combination of options for A-C  
 a) A-xylem, B-protoxylem, C-circular  
 b) A-phloem, B-protoxylem, C-circular  
 c) A-phloem, B-metaxylem, C-circular  
 d) A-xylem, B-metaxylem, C-circular
258. Plant length is increased by  
 a) Apical meristem            b) Lateral meristem            c) Dermatogen            d) Periblem
259. Given below the diagram of secondary growth in dicot stem (diagrammatic). Identify A to D



- a) A-Cortex, B-Secondary xylem, C-Secondary phloem, D-Vascular cambium  
 b) A-Cortex, B-Primary phloem, C-Vascular cambium, D-Primary xylem  
 c) A-Cortex, B-Primary xylem, C-Vascular cambium, D-Primary phloem  
 d) A-Cortex, B-Primary xylem, C-Vascular cambium, D-Primary phloem
260. Which one of the following is the correct sequence of tissues present in dicot stem during secondary growth?  
 a) Phellogen, cork, primary cortex, secondary cortex  
 b) Cork, primary cortex, secondary cortex, phellogen  
 c) Primary cortex, Secondary cortex, phellogen, cork  
 d) Secondary cortex, cork, phellogen, primary cortex
261. In dicotyledonous stem, the sequence of tissue from outside to inside is  
 a) Phellem → Endodermis → Pericycle → Phloem  
 b) Pericycle → Endodermis → Pericycle → Phloem  
 c) Xylem → Endodermis → Pericycle → Phloem  
 d) Stele → Endodermis → Pericycle → Phloem

262. In grasses, certain adaxial epidermal cells along the veins modify themselves into large empty, colourless cells called  
 a) Bulliform cells                      b) Companion cells                      c) Guard cells                      d) Subsidiary cells
263. In grasses, the guard cells are  
 a) Kidney-shaped                      b) Sphere-shaped                      c) Dump-bell-shaped                      d) Bean-shaped
264. Heart wood and sapwood of dicot plants are respectively, called as  
 a) Duraman and alburnum                      b) Alburnum and duraman  
 c) Alburnum and phellogen                      d) Duramen and phellogen
265. Interxylary as well as intraxylary phloem is present in  
 a) *Bignonia*                      b) *Mirabilis*                      c) *Strychnos*                      d) *Achyranthes*
266. Identify A, B and C in the given diagram of shoot apical meristem



- a) A-Leaf primordium, B-Axillary bud, C-Vascular bud  
 b) A-Leaf primordium, B-Axillary bud, C-Vascular tissue  
 c) A-Shoot primordium, B-Axillary bud, C-Vascular tissue  
 d) A-Shoot primordium, B-Apical bud, C-Vascular tissue
267. Simple permanent living tissues which are made up of thin-walled similar isodiametric cells are called  
 a) Parenchyma tissues                      b) Collenchyma tissues  
 c) Sclerenchyma tissues                      d) Meristematic tissues
268. Fusiform initial forms  
 a) Vascular rays                      b) Ray parenchyma                      c) Tracheary elements                      d) Primary phloem
269. Polyarch condition is found in which of the following?  
 a) Monocotyledonous stem                      b) Monocotyledonous leaves  
 c) Monocotyledonous roots                      d) Dicotyledonous stem
270. Apical meristems are present at the  
 a) Tips of roots                      b) Tips of shoots  
 c) Lateral sides of roots and shoots                      d) Both (a) and (b)
271. Plant cells that are photosynthetically active are found in the ...A... layer of leaves and are ...B... .  
 Choose the correct combination of A and B from the below given options  
 a) A-mesophyll, B-parenchymatous                      b) A-mesophyll, B-collenchymatous  
 c) A-mesophyll, B-sclerenchymatous                      d) A-mesophyll, B-merismatic
272. Which of the following statement is correct?  
 I. Many organs of aquatic plants floats in water  
 II. Large air gaps are present in the collenchyma tissue of lotus leaf  
 a) I is correct, but II is incorrect                      b) II is correct, but I is incorrect  
 c) I and II are correct                      d) I and II are incorrect
273. I. Tracheids  
 II. Vessels  
 III. Fibres  
 IV. Parenchyma  
 All the above structures are the attributes of  
 a) Xylem                      b) Phloem                      c) Meristem                      d) Vascular tissue
274. Lamellar collenchyma is seen in the stem of  
 a) *Cucurbita*                      b) *Leucas*                      c) *Sambucus*                      d) *Monstera*
275. During secondary growth new meristematic tissues arising in the cortical region of the stem are called

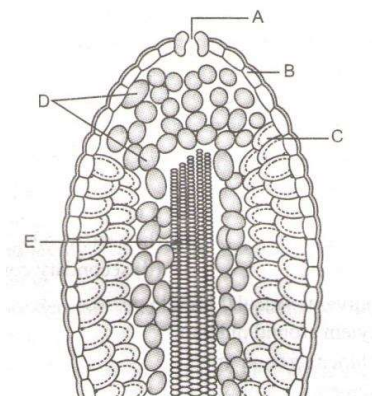
- a) Phellem                      b) Phelloderm                      c) Secondary cortex                      d) Phellogen
276. I. Monocot root  
 II. Dicot stem  
 III. Monocot stem and dicot root  
 IV. Dicot stem and dicot root  
 V. Dicot root  
 Which of the above have well-developed pith?  
 a) I and II                      b) III and IV                      c) IV and V                      d) II and III
277. The cork cambium, cork and secondary cortex are collectively called  
 a) Phellogen                      b) Periderm                      c) Phellem                      d) Phelloderm
278. Sunken stomata is found in leaves of  
 a) *Trifolium*                      b) *Lemna*                      c) *Nerium*                      d) *Lilium*
279. A vascular bundle without pith is  
 a) Protostele                      b) Siphonostele                      c) Solenostele                      d) None of these
280. A leaf primordium grows into adult leaf lamina  
 a) At first by apical meristem and later largely by marginal meristems  
 b) By apical meristem  
 c) By lateral meristem                      d) By marginal meristem
281. The vascular cambial ring of dicot stem is  
 a) Primary in origin                      b) Secondary in origin  
 c) Embryonic in origin                      d) Partly primary and partly secondary in origin
282. Mesophyll is a tissue which is present in leaf  
 a) Between the upper and lower epidermis                      b) Below the lower epidermis  
 c) In between endodermis and pericycle                      d) Below the endodermis and upper on the pericycle
283. I. Roots are unicellular  
 II. Trichomes are multicellular usually  
 Identify the correct statement and select the correct option  
 a) I and II are correct                      b) I and II are incorrect  
 c) I is correct, but II is incorrect                      d) II is correct, but I is incorrect
284. Narrow bands of parenchymatous tissue which passes through the secondary xylem and phloem radially are called  
 a) Pith                      b) Stele  
 c) Primary medullary rays                      d) Secondary medullary rays
285. Quiescent centre is present in  
 a) Shoot apex                      b) Root apex                      c) Both (a) and (b)                      d) Meristematic tissue
286. Tyloses an outgrowth from ray or axial parenchyma cell into the lumen of a vessel, which partially or completely blocks the cavity are present in  
 a) Periderm                      b) Heartwood                      c) Sapwood                      d) Secondary cortex
287. Bark is the non-technical term which refers to  
 a) A few tissue exterior to the vascular cambium                      b) A few tissue interior to the vascular cambium  
 c) All the tissue interior to the vascular cambium                      d) All the tissue exterior to the vascular cambium
288. From the plants given below, select the monocots having secondary growth in their stem  
 a) *Yucca*                      b) *Wheat*                      c) *Aloe*                      d) Both (a) and (c)
289. Which of the three sub-zones of cortex of dicot stem performs the function of providing mechanical strength to young stem?  
 a) Hypodermis                      b) Cortical layers                      c) Endodermis                      d) Both (a) and (c)
290. Study the following columns and choose the correct combination.

Tissue	Structural Feature	function
1.Collen-chyma	Cell walls with	Photosynthesis

	high water content	in young stems
2.Parenchyma	Suberised cell walls	Storage of food
3.Sclerenchyma	Lignified cell walls	Mechanical strength
4.Digestive glands	Dense cytoplasm	Breaking the substrate without water

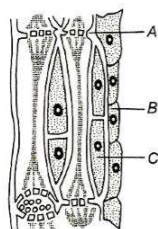
- a) I and II                                      b) II and III                                      c) I and IV                                      d) I and III
291. The difference in phloem of gymnosperms and angiosperms is due to  
a) Parenchyma                                      b) Sieve cell                                      c) Companion cell                                      d) Fibers
292. The waxy material deposited in the Casparian strip of the endodermis is  
a) Pectin                                      b) Suberin                                      c) Cellulose                                      d) Lignin
293. What is/are true about heartwood?  
I.It does not help in water conduction.  
II.It is also called alburnum.  
III.It is dark in colour but very soft.  
IV.It has tracheary elements, which are filled with tannin, resin, etc.  
a) II, III and IV                                      b) I and IV                                      c) II and IV                                      d) I, II and III
294. Vascular cambium of stem is  
a) Partly primary and partly secondary meristem  
b) Primary meristem  
c) Secondary meristem  
d) Intercalary meristem
295. Periderm is made up of  
I. cork cambium  
II. cork  
III. secondary cortex  
Select the correct combination of options  
a) I and II                                      b) I and III                                      c) II and III                                      d) I, II and III
296. Casparian strip is found in  
a) Epidermis                                      b) Pericycle                                      c) Endodermis                                      d) Endothecium
297. I. Peripheral region of the secondary xylem in dicot stem is lighter in colour and known as heart wood  
II. It is involved in water and mineral conduction  
Select the correct option from below  
a) I is correct, but II is incorrect                                      b) I is incorrect, but II is correct  
c) I and II are correct                                      d) I and II are incorrect
298. Choose the correct combination of labeling of Hydathode.





- a) A-Guard cells                      B-Epithem  
C-Mesophyll                      D-Epidermis  
E-Vasculature
- b) A- Guard cells                      B- Epidermis  
C- Mesophyll                      D- Epithem  
E-Vasculature
- c) A-Water pore                      B-Epidermis  
C-Mesophyll                      D-Epithem  
E-Vasculature
- d) A-Ostiole                      B-Epidermis  
C-Mesophyll                      D-Epithem  
E-Vasculature

299. Fewer xylary elements that have narrow vessel are found in
- a) Autumn wood                      b) Late wood                      c) (a) or (b)                      d) Both (a) and (b)
300. The cells without nuclei are present in
- a) Vascular cambium                      b) Root hair
  - c) Companion cell                      d) Members of sieve tube
301. Regulation of flow of fluid both inwardly as well as outwardly is performed by the
- a) Pericycle                      b) Endodermis                      c) Xylem                      d) Phloem
302. In the given diagram of phloem tissue, identify A, B and C



- a) A-Sieve tube cells, B-Xylem parenchyma, C-Companion cell
  - b) A-Sieve tube cells, B-Phloem parenchyma, C-Companion cell
  - c) A-Sieve pore, B-Xylem parenchyma, C- Companion cell
  - d) A-Sieve pore, B-Phloem parenchyma, C-Companion cell
303. Which type of vascular bundles are found in monocot stem?
- a) Collateral, open and endarch                      b) Radial, open and diarch
  - c) Radial, open and mesarch                      d) Collateral, closed and endarch
304. Which of the following is the region of cell division?
- a) Root cap                      b) Meristematic region
  - c) Root hair zone                      d) None of these
305. Vascular cambium in roots takes its origin from
- a) Pericycle                      b) Conjunctive parenchyma

- c) Both (a) and (b) d) None of the above
306. Meristamatic tissue helps in the  
 a) Absorption of water b) Growth of plant  
 c) Absorption of minerals d) Transpiration
307. The phloem of angiosperms differs from that of other vascular plants by the presence of  
 a) Vessels b) Companion cells c) Tylosoides d) Albuminous cells
308. Growth rings are absent or not sharply demarcated in the trees of  
 a) Temperate deciduous b) Tropical evergreen  
 c) Temperate evergreen d) Tropical deciduous
309. Subsidiary cells are the specialised cell in the  
 a) Vicinity of guard cell b) Vicinity of stomatal cell  
 c) Absence of stomatal cell d) Absence of guard cell
310. Axillary bud and terminal bud are derived from the activity of  
 a) Lateral meristem b) Intercalary meristem  
 c) Apical meristem d) Parenchyma
311. Cortex consists of three sub-zones in dicot stem, they are  
 I. hypodermis II. cortical layer  
 III. pericycle IV. endodermis V. epidermis  
 a) All except I and II b) All except II and III  
 c) All except IV and V d) All except III and V
312. Vessels differ from tracheids  
 a) In being living  
 b) In being derived from a single cell  
 c) In having vertical row of cells with crosswalls dissolved  
 d) Because they conduct water
313. Which of the following cells is an epidermal cell containing chloroplast?  
 a) Hydathode b) Stomata c) Guard cell d) None of these
314. Elongation of epidermal cells which helps in the absorption of water and minerals from the soil are called  
 a) Trichomes b) Root hairs c) Emergences d) All of these
315. Old dicot roots differ from dicot stem in  
 a) Absence of cortex b) Absence of primary phloem  
 c) Absence of vascular bundles d) Presence of xylem
316. This is a specialised tissue found in the mesophyll of *Cycas* and *Pinus* leaves.  
 a) Spongy tissue b) Palisade tissue c) Conjunctive tissue d) Transfusion tissue
317. Choose the correct statement  
 a) A group of cell having common origin generally perform common function  
 b) All of the cells in a plant body are capable of dividing  
 c) Permanent tissues have all cells same in function but different in structure  
 d) None of the above
318. Sclerenchyma fibres are  
 a) Thick-walled b) Elongated c) Pointed cells d) All of these
319. Pericycle is present  
 I. Just above the phloem  
 II. on the innerside of endodermis  
 Select the correct option  
 a) I is correct, but II is incorrect  
 b) II is correct, but I is incorrect  
 c) I and II are correct  
 d) I and II are incorrect
320. Bicollateral vascular bundles are found in the members of this family

- a) Malvaceae                      b) Fabaceae                      c) Caesalpinaceae                      d) Cucurbitaceae

321. The chief function of sieve tube element is to

- a) Conduct minerals  
b) Help the plant in forming wood  
c) Transport water from roots to leaves  
d) Translocate the organic material from source to sink

322. When cut horizontally both spring and autumn wood appear in concentric rings known as

- a) Heartwood                      b) Latewood                      c) Sapwood                      d) Annual ring

323. Root cap is not used in water absorption due to

- a) Presence of epidermis                      b) Presence of endodermis  
c) Absence of root hairs                      d) Presence of root hairs

324. Epidermis covered with cuticle, bearing trichomes and few stomata is the characteristic feature of

- a) Root                      b) Dicot stem                      c) Vascular bundle                      d) Monocot stem

325. Border parenchyma or bundle sheath is made up of

- a) Parenchymatous cell                      b) Sclerenchymatous cell  
c) Chlorenchymatous cell                      d) All of these

326. Which of the following is not a characteristic feature of bryophytes?

- a) Dominant gametophytic generation                      b) Filamentous rhizoids  
c) Amphibious habitat                      d) Vascular tissues

327. Vascular bundles in monocotyledons are considered closed because

- a) Xylem is surrounded all around by phloem                      b) There are no vessels with perforations  
c) A bundle sheath surrounds each bundle                      d) There is no secondary growth

328. Primary function of epidermis is

- a) Photosynthesis                      b) Protection  
c) Conduction of water and solutes                      d) Mechanical support

329. The number of stomata and epidermal cells in 1 mm<sup>2</sup> leaf area of lower epidermis of the leaves of X, Y and Z plants are given below. Arrange the plants in decreasing order of their stomatal index.

Plant	Number of Stomata	Number of Epidermal Cell
X	30	150
Y	60	240
Z	90	400

- a) X, Y, Z                      b) Y, Z, X                      c) Z, Y, X                      d) Y, X, Z

330. In woody trees, the exchange of gases between the outer atmosphere and the internal tissue of the stem takes place through

- a) Aerenchyma                      b) Stomata                      c) Pneumatophores                      d) Lenticels

331. Vascular system consists of

- I. xylem  
II. phloem  
III. ground meristem  
IV. epidermal meristem

Select the correct combination from the given options

- a) I and II                      b) I, II and III                      c) I, II and IV                      d) I, III and IV

332. In dicotyledonous roots, cambium develops in between

- a) Xylem and cortex                      b) Phloem and meristem  
c) Xylem and phloem                      d) Two xylem strands

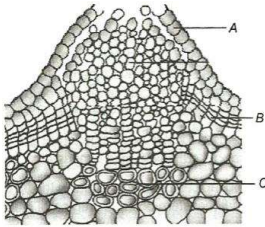
333. In a dicotyledonous stem, the sequence of tissues from the outside to the inside is

- a) Phellem-pericycle-endodermis-phloem                      b) Phellem-phloem-endodermis-pericycle  
c) Phellem-endodermis-pericycle-phloem                      d) Pericycle-phemlem-endodermis-phloem

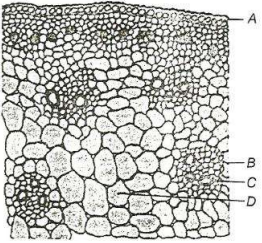
334. Meristem consists of

- a) Undivided cells  
c) Dead cells
- b) Cells in continuous state of cell divisions  
d) Cells which divide rarely
335. For a critical study of secondary growth in plants, which one of the following pairs is suitable?  
a) Sugarcane and sunflower  
b) Teak and pine  
c) Deodar and fern  
d) Wheat and maiden hair fern
336. Cuticle is secreted from  
a) Epidermis  
b) Endodermis  
c) Both (a) and (b)  
d) Hypodermis
337. I. Parenchyma tissue II. Collenchyma tissue  
III. Sclerenchyma tissue  
Which of the above tissues are found in the ground tissue system?  
a) I and II  
b) II and III  
c) I and III  
d) I, II and III
338. In the sieve elements, which one of the following is the most likely function of P-proteins?  
a) Deposition of callose on sieve plates  
b) Providing energy for active translocation  
c) Autolytic enzymes  
d) Sealing mechanism on wounding
339. Example of secondary meristem is  
a) Fascicular vascular cambium  
b) Interfascicular cambium  
c) Cork cambium  
d) All of the above
340. Mesophyll is well differentiated into palisade and spongy tissue in  
a) Dicot leaves  
b) Monocot leaves  
c) Xerophytic stem  
d) Hydrophytic stem
341. I. Unicellular hair  
II. Endodermis with passage cells  
III. Pith small and inconspicuous  
IV. Radial vascular bundle  
V. 2-4 xylem and phloem  
VI. Cambium ring develops between xylem and phloem  
The above description refers to which of the following?  
a) Monocot root  
b) Dicot root  
c) Monocot stem  
d) Dicot stem
342. Vessels are found in  
a) All angiosperms and some gymnosperms  
b) Most of the angiosperms and few gymnosperms  
c) All angiosperms, all gymnosperms and some pteridophytes  
d) All pteridophytes
343. The outer walls of guard cells (away from stomatal pore) are ...A.... While the inner walls (towards the stomatal pore) are ...B... .  
Choose the correct combination of A and B  
a) A-thick, B-thin  
b) A-thin, B-thick  
c) A-thin, B-also thin  
d) A-thick, B-also thick
344. Intercellular spaces are found in ...A... region. Intercellular spaces are absent in ...B... region. Choose the correct option for A and B  
a) A-cortex, B-endodermis  
b) A-endodermis, B-cortex  
c) A-endodermis, B-pericycle  
d) A-cortex, B-pericycle
345. Quiescent centre is found in plants at  
a) Root tip  
b) Cambium  
c) Shoot tip  
d) Tip
346. Large number of xylary elements having vessels with wider activity are produced in  
a) Spring wood  
b) Autumn wood  
c) Early wood  
d) (a) or (c)
347. I. Long tube-like structure, arranged longitudinally and associated with companion cells  
II. End wall perforated in a sieve like manner to form sieve plates  
Given above two character belong to which attribute of phloem

- a) Sieve tube elements    b) Companion cells    c) Phloem parenchyma    d) Tracheid
348. Xylem tissue is composed of  
 a) Four same kinds of elements    b) Three same kinds of elements  
 c) Four different kinds of elements    d) Three different kinds of elements
349. Apical meristem and intercalary meristem are called primary meristem because?  
 a) They appear early in plant and contributes to the formation of primary plant body  
 b) They make secondary tissue  
 c) They make the whole plant body  
 d) All of the above
350. In the given diagram of lenticel, label A, B, C in the given option



- a) A-Epidermis, B-Cork cambium, C-Secondary cortex  
 b) A-Stomata, B-Cork, Cambium, C-Secondary cortex  
 c) A-Stomata, B-Cork cambium, C-Endodermis  
 d) A-Epidermis, B-Cork cambium, C-Endodermis
351. I. Cells are living and thin-walled and their cell walls are made up of cellulose  
 II. They store food material  
 III. The radial conduction of water in plants takes place by the help of these tissues  
 Which of the above feature belongs to the xylem parenchyma?  
 a) I and II    b) II and III    c) III and I    d) I, II and III
352. The surface area of leaves in monocotyledon plant can be regulated by the help of  
 a) Mesophyll cells  
 b) Parenchymatous cell  
 c) Bulliform cells  
 d) Guard cell
353. Desert grasses often roll their leaves due to presence of  
 a) Oily surface    b) Bulliform cells    c) Spines    d) None of these
354. I. Long cylindrical tube like structure made up of many cells called vessel members, lignified cell wall and large central cavity  
 II. Devoid of protoplasm  
 Above characters belong to which of the following plant elements?  
 a) Tracheids    b) Xylem vessel    c) Companion cell    d) Sieve tube
355. Aerating pores are present at places on the cork cambium. These are called  
 a) Pneumatophores    b) Hydathodes  
 c) Lenticels    d) Stomata
356. The age of tree can't be determined by annual rings if the tree belongs to the  
 a) Temperate evergreen    b) Temperate deciduous  
 c) Xerophyte condition    d) Tropical forest
357. Meristematic cells contain more of  
 a) Fats    b) Protein    c) Sugar    d) Salts
358. Tyloses thickenings are seen in  
 a) Collenchyma    b) Phloem cells  
 c) Ray parenchyma only    d) Ray parenchyma and xylem cells
359. Vascular tissue in higher plants develop from which of the following?  
 a) Procambium    b) Protoderm    c) Phellogen    d) Cortex

360. Interfascicular cambium is formed by the joining of  
 a) Medullary rays to xylem cambium  
 b) Medullary rays to intrafascicular cambium  
 c) Medullary rays to lateral fascicular cambium  
 d) Endodermis to intrafascicular cambium
361. I. Primary tissues of plants add length to the roots and shoots  
 II. Secondary tissue of plants adds diameter to the roots and shoots  
 III. Cells of permanent tissue are specialised both structurally and functionally  
 Which of the above statement is/are true?  
 a) All except I                      b) All except II                      c) All except III                      d) I, II and III
362. The size of vascular bundles on the leaflet depends upon the  
 I. leaf margin    II. leaf petiole  
 III. leaf size    IV. leaf venation  
 Select the correct combination of options given below  
 a) I and II                      b) II and III                      c) III and IV                      d) I and IV
363. Interfascicular cambium is a  
 a) Primary meristematic tissue                      b) Primordial meristem  
 c) Type of Protoderm                      d) Secondary Meristematic tissue
364. Duramen is present in  
 a) Inner region of secondary wood                      b) Part of sapwood  
 c) Outer region of secondary wood                      d) Region of pericycle
365. Diffused porous woods are characteristic of plants growing in  
 a) Temperate climate    b) Tropics    c) Alpine region                      d) Cold winter regions
366. Identify A to D in the given diagram and choose the correct option
- 
- a) A-Hypodermis, B-Xylem, C-Phloem, D-Ground tissue  
 b) A-Hypodermis, B-Phloem, C-Xylem, D-Ground tissue  
 c) A-Endodermis, B-Phloem, C-Xylem, D-Ground tissue  
 d) A-Endodermis, B-Xylem, C-Phloem, D-Ground tissue
367. Periderm includes  
 I. Phellem  
 II. Phellogen  
 III. Phelloderm  
 Select the correct option  
 a) I and II                      b) II and III                      c) III and I                      d) I, II and III
368. Bulliform cells found in  
 a) Seeds of sunflower    b) Leaf of wheat                      c) Pod of pea                      d) Tuber of potato
369. Two cross-sections of stem and root appear simple, when viewed by naked eye. But under microscope, they can be differentiated by  
 a) Exarch condition of root and stem  
 b) Endarch condition of stem and root  
 c) Endarch condition of root and exarch condition of stem  
 d) Endarch condition of stem and exarch condition of root
370. The beneficial use of epidermal layer is



II. These are dead and without the protoplasm

III. The inner layers of cell walls have thickening which vary in form

The above mentioned characters belong to which of the following plant structure?

- a) Tracheids                      b) Xylem parenchyma              c) Companion cells              d) Sieve tube element

386. The first formed primary phloem is referred as ...A... The later formed primary phloem is referred as ...B...

Choose the correct combination of A and B

- a) A–protoxylem; B–metaxylem                      b) A–protophloem; B–sieve tube cells  
c) A–metaphloem; B–sieve tube cells                      d) A–protophloem; B–metaphloem

387. Identify the type of plant tissue being represented by the set of statements given below

I. Their cells are isodiametric (they may be spherical, oval, round, etc.)

II. Their cell walls are thin and made up of cellulose

III. They may either be closely packed or have small intercellular spaces

IV. They perform functions like photosynthesis, storage, secretion, etc.

- a) Sclerenchyma                      b) Parenchyma                      c) Collenchyma                      d) Meristem

388. Cuticle is absent in which part of plant?

- a) Leaves                      b) Root                      c) Stem                      d) Pneumatophores

389. A common structural feature of vessel elements and sieve tube elements is

- a) Thick secondary walls                      b) Pores on lateral walls  
c) Presence of P-proteins                      d) Eucleate condition

390. Velamen tissue is found in

- a) Mesophytes                      b) Epiphytes                      c) Hydrophytes                      d) Xerophytes

391. I. Made up of elongated, tapering cylindrical cells which have dense cytoplasm and nucleus

II. Cell wall composed of cellulose

III. Stores food materials

The above mentioned characters belong to which attribute of phloem?

- a) Sieve tube elements                      b) Companion cell  
c) Phloem parenchyma                      d) Phloem fibre

392. Kranz anatomy is found in

- a) Dicotyledonous leaves                      b) Monocotyledonous leaves  
c) Both (b) and (d)                      d) Isobilateral leaves

393. The phloem fibres of which of the following plant is/are used commercially?

I. Jute    II. Flax    III. Hemp

Select the correct option

- a) I and II                      b) II and III                      c) III and IV                      d) I, II and III

394. In any dicot root having secondary growth, the cork is the

- a) Outer to endodermis and inner to primary cortex  
b) Inner to endodermis and external to primary phloem  
c) Inner to endodermis and external to primary xylem  
d) Outer to endodermis and external to primary phloem

395. The cells without nuclei are present in

- a) Vascular cambium                      b) Root hair  
c) Companion cell                      d) Members of sieve tube

396. On the basis of variation in form, structure, origin and development, sclerenchyma may be

- a) Fibres                      b) Sclereids                      c) Either (a) or (b)                      d) Both (a) and (b)

397. Which statements are correct about guard cells?

I. They are modified ground tissue

II. They are chlorophyllous

III. Its outer wall is thin and inner wall is highly thickened

IV. They regulate stomatal movement for transpiration and gaseous exchange

- a) All except I                      b) All except II                      c) All except III                      d) All except IV



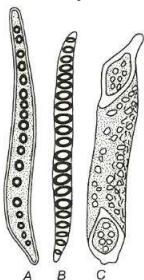
398. Fibres associated with phloem are.....fibres.  
 a) Hard                                      b) Wood                                      c) Surface                                      d) Bast
399. Consider the following statements.  
 I. In a dicot root, the vascular bundles are collateral and endarch.  
 II. The innermost layer of cortex in a dicot root is endodermis.  
 III . In a dicot root, the phloem masses are separated from the xylem by parenchymatous cells that are known as the conjunctive tissue.  
 a) I is true, but II and III are false                                      b) II is true, but I and III are false  
 c) I is false, but II and III are true                                      d) III is false, but I and III are true
400. First formed primary xylem elements are called ...A... . Later formed primary xylem elements are called ...B... .  
 A and B in the above statement refers to  
 a) A–metaxylem; B–protoxylem                                      b) A–protoxylem; B–metaxylem  
 c) A– protophloem; B–metaphloem                                      d) A–metaphloem; B–protophloem
401. Periderm includes  
 a) Phellem, phelloderm, plerome                                      b) Phellem, phellogen, dermatogen  
 c) Phellem, phellogen, phelloderm                                      d) Phellem, phellogen, cortex
402. Gymnosperms lack which of the following structure?  
 a) Tracheids                                      b) Vessels                                      c) Xylem                                      d) Phloem
403. A branch or a flower develops in the axil of the leaves by the activity of  
 a) Axillary bud                                      b) Apical bud                                      c) Apical meristem                                      d) Tissue
404. During secondary growth of plants, stem phellogen cuts of cells on both sides. The outer cells gets differentiated into ...A... and the inner cells gets differentiated into ...B... cortex  
 Choose the correct combination of A and B with reference to above statement  
 a) A-cork; B-phellem                                      b) A-secondary cortex; B-phelloderm  
 c) A-secondary cortex; B-primary cortex                                      d) A-cork/phellem; B-secondary cortex
405. Vascular system includes ...A... bundles, which can be seen in the veins and the ...B... . The size of vascular bundles are dependent on the size of ...C... . The veins vary in thickness in the reticulate venation of the ...D... leaves  
 Choose the correct combination of A to D  
 a) A-phloem, B-midrib, C-veins, D-dicot                                      b) A-xylem, B-midrib, C-veins, D-dicot  
 c) A-vascular, B-midrib, C-veins, D-dicot                                      d) A-vascular, B-midrib, C-veins, D-monocot
406. Estimation of the age of the tree is done by  
 a) Counting the epidermal rings                                      b) Measuring the pith diameter  
 c) Counting the annual rings                                      d) Counting the late woods only
407. Meristematic cells have  
 a) Thick cell wall and large intercellular spaces                                      b) Thick cell wall and no intercellular spaces  
 c) Thin cell wall and large intercellular spaces                                      d) Thin cell wall and no intercellular spaces
408. Which combination of tissues acts together to provide the support to the hypocotyl of a seedling  
 a) Epidermis and collenchyma                                      b) Xylem and parenchyma  
 c) Epidermis and parenchyma                                      d) Xylem and phloem fibres
409. Sclereids are commonly found in the  
 I. fruits wall of nuts  
 II. pulp of fruit like guava and pear  
 III. seed coat of legumes  
 IV. micropile of pea  
 Select the correct combination  
 a) All except I                                      b) All except II                                      c) All except III                                      d) All except IV
410. The cells of the endodermis are rich in ...A... grains and layer is referred to as ...B... sheath. Select the correct combination of A an B from the options given below

- a) A-protein; B-protein  
 c) A-starch; B-carbohydrate
- b) A-fat; B-lipid  
 d) A-starch; B-starch

411. Identify from the following, a plant tissue in which lignin does not occur in the cell walls?

- a) Collenchyma                      b) Sclerenchyma fibres                      c) Sclereids                      d) Xylem tracheae

412. Identify A, B and C the given diagram



- a) A-Tracheid, B-Vessels, C-Vessels  
 b) A-Vessels, B-Tracheid, C-Companion cell  
 c) A-Companion cell, B-Vessels, C-Tracheid  
 d) A-Xylem fibre, B-Vessels, C-Vessels

413. Which is true for Meristematic tissue?

- a) Their cells have dense cytoplasm and prominent nuclei  
 b) Their cells are dead with large intercellular spaces  
 c) These are usually modified for storage  
 d) Their cells are most primitive, living and without nuclei

414. A tree grows 5 cm per year. What will be the height of a board fixed 10 cm above the base after 10 years?

- a) 50 cm                      b) 60 cm                      c) 10 cm                      d) 70 cm

415. I. Found only in sporophytic phase of life cycle

II. May contain enzymes that are biologically active

III. Often contain strengthening polymers

Select the correct option for cell wall

- a) All are correct except I                      b) All are correct except II  
 c) All are correct except III                      d) All are correct

416. Motor cells are found in

- a) Monocot leaf                      b) Upper epidermis of monocot leaf  
 c) Brain                      d) Spinal cord

417. Vascular bundle without cambium is called

- a) Closed vascular bundle                      b) Open vascular bundle  
 c) Radial vascular bundle                      d) Conjoint vascular bundle

418. Specialised regions of plants having active cell division are called

- a) Tissues                      b) Organs                      c) Meristems                      d) All of these

419. I. During secondary growth, a complete ring is formed by vascular cambium

II. Interfascicular cambium originates from medullary ray cells

III. Vascular cambium form xylem on the inside and phloem on the outside due to differential action of hormones

Select the correct combination of option

- a) I and II are correct  
 b) II and III are correct  
 c) I and III are correct  
 d) I, II and III

420. In the following, how the sapwood is converted into heartwood?

- a) By degeneration of protoplast of living cells                      b) Tylosis formation  
 c) By deposition of resins, oils, gums, etc                      d) All of the above

421. Sequence of cellular layers from the periphery towards the cortex in an old dicot stem is  
a) Epidermis, hypodermis, phellogen, phellogen b) Epidermis, phellogen, phellem, epidermis  
c) Epidermis, hypodermis, cortex, endodermis d) Epidermis, phellem, phellogen, phellogen
422. I. Dicotyledon leaf is also called isobilateral leaf  
II. Monocotyledon leaf is also called dorsoventral leaf  
Select the correct option from the options given below  
a) I and II are correct  
b) I is correct, but II is incorrect  
c) II is incorrect, but I is correct  
d) I and II are incorrect
423. Which of the following statements are not true?  
I. Cork cambium is otherwise called phellogen.  
II. Cork is otherwise called phellem.  
III. Secondary cortex is otherwise called periderm.  
IV. Cork cambium, cork and secondary cortex are collectively called phellogen  
a) III and IV b) I and II c) II and III d) II and IV
424. In leaves, the ground tissues consists of  
a) Epidermis b) Vascular tissue c) Mesophyll cells d) Medullary rays
425. Phloem conducts food by  
a) Perforated sieve plates b) Bast fibres  
c) Xylem parenchyma d) Xylem fibres
426. Continuous ring of cambium is formed by  
a) Intrafascicular cambium b) Interfascicular cambium  
c) Lateral meristem d) Both (a) and (b)
427. Ground tissue does not include  
I. epidermis  
II. vascular bundle  
III. sclerenchyma  
IV. collenchyma  
V. parenchyma  
Select the right combination from the above given options  
a) I and II b) III and IV c) I and V d) I and IV
428. Identify the correct order of the components with reference to their arrangement from outer side to inner side in a woody dicot stem.  
I. Secondary cortex  
II. Autumn wood  
III. Secondary phloem  
IV. Phellem  
a) II, III, I and IV b) III, IV, II, and I c) IV, I, III and II d) I, II, IV and III
429. In which of the following, there is no differentiation of bark, sapwood and heartwood?  
a) Ashok b) Neem c) Mango d) Datepalm
430. ...A... are structures present in the epidermis of leaves. They regulate process of transpiration and ...B... exchange. It is composed of two bean-shaped cells known as ...C... cells.  
Choose the correct combination of A, B and C from the following options  
a) A–Stomata, B–gaseous, C–guard b) A–Stomata, B–gaseous, C–subsidiary  
c) A–Stomata, B–water, C–subsidiary d) A–Stomata, B–water, C–guard