# Ravi Maths Tuition Centre

**Time : 1 Mins** **ANATOMY OF FLOWERING PLANTS 1** **Marks : 1244**

1. Death of protoplasm is a prerequisite for a vital function like _____ .
   a) Transport of sap b) Transport of food c) Absorption of water
   d) Gaseous exchange
2. Function of collenchyma is
   a) Photosynthesis b) Mechanical support c) Both d) Secretion
3. When a tree grows older which of the following increased rapidly
   a) Heart wood b) Sap wood c) Pith d) Cortex
4. Plants having little or no secondary growth are:
   a) Conifers b) Deciduous angiosperms c) Grasses d) Cycads
5. The apical meristem of the root is present _____ .
   a) In all the roots b) Only in radicals c) Only in tap roots
   d) Only in adventitious roots
6. Which exposed wood will decay faster?
   a) Sapwood b) Softwood c) Wood with lot of fibres d) Heartwood
7. Thickenings in collenchyma is mainly due to deposition of-
   a) Cellulose b) Pectin c) Lignin d) suberin
8. Read the following statements and select the correct ones.
   (i) Phloem parenchyma is absent in most monocots.
   (ii) Gymnosperms lack tracheids and vessels.
   (iii) Gymnosperms lack companion cells
   a) (i) and (ii) b) (ii) and (iii) c) (i) and (iii) d) (i), (ii) and (iii)
9. Match the following and choose the correct option from below.

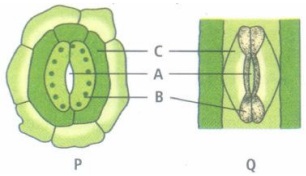
| | | | |
|---|---|---|---|
| A. | Cuticle | (i) | Guard cells |
| B. | Bulliform cells | (ii) | Single layer |
| C. | Stomata | (iii) | Waxy layer |
| D. | Epidermis | (iv) | Empty colourless cell |

a) A-(iii), B-(iv), (-(i), D-(ii)  b) A-(i), B-(ii), (-(iii), D-(iv)
c) A-(iii), B-(ii), (-(iv), D-(i)  d) A-(iii), B-(ii), (-(i), D-(iv)

10. A plant tissue, when stained, showed the presence of hemicellulose and pectin in cell wall of its cells. The tissue represents
    a) collenchyma  b) sclerenchyma  c) xylem  d) meristem.
11. Outer part of bark is
    a) Epidermis  b) Rytidome  c) Phelloderm  d) Lenticel
12. In endarch condition of xylem, protoxylem lies_____of metaxylem.
    a) on inner side  b) on outer side  c) both on inner and outer side
    d) in centre
13. Bicollateral vascular bundles are found in
    a) Helianthus  b) Zea mays  c) Cucurbita  d) Dracaena.
14. Which of the following is a vessel-less angiosperm?
    a) Tetracentron  b) Trochodendron  c) Wintera  d) All of these
15. Vesselless angiosperms include
    a) Tetracentraceae  b) Trochodendraceae  c) Winteraceae  d) All of these
16. Casparian strips occur in:
    a) Cortex  b) Pericycle  c) pidermis  d) Endodermis
17. A narrow layer of thin walled cells found between phloem/bark and wood of a dicot is _____ .
    a) Cork cambium  b) Vascular cambium  c) Endodermis  d) Pericycle
18. Which one of the following is wrongly matched?
    a) Root pressure - Guttation  b) Puccinia - Smut  c) Root- Exarch protoxylem
    d) Cassia Imbricate aestivation
19. Centripetal and centrifugal xylem are the important feature of
    a) Root and stem xylem respectively
    b) Exarch and endarch xylem respectively
    c) Endarch and exarch xylem respectively  d) Both (1) & (2)
20. What is not true about sclereids?
    a) These are parenchyma cells with thickened lignified walls
    b) These are elongated and flexible with tapered ends
    c)
    These are commonly found in the shells of nuts and in the pulp of guava, pear, etc
    d) These are also called the stone cells

21. In old trees, central dark coloured, non-conducting part of secondary xylem is referred to as
a) heartwood b) sapwood c) softwood d) hardwood.

22. Given figures (P and Q) represent the stomatal apparatus of dicot and monocot leaves respectively. Select the option which correctly labels A, B and C.




a)

| A | B | C |
|---|---|---|
| Stoma | Subsidiary cells | Guard cells |

b)

| A | B | C |
|---|---|---|
| Stoma | Subsidiary cells | Epidermal cells |

c)

| A | B | C |
|---|---|---|
| Guard cells | Stoma | Chloroplast |

d)

| A | B | C |
|---|---|---|
| Stoma | Guard cells | Subsidiary cells |

23. Hypodermis is_____in sunflower stem and_____in maize stem.
a) parenchymatous, collenchymatous b) collenchymatous, sclerenchymatous
c) sclerenchymatous, collenchymatous
d) sclerenchymatous, parenchymatous

24. An example of monocots showing secondary growth in stem is
a) Lilium b) Pea c) Asparagus d) Yucca

25. In (i) protoxylem lies towards periphery and metaxylem lies towards centre. Such an arrangement of primary xylem is called as (ii).

a)

| **(i)** | **(ii)** |
|---|---|
| stems | endarch |

b)

| **(i)** | **(ii)** |
|---|---|
| stems | exarch |

c)

| **(i)** | **(ii)** |
|---|---|
| roots | endarch |

d)

| **(i)** | **(ii)** |
|---|---|
| roots | exarch |

26. In (i) porous wood, vessels are very broad in the (ii) wood and are quite narrow in the (iii) wood. This kind of wood is present in (iv) and it translocates (v) amount of water when required by the plant.
Select the correct fill ups for the above paragraph.
a) (i)-diffuse, (ii)-autumn, (iii)-spring, (iv)-Dalbergia sissoo, (v)-more
b) (i)-diffuse, (ii)-spring, (iii)-autumn, (iv)-Syzygium cumini, (v)-less
c) (i)-ring, (ii)-spring, (iii)-autumn, (iv)-Dalbergia sissoo, (v)-more
d) (i)-ring, (ii)-auturnn, (iii)- spring, (iv) Syzygium cumini, (v)-less

27. When xylem and phloem are on same radius, the vascular bundles are said to be-

a) Radial b) Conjoint c) Concentric d) Concentric

28. Collenchymatous hypodermis is characteristic feature of
    a) Dicot stem b) Monocot stem c) Monocot as well as dicot stem
    d) Hydrophytes
29. Thin-walled passage cells occur in:
    a) Phloem elements as entry points b) Testa for emergence of embryonal axis
    c) Central area of style for passage of pollen tube
    d) Endodermis of root for quick transport of water from cortex to pericycle
30. The balloon-shaped structures called tyloses _____ .
    a) Originate in the lumen of vessels. b) Characterise the sapwood.
    c) Are extensions of xylem parenchyma cells into vessels
    d) Are linked to the ascent of sap through xylem vessels.
31. A vessel less piece of stem possessing prominent sieve tubes would belong to
    a) Pinus b) Eucalyptus c) Grass d) Trochodendron.
32. A piece of wood having no vessels (trachea) must be belonging to
    a) teak b) mango c) pine d) palm.
33. The annular and spirally thickened conducting elements generally develop in the protoxylem when the root or stem is _____ .
    a) Elongating b) Widening c) Differentiating d) Maturing
34. Radial vascular bundles characteristically occur in
    a) monocot and dicot stems b) monocot and dicot leaves
    c) monocot and dicot roots d) all of these.
35. Cells of this tissue are living and show angular wall thickenings. They also provide mechanical support. The tissue is
    a) xylem b) sclerenchyma c) collenchyma d) epidermis.
36. Water containing cavities in vascular bundles are found in:
    a) Sunflower b) Maize c) Cycas d) Pinus
37. Axillary bud and terminal bud are derived from the activity of _____ .
    a) Lateral meristem b) Intercalary meristem c) Apical meristem
    d) Parenchyma
38. Which one of the following flowers only once in its lifetime?
    a) Mango b) Jackfruit c) Bamboo species d) Papaya
39. Read the following statements.
    (i) Multicellular epidermal hair
    (ii) Collenchymatous hypodermis

(iii) Pith present

(iv) Vascular bundles present in a ring i.e., eustele

Above given features describe which of the following plant parts?

a) Monocot stem  b) Monocot root  c) Dicot stem  d) Dicot root

40. Water conduction in stem of tree takes place made by

a) Duramen  b) Sapwood  c) Primary xylem  d) All of these

41. **Assertion:** Both apical meristem and intercalary meristem are primary meristems.

**Reason:** Both of these meristems appear early in life of a plant and help in the formation of the primary plant body.

a)

If both assertion and reason are true and reason is the correct explanation of assertion

b)

If both assertion and reason are true but reason is not the correct explanation of assertion.

c) If assertion is true but reason is false.

d) If both assertion and reason are false.

42. Water cavity & V or y-shaped xylem occurs in

a) Dicot stem  b) Moocot root  c) Monocot stem  d) Dicot root

43. Sea shore trees do not show annual rings because

a) There is little climatic variations  b) They belong to monocots

c) There is low temperature  d) Soil is sandy

44. Stele does not includes

a) Pericycle  b) Vascular bundles  c) Pith  d) Endodermis

45. Which of the following options correctly shows the sequence of different tissues of the periderm starting from periphery?

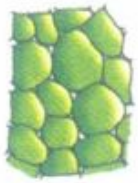
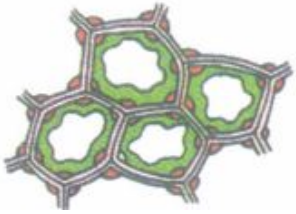
a) Phellogen $\rightarrow$ Phellem $\rightarrow$Phelloderm

b) Phellem $\rightarrow$ Phelloderm $\rightarrow$ Phellogen

c) Phellem $\rightarrow$ Phellogen $\rightarrow$ Phelloderm

d) Phelloderm $\rightarrow$ Phellogen $\rightarrow$ Phellem

46. _____is a living mechanical tissue.

a)   b)   c)   d) Both (a) and (b)

47. Bark does not include
    a) secondary xylem  b) secondary phloem  c) periderm  d) both (a) and (b).
48. Secondary growth usually does not occur in
    a) stems and roots of dicots  b) stems and roots of gymnosperms
    c) stems and roots of monocots  d) both (b) and (c).
49. A flower represents a complex array of functionally specialised structures that differ substantially from vegetative plant body in form and cell types. Select the statement that is not true with regard to floral meristems.
    a) Floral meristems are larger in sizethan the vegetative meristems.
    b)
    Increase in size of the floral meristem is due to larger size of the cells, which in turn results from rapid cell expansion only.
    c)
    Increase in size of the floral meristem is largely a result of increased rate of cell division in central cells.
    d) A floral morphogenesis is controlled by a network of genes in plants.
50. Girdling experiment is not possible in maize and sugarcane because of
    a) Scattered vascular bundles  b) Open vasucular bundles
    c) Closed vascular bundles  d) Absence of pericycle
51. Age of a tree can be estimated by:
    a) Biomass  b) Number of annual rings  c) Diameter of its heartwood
    d) Its height and girth
52. Select the correct pair out of the following.
    a) Hypostomatic leaf - Dicots  b) Epistomatic leaf - Monocots
    c) Amphistomatic leaf - Free-floating hydrophytes
    d) Presence of sunken stomata in leaf - Submerged hydrophytes
53. Idioblasts are
    a) sclerenchymatous fibres found in the leaf of Yucca
    b) specialised parenchymatous cells which contain ergastic substances
    c) collenchymatouscells possessingangular thickenings
    d) crystals of calcium oxalate found in hard fruits.
54. Match column I with column II and select the correct option from the given codes.

| | **Column I** | | **Column II** |
|---|---|---|---|
| A | Hardwood | (i) | Duramen |
| B | Softwood | (ii) | Alburnum |
| C | Heartwood | (iii) | Non-porous wood |
| D | Sapwood | (iv) | Porouswood |

a) A-(iv), B-(iii), C -(ii), D-(i)  b) A-(iv), B-(iii), C-(i), D-(ii)
c) A-(iii), B-(iv), C-(i), D-(ii)  d) A-(iii), B-(iv), C-(ii), D-(i)

55. Match column I with column II and select the correct option from the given codes.

| | **Column - I** | | **Column -II** |
|---|---|---|---|
| A. | Bulliform cells | (i) | Regulate opening and closing of stomata |
| B. | Guard cells | (ii) | Aerating pores in the bark of plant |
| C. | Lenticels | (iii) | Rolling in and out of leaves |
| D. | Subsidiary cells | (iv) | Accessory cells |

a) A-(iii), B-(i), C-(ii), D-(iv)  b) A-(i), B-(ii), C-(iii), D-(iv)
c) A-(iv), B-(iii), C-(i), D-(ii)  d) A-(ii), B-(iv), C-(iii), D-(i)

56. Innumerable (many) vascular bundles, lack of combium and lack of a well demarcated pith is found in
a) Sugarcane, Grass  b) Sunflower, Neem  c) Radish, Neem  d) Pea, Peepal

57. Common bottle cork is the product of:
a) Xylem  b) Dermatogen  c) Phellogen  d) Vascular cambium

58. Interfascicular cambium and cork cambium are formed due to
a) cell division  b) cell differentiation  c) cell dedifferentiation
d) redifferentiation.

59. The intercalary meristems are infact, portions of
a) Lateral meristem  b) Secondary meristem  c) Apical meristem
d) Permanent tissue that becomes meristematic

60. Grafting is successful in dicots but not in monocots because the dicots have-
a) Vascular bundles arranged in a ring  b) Cambium for secondary growth
c) Vessels with elements arranged end to end  d) Cork cambium

61. Which one of the following option is not related to gymnosperm?
a) Sieve cells, tracheid, albuminous cells
b) Sieve cells, vessel, companion cells  c) Sieve tube, vessel, companion cells
d) Sieve cells, tracheid, albuminous cells

62. Ectophloic siphonostele is found in _____ .
a) Osmunda and Equisetum  b) Marsilea and Botrychium
c) Adiantum and Cucurbitaceae  d) Dicksonia and Maidenhair fern

63. Which of the following statements are incorrect?
(i) Secondary growth usually occurs in monocotyledons.
(ii) Bark refers to all tissues interior to vascular cambium.

(iii) Lenticels permit the exchange of gases between the outer atmosphere and the internal tissue of the stem.

(iv) Annual rings give an estimate of the age of the tree.

a) (i) and (ii) only b) (i) and (ii) only c) (i) and (iv) only d) (ii) and (iv) only

64. Identify the simple tissue from the following.

a) Parenchyma b) Xylem c) Epidermis d) Phloem

65. Pulp of a fruit is made up of mainly

a) Parenchyma b) Collenchyma c) Sclereids d) Meristem

66. Match the scientists in column I with the related terms coined by them in column II and select the correct option from the given codes

| | **Column - I** | | **Column II** |
|---|---|---|---|
| A | N. Grew | (i) | Hadrome and leptome |
| B. | Nageli | (ii) | Tissue |
| C | Haberlandt | (iii) | Quiescent centre |
| D | Clowes | (iv) | Xylem and phloem |

a) A-(iii), B-(iv), C-(i), D-(ii) b) A-(ii), B-(iv), C-(i), D-(iii)

c) A-(iv), B-(ii), C-(iii), D-(i) d) A-(iv), B-(iii), C-(ii), D-(i)

67. **Assertion:** Secondary growth usually occurs in dicotyledonous stems.

**Reason:** The vascular cambium present between xylem and phloem possesses the ability to form secondary xylem and secondary phloem respectively.

a)

If both assertion and reason are true and reason is the correct explanation of assertion.

b)

If both assertion and reason are true but reason is not the correct explanation of assertion.

c) If assertion is true but reason is false.

d) If both assertion and reason are false.

68. Each annual ring consists of two strips of

a) Autumn & spring wood b) Heart wood & sap wood c) Xylem and phloem

d) cork & cortex

69. Which of the following statements is correct about a woody dicot stem which shows extensive secondary growth?

a) Primary xylem persists in the centre of the axis.

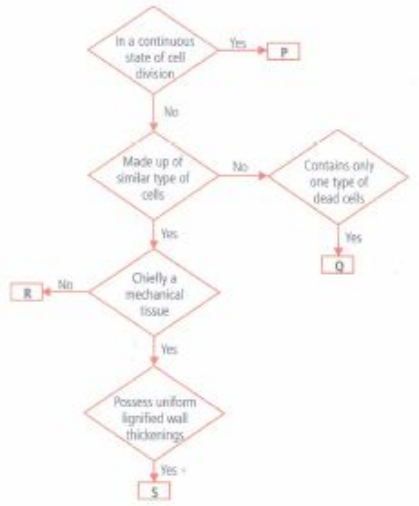
b) Primary and the older secondary phloem get crushed.

c) Secondary xylem forms the bulk of the stem. d) All of these

70. Stomata in grass leaf are:

a) Rectangular b) Kidney shaped c) Dumb-bell shaped d) Barrel shaped

71. At maturity which of the following is enucleate?
    a) Sieve cell b) Companion cell c) Palisade cell d) Corrical cell
72. Mechanical tissue consisting of living cells is-
    a) Chlorenchyma b) Parenchyma c) Sclerenchyma d) Collenchyma
73. Lysigenous cavity in monocot stem vascular bundles develops by the dissolution of
    a) protoxylem b) metaxylem c) phloem d) ground tissue.
74. Cork cambium is
    a) Periderm b) Phellem c) Phelloderm d) Phellogen
75. Select the mismatched pair.
    a) Root hair - Unicellular b) Stem hair - Multicellular
    c) Trichomes - Cause water loss
    d) Guard cells - Regulate opening and closing of stomata
76. In dicot root
    a) Vascular bundles are scattered with cambium
    b) Vascular bundles are open and arranged in a ring
    c) Xylem and ppholem are radial d) Xylem is always endarch
77. Abnormal/anomalous secondary growth occurs in _____ .
    a) Dracaena b) Ginger c) Wheat d) Sunflower
78. Study the flow chart given below




    Which of the following statements is incorrect regarding this?
    a) P can be root apical meristem which is generally sub-terminal in position.
    b) Q can be phloem which is also called bast.
    c) R can be parenchyma which comprises of thin walled isodiametric cells.
    d) S can be collenchyma which is a living mechanical tissue.
79. In a dorsiventral leaf, what is true regarding the position of xylem?

a) Xylem is towards adaxial epidermis. b) Xylem is towards abaxial epidermis.
c) Xylem surrounds phloem. d) Xylem is surrounded by phloem.

80. Which of the following statements are correct about heartwood?
(i) It does not help in water conduction.
(ii) It is also called alburnum.
(iii) It is light in colour and is very soft.
(iv) It has tracheary elements which are filled with tannins, resins, ete.
a) (ii) and (iv) b) (i), (ii) and (iii) c) (ii), (iii) and (iv) d) (i) and (iv)

81. Periderm is produced by _____ .
a) Vascular cambium b) Fascicular cambium c) Phellogen
d) Intrafascicular cambium

82. Vascular bundle is enclosed within a well developed sclerenchymatous sheath in
a) monocot stem b) dicot stem c) monocot root d) dicot root.

83. An organised and differentiated cellular structure having cytoplasm but no nucleus is _____ .
a) Vessels b) Xylem parenchyma c) Sieve tubes d) Tracheids

84. Which of the following conditions of xylem is present in both monocot and dicot stems?
a) Endarch b) Polyarch c) Mesarch d) Exarch

85. Palisade parenchyma is absent in leaves of:
a) Mustard b) Soybean c) Gram d) Sorghum

86. A dicot root differs from a monocot root in which of the following
a) Presence of piliferous b) presence of exodermis
c) Presence of ill-developed (Poorly developed) pith
d) Seperate radial vasular bundle

87. Hard bast (Bundle cap) occurs in
a) Sunflower stem b) Wheat stem c) Sunflower root d) 1 & 3 both

88. The given figure is present in

a) fruit walls of nuts b) grit of guava and pear c) seed coats of legumes
d) all of these

89. Procambium form _____ .
a) Only primaiy vascular bundles b) Only vascular cambium
c) Only cork cambium d) Primary vascular bundles and vascular cambium

90. Read the following statements and select the correct option.
**Statement 1 :** Anatomically, all the tissues present on the inner side of endodermis such as pericycle, vascular bundles and pith constitute the stele.
**Statement 2:** Eustele is the stele in which vascular bundles are arranged in the form of a ring as present in dicot stems
a) Both statements 1 and 2 are correct.
b) Statement 1 is correct but statement 2 is incorrect.
c) Statement 1 is incorrect but statement 2 is correct.
d) Both statements 1 and 2 are incorrect.

91. **Assertion :** Each stoma is composed of two bean shaped cells known as guard cells.
**Reason:** Guard cells regulate the opening and closing of stomata.
a)
If both assertion and reason are true and reason is the correct explanation of assertion.
b)
If both assertion and reason are true but reason is not the correct explanation of assertion.
c) If assertion is true but reason is false.
d) If both assertion and reason are false.

92. Epidermal tissue system is derived from
a) protoderm b) procambium c) periblem d) plerome.

93. In dicot stems, cambium present between primary xylem and primary phloem is
a) fascicular cambium b) intrafascicular cambium c) interfascicular cambium d) both (a) and (b).

94. Annual rings are well demarcated in trees growing in
a) Shimla b) Bombay/Delhi c) Madras d) Udaipur

95. Which of the following facilitates opening of stomatal aperture?
a) Decrease in turgidity of guard cells
b) Radial orientation of cellulose microfibrils in the cell wall of guard cells
c) Longitudinal orientation of cellulose microfibrils in the cell wall of guard cells
d) Contraction of outer wall of guard cells

96. The cork cambium, cork and secondary cortex are collectively called:
a) Phellem b) Phelloderm c) Phellogen d) Periderm

97. Bark of which of the following plants yields a drug for the treatment of malaria?
a) Cinchona officinalis b) Acacia arabia c) Quercus suber d) Cinnamomum

98. Youngest layer of secondary xylem is located

a) In the centre of stem b) Just outside the pith
c) Just outside the vascular cambium d) Just inside the vascular cambium

99. In a ring girdled plant :
a) The root dies first b) The shoot and root die together
c) Neither root nor shoot will die d) The shoot dies first

100. Which of the following exemplifies emergences?
a) Root hair b) Stigmatic papillae c) Prickles of **Rosa indica**
d) Oil glands on fruit skins

101. In a longitudinal section of a root, starting from the tip upward, the four zones occur in the following order:
a) Root cap, cell division, cell enlargement, cell maturation
b) Root cap, cell division, cell maturation, cell enlargement
c) Cell division, cell enlargement, cell maturation, root cap
d) Cell division, cell maturation, cell enlargement, root cap

102. **Assertion:** In dicot stem, endodermis is also called as starch sheath.
**Reason:** The cells of the endodermis are rich in starch grains.
a)
If both assertion and reason are true and reason is the correct explanation of assertion.
b)
If both assertion and reason are true but reason is not the correct explanation of assertion.
c) If assertion is true but reason is false.
d) If both assertion and reason are false.

103. Which one of the following is resistant to enzyme action?
a) Cork b) Wood fibre c) Pollen exine d) Leaf cuticle

104. Select the mismatched pair out of the following.
a) Radial vascular bundle - Xylem and phloem on different radii
b) Bicollateral vascular bundle - Phloem present on both sides of xylem
c) Amphivasal vascular bundle - Phloem surrounds xylem
d) Conjoint vascular bundle - Xylem and phloem on same radii

105. Casparian strips are the bands of thickenings present on _____walls of endoderm is.
a) radial b) tangential c) central d) both (a) and (b)

106. Which of the following tissues originate from ray initials of cambium
a) Tracheids & vessels b) Sieve tubes & companion cells
c) Xylem & phloem fibres d) Radial rows of parenchyma

107. A vascular bundle in which phloem is present on both the sides of the xylem and separated from it by strips of cambium is said to be-
a) Collateral open b) Bicollateral open c) Concentric d) Bicollateral closed

108. Interfascicular cambium develops from the cells of:
a) Xylem parenchyma b) Endomermis c) Pericycle d) Medullary rays

109. A leaf primordium grows into the adult leaf lamina by means of _____ .
a) Apical meristem b) Lateral meristem c) Marginal meristem
d) At first by apical meristem and later largely by marginal meristem

110. Which plant part possessespolyarch condition of vascular bundles with a well developed pith?
a) Dicot root b) Monocot root c) Dicot stem d) Monocot stem

111. Root cap is not found in
a) Hollyhock b) Pistia c) Sunflower d) China rose

112. **Assertion :** The greater part of secondary xylem is lighter in colour and consists of dead elements with highly lignified walls and is called heartwood.
**Reason:** The peripheral region of the secondary xylem is dark brown in colour and is called sapwood.
a)
If both assertion and reason are true and reason is the correct explanation of assertion.
b)
If both assertion and reason are true but reason is not the correct explanation of assertion.
c) If assertion is true but reason is false.
d) If both assertion and reason are false.

113. What is the fate of primary xylem in a dicot root showing extensive secondary growth?
a) It is retained in the centre of the axis. b) It gets crushed.
c) Mayor may not get crushed d) It gets surrounded by primary phloem.

114. Bordered pits are found in _____ .
a) Sieve cells b) Vessel wall c) Companion cells d) Sieve rube wall

115. In Barley stem, the vascular bundles are:
a) Open and scattered b) Closed and scattered c) Closed and radial
d) Open and in a ring

116. Suberin in chiefly deposited in the cells of
a) Sclerenchyma b) Collenchyma c) Cork d) Phelloderm

117. Sieve tubes are characterised by
a) Absence of septa b) Simple oblique septa c) Perforated longitudinal walls
d) Perforated

118. Autumn wood can be differentiated from spring wood by
a) Broad vessels and tracheids b) Narrow vessels and tracheids
c) Red colour of xylem d) Cambium

119. Loading of pholem is related to _____ .
a) Increase of sugar in phloem b) Elongation of Phloem cell
c) Separation of phloem parenchyma d) Strengthening of phloem fibre

120. In angular collenchyma, thickenings are present_____.
a) at the corners of cell b) throughout the cell wall c) on the tangential walls
d) on the walls bordering intercellular spaces

121. When we peel the skin of a potato tuber, we remove
a) periderm b) epidermis c) cuticle d) sapwood.

122. In moncotyledon roots, the histogen present at the apex of the root tip is
a) Dermatogen b) Procambium c) Calyptrogen d) Plerome

123. Sieve tubes are suited for translocation of food because they posse
_____ .
a) Bordered pits b) No ends walls
c) Broader lumen and perforated cross walls d) No protoplasm

124. Three types of tissue system have been recognised in plants on the basis of their functions. Select the correct option regarding this.
a)
Epidermal tissue system consists of epidermis and epidermal appendages, which provide protection to the internal tissues
b)
All tissues except epidermis and vascular bundles constitute the ground tissue, which forms the major part of a plant's body.
c) Vascular tissue system consists of complex tissues i.e., xylem and phloem.
d) All of these

125. Match the following and choose the correct option from below.

| | | | | |
|---|---|---|---|---|
| A. | Meristem | - | (i) | Photosynthesis, storage |
| B. | Parenchyma | - | (ii) | Mechanical support |
| C. | Sollenchym | - | (iii) | Actively dividing cells |

| | | | |
|---|---|---|---|
| D. | Sclerenchyma | -(iv) | Sclereids |

a) A-(i), B-(iii), (-(v), D-(ii), E-(iv) b) A-(iii), B-(i), (-(ii), D-(v), E-(iv)
c) A-(ii), B-(iv), (-(v), D-(i), E-(iii) d) A-(v), B-(iv), (-(iii), D-(ii), Hi)

26. Which of the following plant organs do not contain elements is-
a) Monocot root b) Monnocot stem c) Dico Root d) All of the above

27. In land plants, the guard cells differ from other epidermal cells in having:
a) Chloroplasts b) Cytoskeleton c) Cytoskeleton d) Endoplasmic reticulum

28. Vascular bundles in monocotyledons are considered closed because:
a) Xylem is surrounded all around by phloem
b) Abundle sheath surrounds each bundle c) Cambium is absent
d) There are no vessels with perforations

29. Select the incorrect pair out of the following.

a)

| **Type of tissue** | **Function** |
|---|---|
| Parenchyma | Storage, photosynthesis |

b)

| **Type of tissue** | **Function** |
|---|---|
| Sclerenchyma | Mechanical strength |

c)

| **Type of tissue** | **Function** |
|---|---|
| Xylem | Ascent of sap |

d)

| **Type of tissue** | **Function** |
|---|---|
| Phloem | Conduction of water and minerals |

30. Dervatives of the secondary meristem in the steler region are
a) Phellem and phelloderm b) Alburnum and primary phloem
c) Alburnum and primary phloem d) Primary xylem and secondary pjloem

31. A bicollateral vascular bundle is characterised by _____ .
a) Phloem being sandwitched between xylem
b) Transverse splitting of vascular bundle
c) Longitudinal splitting of vascular bundle
d) Xylem being sandwitched between phloem

32. A conjoint and open vascular bundle will be observed in the transverse section of
a) monocot root b) monocot stem c) dicot root d) dicot stem.

33. Main water conducting element of xylem in soft wood containing plants is
a) Albuminous cells b) Vessel c) Tracheid d) Xylem parenchyma

34. Specialised epidermal cells surrounding the guard cells are called:
a) Lenticels b) Complimentary cells c) Subsidiary cells d) Bulliform cells

35. A major characteristic of the mono cot root is the presence of:

a) Cambium sandwiched between phloem and xylem along the radius
b) Open vascular bundles c) Scattered vascular bundles
d) Vasculature without cambium

36. In monocots vascular bundles are of closed type, what does it denote?
a) Xylem is surrounded by phloem b) Cambium is absent in vascular bundle
c) The pores of vessel elements and sieve elements are closed
d) Broad vessels and tracheids

37. In a mature dicot stem which has undergone secondary growth, youngest layer of secondary xylem is situated
a) in between pith and primary xylem b) just outside the vascular cambium
c) just inner to the vascular cambium d) just inner to the phellogen.

38. The basic difference between stem and root is that xylem in stem is-
a) Endarch b) Exarch c) Mesarch d) Polyarch

39. You are given a fairly old piece of dicot stem and dicot root. Which of the following anatomical structure will you use to distinguish between the two:
a) Secondary xylem b) Secondary phloem c) Protoxylem d) Cortical cells

40. The transverse section of a plant shows following anatomical features:
a) Large number of scattered vascular bundles surrounded by bundle sheath.
b) Large conspicuous parenchymatous ground tissue.
c) Vascular bundles conjoint and closed d) Phloem parenchyma absent.

41. Meristem is characterised by
a) Isodiametric cells with cellulosic thin wall
b) Absence of intercellular space and vacuole
c) Absence of reserve food material, plastids and ER d) All of these

42. Following table summarises the differences between a monocot root and a dicot root.

| | **Characters** | **Monocot root** | **Dicot root** |
|---|---|---|---|
| (i) | Vascula bundle | Polyarch i.e., more than 6 vascular bundles | Diarch to hexarch i.e., 2 - 6 vascular bundles |
| (ii) | Cambium | Absent | Present, so secondary growth occurs |
| (iii) | Pith | Poorly developed | Well developed large pith |
| (iv) | Activity of pericycle | Gives rise to secondary roots and cork cambium | Gives rise to lateral roots only |

Identify the incorrect differences and select the correct option.
a) (i) and (iii) b) (i) and (iv) c) (iii) and (iv) d) (ii) and (iii)

43. Vessels and companion cellls are respectively present in the xylem and phloem of
a) Gymnosperm b) Pteridophyte c) Angiosperm d) Bryophyta

44. Main function of lenticel is _____ .
a) Transpiration b) Guttation c) Gaseous exchange d) Bleeding

45. For a cortical study of secondary growth in plants which one of the following pairs is suitable?
a) Wheat and maiden hair fern b) Sugarcane and sµnflower
c) Sugarcane and sµnflower d) Deodar and fern

46. Which statements is true?
a) Spring wood is darker in colour with higher density
b) Autumn wood is lighter in colour with higher density
c) Autumn wood is darker in colour with lower density
d) Spring wood is lighter in colour with lower density

47. In temperate regions, cambium is less active during winter season and forms fewer xylary elements that have narrow vessels, this wood is called as
a) spring wood b) autumn wood c) heartwood d) sapwood.

48. Select the incorrect statement regarding the anatomy of a typical monocotyledonous stem.
a) Phloem parenchyma is absent.
b) Vascular bundles are scattered, conjoint, collateral and closed.
c) Each vascular bundle is surrounded by a bundle sheath.
d) Ground tissue is differentiated into cortex, endoderm is, pericycle and pith.

49. Which meristem helps in increasing girth?
a) Lateral meristem b) Intercalary meristem c) Primary meristem
d) Apical meristem

50. Passage cells are thin walled cells found in _____ .
a)
Phloem elements that serve as entry points for substance for transport ot other plant parts
b)
Testa of seeds to enable emergence of growing embryonic axis during seed germination
c)
Central region of style through which the pollen tube grows towards the ovary
d)
Endodermis of roots facilitating rapid transport of water from cortex to pericycle.

151. Identify A, B, C and D in the given transverse section of leaf of Zea mays.

a)

| A | B | C | D |
|---|---|---|---|
| Adaxial epidermis | Abaxial epidermis | Phloem | Xylem |

b)

| A | B | C | D |
|---|---|---|---|
| Abaxial epidermis | Adaxial epidermis | Phloem | Xylem |

c)

| A | B | C | D |
|---|---|---|---|
| Adaxial epidermis | Abaxial epidermis | Phloem | Xylem |

d)

| A | B | C | D |
|---|---|---|---|
| Abaxial epidermis | Adaxial epidermis | Phloem | Xylem |

152. Secondary phloem is formed by

a) Procambium b) Plerome c) Vascular cambium d) Apical meristem

153. Angular collenchyma occurs in _____ .

a) Cucurbita b) Tagetes c) Althaea d) Salvia

154. Reduction in vascular tissue, mechanical tissue and cuticle is characteristic of:

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

155. In leaf anatomy, phloem is directed towards

a) Upper epidermis b) Lower epidermis c) Middle part of V.Bs.

d) Lateral side

156. In a dorsiventral leaf, location of palisade tissue and phloem is respectively on the _____surfaces.

a) adaxial and abaxial b) adaxial and adaxial c) abaxial and adaxial

d) abaxial and abaxial

157. Collenchyma differs from sclerenchyma in-

a) Retaining protoplasm at maturity b) Having thick lumen

c) Being a wide lumen d) Being meristematic

158. Monocot root is differ from dicot root in having:

a) Open vascular bundle b) Scattered vascular bundle c) Large pith

d) Radial vascular

159. Which of the following meristems is responsible for extrastelar secondary growth in dicotyledonous stem?

a) Intrafascicular cambium b) Interfascicular cambium

c) Intercalary meristem d) Phellogen

60. Primary growth in grasses occurs due to the activity of
a) Cork cambium b) Intercalary meristem c) Lateral meristem
d) Primordial meristem

61. Stomata which remain surrounded by a pair of subsidiary cells whose common wall is at right angles to guard cells are called
a) anomocytic b) anisocytic c) paracytic d) diacytic.

62. The chief function of a xylem vessel in a plant body is to-
a) Conduct sap b) Conduct mineral salts only
c) Eliminate excess of water at night d) Translocate organic nutrients

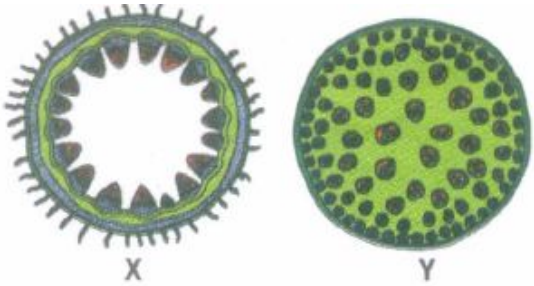
63. Which of the following is made up of dead cells:
a) Xylemparenchyma b) Collenchyma c) Phellem d) Phloem

64. The vascular cambium normally gives rise to:
a) Phelloderm b) Primary phloem c) Secondary xylem d) Periderm

65. Extra stelar secondary growth in dicot stem occurs due to the activity of
a) Intrafascicular cambium b) Interfascicular cambium c) Vascular cambium
d) Cork cambium

66. Chlorenchyma is known to develop in the _____ .
a) Pollen tube of Pinus b) Cytoplasm of Chlorella
c) Mycelium of a green mould such as Aspergillus d) Spore capsule of a moss

67. Figures X and Y represent the transverse sections of ___ and respectively.




a)

| X | Y |
|---|---|
| dicot root | dicot stem |

b)

| X | Y |
|---|---|
| monocot root | monocot stem |

c)

| X | Y |
|---|---|
| dicot stem | monocot stem |

d)

| X | Y |
|---|---|
| monocot stem | dicot stem |

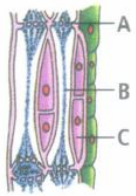
68. Ground tissue includes:
a) All tissues internal to endodermis b) All tissues external to endodermis
c) All tissues except epidermis and vascular bundles d) Epidermis and cortex

69. In which of the following order, an exarch exlem develops
a) Centripetal b) Centrifugal c) Both Centripetal & Centrifugal
d) Centrifugal

70. Commercial cork is obtained from _____ .

a) Betula/Birch b) Berberis/Barberry c) Salix/Willow d) Quercus/Oak

171. Identify the given figure and select the correct option for the parts labelled as A, B and C.




a)
C represents the cells which are replaced by albuminous cells in non-flowering plants such as gymnosperms.
b) A represents phloem
c) B represents the cells which become dead on maturity. d) All of these

172. Lenticels are involved in:
a) Photosynthesis b) Transpiration c) Gaseous exchange
d) Food transport

173. Vessels are found in _____ .
a) All angiosperms and some gymnosperms
b) Most of angiosperms and few gymnosperms
c) All angiosperms, all gymnosperms and some pteriodophyta
d) All pteridophyta

174. The ballon like outgrowths of parenchyma in the lumen of a vessal are known as
a) Histogen b) Tyloses c) Phellogen d) Tunica

175. Plants showing anomalous secondary growth include
a) Agave b) Dracaena c) Yucca d) all of these.

176. Transport of food material in higher plants takes place through:
a) Transfusion tissue b) Tracheids c) Sieve elements d) Companion cells

177. Annual rings are the bands of
a) Secondary cortex and cork b) All secondary xylem is located
c) Secondary xylem and xylem rays d) Secondary phloem and medullary rays

178. Which of the following statements is incorrect?
a) In a dicot stem, the pericycle is usually multilayered.
b) Wood is the common name used for secondary xylem.

c)
Peripheral cytoplasm, a large vacuole and a prominent nucleus; all are absent in a mature sieve tube element.
d)
Lenticels are the aerating pores present in bark of plants and are associated with gaseous exchange.

179. End walls of tracheids and vessels respectively are:
a) Pitted & perforated b) Perforated & pitted c) Both perforated
d) Both pitted

180. How many shoot apical meristems are likely to be present in a twig of a plant possessing 4 branches and 26 leaves?
a) 26 b) 1 c) 5 d) 30

181. Vascular cambium and cork cambium are the examples of
a) apical meristem b) lateral meristem c) intercalary meristem
d) promeristem.

182. Secondary medullary ray are produced by
a) Fusiform initial b) Interfascicular cambium c) Phellogen d) Ray initial

183. How many histongens are present in monocot root apex:
a) 1 b) 2 c) 3 d) 4

184. In leaves, the vascular bundles are
a) Bicollateral & open b) Collateral & open c) Collateral & closed
d) Radial & exarch

185. Polyarch and exarch vascular bundles are the characteristic of
a) Dicot stem b) Dicot root c) monocot stem d) Monocot root

186. A few drops of sap were collected by cutting across a plant stem by a suitable method. The sap was tested chemically. Which one of the following test results indicates that it is phloem sap?
a) Acidic b) Alkaline c) Low refractive index d) The absence of sugar.

187. Dendrochronology is the study of determination of
a) Height of a tree b) Diameter of a tree
c) Age of a tree with help of annual rings
d) Counting of the number of branches

188. The cell functionally associated with sieve element is-
a) Phloem fibres b) Phloem Parenchyma c) Companion cell
d) Collenchyma

189. There is no result of 'Girdling Experiment' in monocot plants, due to:

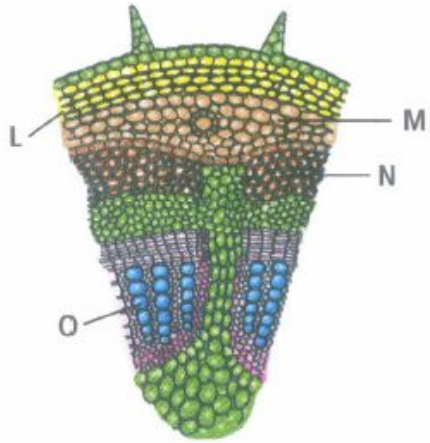
a) Presence of wax layer on the surface of its stem
b) Stem is comparatively thin c) Phloem is inside xylem
d) Vascular bundles are not in specific position

90. A meristem may be defined as the group of cells.
a) Does not divide b) Conserve food
c) Divide continuously to give rise to the group of cells
d) Elongate, mature and add to the group of cells.

91. Secondary meristems are derived from
a) Promeristems b) Primary meristem c) Primary permanent tissue
d) Lateral meristem

92. A timber merchant told his customer that log of wood which he was purchasing comes from a 20 years old tree, he told so by inspecting the
a) Diameter of log b) Thickness of the heart wood c) Number of cork layers
d) Annual rings

93. Consider the following statements regarding the given figure and select the correct one.




a)
'L' is the collenchymatous hypodermis that provides mechanical strength and flexibility to young dicot stems.
b) 'M' is the innermost layer of cortex which usually possessesCasparian strips.
c) 'N' is the parenchymatouspericyclethat synthesises food.
d)
'O' is xylem which is exarch with respect to the positions of protoxylem and metaxylem

94. Collenchyma occurs in the stem and petioles of _____ .
a) Xerophytes b) Monocots c) Dicot herbs d) Hydrophytes

95. Cortex is the region found between _____ .
a) Epidermis and stele. b) Pericycle and endodermis
c) Endodermis and pith. d) Endodermis and vascular bundle.

196. A transverse section of stem is stained first with safranin and then with fast green following the usual schedule of double staining for the preparation of a permanent slide. What would be the colour of the stained xylem and phloem?
a) Red and green b) Green and red c) Orange and yellow
d) Purple and orange

197. **Assertion:** The trichomes in the shoot system are usually multicellular.
**Reason:** The trichomes help in preventing water loss due to evaporation.
a)
If both assertion and reason are true and reason is the correct explanation of assertion.
b)
If both assertion and reason are true but reason is not the correct explanation of assertion.
c) If assertion is true but reason is false.
d) If both assertion and reason are false.

198. Root hairs develop from the region of:
a) Maturation b) Elongation c) Root cap d) Meristematic activity

199. What is the characteristics of a vascular bundle of monocot stem
a) Open and surrounded by a sclerenchymatous bundle sheath
b) Closed and not surrounded by bundle sheath
c) Closed and surround by bundle sheath
d) Open and not surrounded by a bundle sheath

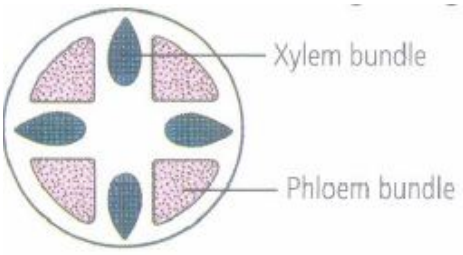
200. Plasmodesmata which maintain cell to cell cytoplasmic connection, are quite common in
a) Parenchyma b) Xylem fibrs c) Sclereids d) Sclerenchyma fibres

201. Cortes and pith are not distinguished in
a) Monocot stem b) Monocot root c) Dicot stem d) Dicot root

202. Which one of the following cell types always divides by anticlinal cell division?
a) Fusiform initial cells b) Root cap c) Protoderm d) Phellogen

203. The chief water conducting elements of xylem in gymnosperms are:
a) Iracheids b) Vessels c) Fibres d) Transfusion tissue

204. Identify the type of vascular bundle as shown in the figure and select the incorrect statement regarding it.




a)
Figure represents radial vascular bundles in which xylem and phloem occur in the form of separate bundles.
b) Xylem bundles and phloem bundles occur on different radii.
c) These are the characteristic of monocot and dicot leaves. d) None of these

205. Which of the following tissues has dead cells with thick and lignified cell walls, having a few or numerous pits?
a) Sclerenchyma b) Collenchyma c) Collenchyma d) None of these

206. Cell wall in dead mechanical tissue show
a) Lignified nature b) Cutinised nature c) Pectose deposition
d) Hemicellulose deposition

207. Select the true statement:
a) Lenticels are absent in woody climbers leaves
b) Lenticels occur in most woody trees
c) The spring wood is lighter in colour and has a long density
d) The sap wood also called as duramen

208. Polyarch vascular bundles generally occur in
a) monocot stem b) dicot stem c) dicot root d) monocot root.

209. Meristematic tissues are composed of
a) mature cells b) fully differentiated cells c) cells that cannot divide
d) immature cells with power to divide.

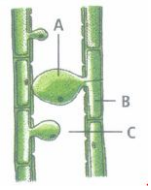
210. Phloem parenchyma is absent in-
a) Dicot stem b) Dicot leaf c) Monocot stem d) Dicot root

211. **Assertion:** Fascicular vascular cambium, interfascicular cambium and cork-cambium are examples of lateral meristems.
**Reason :** These are responsible for producing the secondary tissues.

a)
If both assertion and reason are true and reason is the correct explanation of assertion.
b)
If both assertion and reason are true but reason is not the correct explanation of assertion.
c) If assertion is true but reason is false.
d) If both assertion and reason are false.

212. The growth of roots and stems in length with the help of apical meristem is called
a) primary growth b) lateral growth c) secondary growth
d) intercalary growth

213. Identify the given figure and select the correct labels for A, B and C.




a)

| A | B | C |
|---|---|---|
| Callose | Xylem parenchyma | Xylem vessel |

b)

| A | B | C |
|---|---|---|
| Callose | Phloem parenchyma | Phloem vessel |

c)

| A | B | C |
|---|---|---|
| Tylosis | Xylem parenchyma | Xylem vessel |

d)

| A | B | C |
|---|---|---|
| Tylosis | Phloem parenchyma | Phloem vessel |

214. The common bottle cork is a product of:
a) Dermatogen b) Phellogen c) Xylem d) Vascular Cambium

215. **Assertion:** In dicot leaf, epidermis covers both the upper surface (adaxial epidermis) and lower surface (abaxial epidermis).
**Reason :** The adaxial epidermis bears more stomata than the abaxial epidermis.
a)
If both assertion and reason are true and reason is the correct explanation of assertion
b)
If both assertion and reason are true but reason is not the correct explanation of assertion.
c) If assertion is true but reason is false
d) If both assertion and reason are false.

216. The cells of the quiescent centre are characterised by

a) having dense cytoplasm and prominent nuclei
b) having light cytoplasm and small nuclei
c) dividing regularly to add to the corpus d) dividing regularly to add to tunica.

217. Read the different components from (A) to (D) in the list given below and tell the correct order of the components with reference to their arrangement from outer side to inner side in a woody dicot stem.
(A) Secondary cortex
(B) Wood
(C) Secondaryphloem
(D) Phellem
The correct order is:
a) (A),(B),(D),(C) b) (D),(A),(C),(B) c) (D),(C),(A),(B) d) (C),(D),(B),(A)

218. Match column I with column II and select the correct option from the given codes

| | **Column I** | | **Column II** |
|---|---|---|---|
| A | Stele | (i) | Innermost layer of cortex |
| B | Endodermis | (ii) | Suberin |
| C | Casparian strips | (iii) | All the tissues outer to vascular cambium |
| D | Bark | (iv) | All the tissues inner to endodermis |

a) A-(iv), B-(i), C-(ii), D-(iii) b) A-(iii), B-(ii), C-(i), D-(iv)
c) A-(i), B-(ii), C-(iii), D-(iv) d) A-(iv), B-(ii), C-(i), D-(iii)

219. A typical monocotyledonous root is characterised by
a) usually more than six xylem bundles b) large and well developed pith
c) no secondary growth d) all of these.

220. Transmission tissue is characteristic feature of:
a) Solid style b) Dry stigma c) Wet stigma d) Hollow style

221. As the secondary growth takes place (proceeds) in a tree, thickness of _____ .
a) Heartwood increases b) Sapwood increases c) Both increase
d) Both remain the same

222. Phellogen and phellem respectively denote
a) cork and cork cambium b) cork cambium and cork
c) secondary cortex and cork d) secondary cortex and cork

223. Vascular bundles are found scattered in ground tissue in
a) Maize stem b) Sunflower stem c) Gram root d) Isobilateral leaf

224. Read the following statements and select the correct option.
**Statement 1:** Annual rings are distinct in plants growing in temperate regions.
**Statement 2:** In temperate regions, the climatic conditions are not uniform

through the year.

a) Both statements 1 and 2 are correct.

b) Statement 1 is correct but statement 2 is incorrect.

c) Statement 1 is incorrect but statement 2 is correct.

d) Both statements 1 and 2 are incorrect.

225. Match the following :

| | | | |
|---|---|---|---|
| (a) | Early wood | (i) | Innermost mass of wood |
| (b) | Late wood | (ii) | Wood just inner to vascular cambium |
| (c) | Heart wood | (iii) | Low density |
| (d) | Sap eood | (iv) | High density |

a)

| a | b | c | d |
|---|---|---|---|
| iii | iv | i | ii |

b)

| a | b | c | d |
|---|---|---|---|
| iii | iv | ii | i |

c)

| a | b | c | d |
|---|---|---|---|
| iv | iii | ii | i |

d)

| a | b | c | d |
|---|---|---|---|
| iv | iii | i | ii |

226. Tracheids differ from other tracheary elements in:

a) Having casparian strips b) Being imperforate c) Lacking nucleus

d) Being lignified

227. Passage cells are found in endodermis of-

a) Dicot stem b) Monocot stem c) Orchid d) Monocot root

228. What is the position of oldest secondary phloem?

a) Just outside the pericycle b) Just outside the vascular cambium

c) Just inside the pericycle d) Below the vascular cambium

229. Vascular tissues in flowering plants develop from:

a) phellogen b) Plerome c) Periblem d) Dermatogen

230. **Assertion:** The wood is actually secondary xylem.

**Reason :** Secondary growth occurs in most of the monocot roots and stems.

a)

If both assertion and reason are true and reason is the correct explanation of assertion.

b)

If both assertion and reason are true but reason is not the correct explanation of assertion.

c) If assertion is true but reason is false.

d) If both assertion and reason are false.

231. Which one of the following is not a characteristic of meristematic cells?

a) Presence of intercellular spaces b) Thin cellulosic cell walls

c) Presence of prominent nucleus d) High metabolic rate

232. **Assertion :** Vascular bundles are conjoint, collateral and closed in dicot stem.
**Reason:** Vascular bundles are conjoint, collateral and open in monocot stem.
a)
If both assertion and reason are true and reason is the correct explanation of assertion.
b)
If both assertion and reason are true but reason is not the correct explanation of assertion.
c) If assertion is true but reason is false.
d) If both assertion and reason are false.

233. In_____vascular bundle, a strip of vascular cambium is present in between the xylem and phloem.
a) open b) closed c) endarch d) exarch

234. In conifers fibres are likely to be absent in
a) secondary phloem b) secondary xylem c) primary phloem d) leaves.

235. Match column I with column II and select the correct option from the given codes.

| **Column I** | **Column II** |
|---|---|
| A. Vessels | (i) Cells are living, with thin cellulosic cell walls |
| B. Tracheids | (ii) Cells possess highly thickened walls with obliterated central lumen |
| C. Xylem fibres | (iii) Individual members are interconnected through perforations in their common walls |
| D. Xylem parenchyma | (iv) Elongated tube-like cells with thick, lignified walls and tapering ends |

a) A-(iv), B-(iii), C-(ii), D-(i) b) A-(iii), B-(iv), C-(ii), D-(i)
c) A-(ii), B-(iv), C-(iii), D-(i) d) A-(iv), B-(ii), C-(iii), D-(i)

236. Stomata are distributed more on the lower surface than on the upper surface in
a) equifacial leaf b) bifacial leaf c) unifacial leaf d) both (a) and (b).

237. The length of different internodes in a culm of sugarcane is variable because of:
a) Intercalary meristem b) Shoot apical meristem
c) Size of lamina of lower node d) All of the above

238. Position of xylem & phloem in leaf respectively
a) Abaxial & Adaxial b) Adaxial & Abaxial c) Both Adaxial d) Both abaxial

239. Closed vascular bundles lack:
a) Cambium b) Pith c) Ground tissue d) Conjunctive tissue

240. Meristem present at Lamina margin is:

a) Apical meristem b) Intercalary meristem c) Mass meristem
d) Marginal meristem

241. Stele includes
a) peri cycle b) vascular bundles c) pith d) all of these.

242. **Assertion :** Xylem vessel is a long cylindrical tube like-structure made up of many cells each with lignified walls.
**Reason:** Presence of vessels is a characteristic feature of gymnosperms.
a)
If both assertion and reason are true and reason is the correct explanation of assertion.
b)
If both assertion and reason are true but reason is not the correct explanation of assertion.
c) If assertion is true but reason is false.
d) If both assertion and reason are false.

243. Companion cells are closely associated with:
a) Irichomes b) Guard cells c) Sieve elements d) Vesselelements

244. Increase in girth of the plant as a result of the activities of primary and secondary lateral meristems is called
a) primary growth b) lateral growth c) secondary growth
d) intercalary growth.

245. Which of the following tissue provide tens strength to young dicot stem against bending swaying-
a) Parenchyma b) Collenchyma c) Sclerenchyma d) Sclereids

246. Identify the plants (from the list i-vi) which possess the given type of guard cells (as shown in the diagram) in their leaves.

(i) Grass
(ii) Tomato
(iii) Banana
(iv) Brinjal
(v) Soybean
a) (i), (ii) and (v) b) (ii), (iii) and (iv) c) (i), (iii) and (vi) d) (iv), (v) and (vi)

247. Formation of which tissue is example dedifferentiation

a) Interfascicular cambium b) Apical meristem c) Intrafasciculsr cambium
d) Intercalary meristem

248. Sugar transport elements of gymnosperms & pteridophytes are
a) Sieve cells b) Sieve elements c) Sieve tubes d) Sieve tube elements

249. Phelloderm is formed by-
a) Vascular cammbium b) Phellogen c) Fascicular cambium
d) Interfascicular cambium

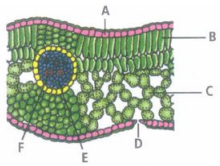
250. Heartwood differs from sapwood in:
a) Being susceptible to pests and pathogens b) Presence of rays and fibres
c) Absence of vessels and parenchyma
d) Having dead and non-conducting elements

251. In plants, which of the following cells are living
a) Xylem vessels b) Meristem c) Cork d) Fibres

252. In temperate regions, during spring season, cambium is very active and produces a large number of xylary elements having vessels with wider cavities. Wood formed in this way is called as
a) spring wood b) autumn wood c) early wood d) both (a) and (c).

253. As compared to spring wood, autumn wood has
a) more number of xylary elements with wider vessels
b) more number of xylary elements with narrow vessels
c) fewer xylary elements with wider vessels
d) fewer xylary elements with narrow vessels.

254. The given figure shows IS. of Helianthus leaf with various parts labelled as A. B, C. D, E, F and G. Identify the parts and select the correct option.



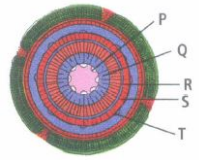

a)
A-Epidermis, B-Spongy parenchyma, C-Palisade parenchyma, D-Stomata, E-Phloem, F-Xylem
b)
A-Epidermis, B-Palisade parenchyma, C-Spongy parenchyma, D-Stomata, E-Xylem, F-Phloem

c)
A-Epidermis, B-Palisade parenchyma, C-Spongy parenchyma, D-Stomata, E-Endodermis, F-Xylem
d)
A-Epidermis, B-Palisade parenchyma, C-Spongy parenchyma, D-Stomata, E-Phloem, F-Xylem

255. Some vascular bundles are described as open because these :
a) Are not surrounded by pericycle
b) Are surrounded by pericycle but no endodermis
c) Are capable of producing secondary xylem and phloem
d) Possess conjunctive tissue between xylem and phloem

256. Histogens are components of
a) Apical meristem b) Intercalary meristem c) Lateral meristem
d) Secondary meristem

257. Identify P, Q, R, S and T in the given T.S. of dicot stem showing secondary growth and select the correct option.




a)

| P | Q | R | S | T |
|---|---|---|---|---|
| Primary phloem | Primary xylem | Vascular cambium | Secondary xylem | Secondary phloem |

b)

| P | Q | R | S | T |
|---|---|---|---|---|
| Primary phloem | Primary xylem | Vascular cambium | Secondary xylem | Secondary phloem |

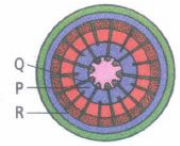
c)

| P | Q | R | S | T |
|---|---|---|---|---|
| Primary xylem | Primary xylem | Vascular cambium | Secondary phloem | Primary phloem |

d)

| P | Q | R | S | T |
|---|---|---|---|---|
| Primary xylem | Secondary xylem | Vascular cambium | Secondary phloem | Primary phloem |

258. During the secondary growth in a dicotyledonous stem, the fusiform initials of vascular cambium give rise to which of the given labelled part?




a) P b) R c) Q d) both (a) and (b).

259. Bast fibres are mostly found in-

a) Secondary xylem b) Secondary phloem c) Primary phloem
d) Primary xylem

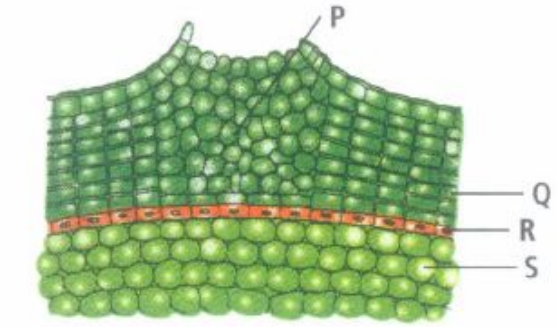
260. Which of the following tissue systems constitutes bulk of the plant body?

a) Epidermal tissue system b) Ground tissue system
c) Vascular tissue system d) Both (a) and (c)

261. Bark formed early in the season is called as _____ bark and bark formed towards the end of the season is called _____bark.

a) hard, soft b) soft, hard c) scaly, ring d) ring, scaly

262. The given transverse section of stem showing periderm, identify the parts labelled P, Q, R, S and select the correct option.




a)

| P | Q | R | S |
|---|---|---|---|
| Complementary cells | Cork | Phellogen | Phelloderm |

b)

| P | Q | R | S |
|---|---|---|---|
| Complementary cells | Cork | Phelloderm | Phellogen |

c)

| P | Q | R | S |
|---|---|---|---|
| Lenticels | Phelloderm | Phellogen | Cork |

d)

| P | Q | R | S |
|---|---|---|---|
| Complementary cells | Phelloderm | Phellogen | Phelloderm |

263. The collective term used for phelloderm (secondary cortex), cork cambium (phellogen) and cork (phellem) is
a) pericyde b) periderm c) protoderm d) procambium.

264. Secondary xylem and phloem in dicot stem are produced by:
a) Phellogen b) Vascular cambium c) Apical meristems
d) Axillarymeristems

265. The given figure shows which of the following cells?

a) Companion cell b) Sieve tube element c) Xylem vessel
d) Xylem tracheid

266. Annular and spiral thickened conducting elements generally develop in protoxylem when root or stem is:
a) Widening b) Differentiating c) Maturing d) Elongating

267. The water containing cavities in vascular bundles occur in:
a) Sunflower b) Maize c) Pinus d) Cycas

268. Heart wood is
a) Situated away form vascular cambium b) Situated near pith
c) Nonfunctional d) All of these

269. Phellogen cuts off derivatives on the inner side to form _____and on the outer side to form_____.
a) cork, secondary cortex b) secondary cortex, cork c) cork cambium, cork
d) cork cambium, secondary cortex

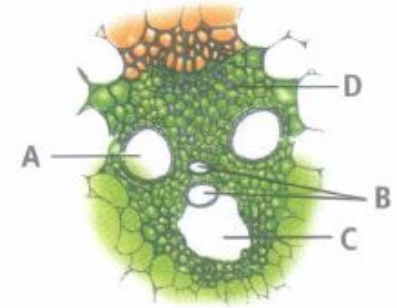
270. During secondary growth in a dicot root, cork cambium is formed by the activity of
a) perkyde b) epidermis. c) cortex d) hypodermis

271. All the xylem elements, when mature, are dead except
a) tracheids b) vessels c) xylem parenchyma d) xylem fibres.

272. Y- shaped arrangement of xylem vessels is found in
a) monocot stem b) dicot stem c) monocot root d) dicot root.

273. Bone shaped sclerenchymatous cells found in hypodermal layers of some seeds and fruits are called
a) osteosclereids b) macrosclereids c) brachysclereids d) trichosclereids.

274. Refer to the given figure which represents a section of vascular bundle as seen in IS. of a monocat stem and select the option that correctly labels A, B,C and D.




a)

| A | B | C | D |
|---|---|---|---|
| Protoxylem vessel | Metaxylem | Protoxylem | Phloem |

b)

| A | B | C | D |
|---|---|---|---|
| Protoxylem vessel | Metaxylem vessel | Metaxylem cavity | Phloem |

c)

| A | B | C | D |
|---|---|---|---|
| Protoxyle vessel | Metaxylem vessel | Metaxylem cavity | Phloem |

d)

| A | B | C | D |
|---|---|---|---|
| Metaxylem vessel | Protoxylem vessel | Protoxylem cavity | Sclerenchyma |

275. Vascular tissues of angiosperms differ from those of gymnosperms in
a) presence of vessels in the xylem
b) presence of well developed sieve tubes in phloem
c) presence of companion cells in phloem d) all of these.

276. 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-protein
d) Enucleate condition

277. Root cap in monocots is formed by
a) dermatogen b) calyptrogen c) vascular cambium d) wound cambium.

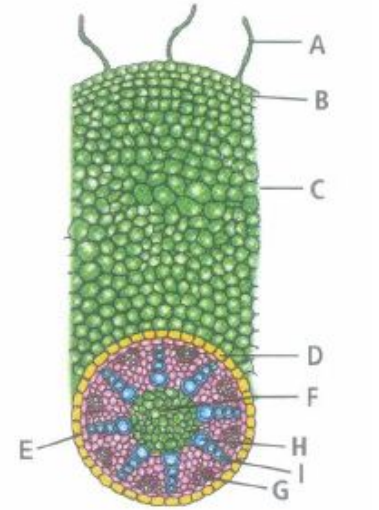
278. Which of the following causes almost unbearable irritation of the skin?

a) Lint of Gossypium  b) Staminal hair of Tradescantia
c) Prickles of Rosa indica  d) Stinging hair of Urtica dioica

279. Which tissue remains more active during auture
a) Vascular cambium  b) Cork cambium  c) Parenphyma  d) Sclerenchyma

280. Out of diffuse porous and ring porous woods, which is correct?
a) Ring porous wood, carries more water for short period
b) Diffuse porous wood carries more water
c) Ring porous wood carries more water when need is higher
d)
Diffuse porous wood is less specialised but conducts water rapidly through out

281. Transverse section of a part of a typical monocotyledonous root has been shown in the given figure. Identify the  different parts (from A to I) and select the correct option.




a)
A-Root hair, B-Epiblema, C-Cortex, D-Endodermis, E- Pericycle, F-Pith, G-Phloem, H-Metaxylem, I-Protoxylem
b)
A-Root hair, B-Epiblema, C-Cortex, D-Pericycle, E-Endodermis, F-Pith, G-Phloem, H-Metaxylem, I-Protoxylern
c)
A-Root hair, B-Epiblema, C-Cortex, D-Endodermis, E-Pericycle, F-Pith, G-Phloem, H-Protoxylem, I-Metaxylem
d)
A-Root hair, B-Cortex, C - Epiblema, D-Pericycle, E-Endodermis, F-Passage cell, G - Protoxylem, H - Phloem, I-Metaxylem

282. Match column I with column II and select the correct option from the given codes.

| | **Column I** | | **Column - II** |
|---|---|---|---|
| A | Bhojpatra | (i) | Bark of Cinchona |

| | Column I | | Column - II |
|---|---|---|---|
| B | Quinine | (ii) | Cork of Quercus suber |
| C | Insulators(soundproofing | (iii) | Bark of Betula |
| D | Dakhini | (iv) | Bark of Cinnamomum |

a) A-(iii), B-(i), C-(ii), D-(iv) b) A-(iv), B-(i), C-(ii), D-(iii)
c) A-(iv), B-(ii), C-(iii), D-(i) d) A-(iii), B-(i), C-(iv), D-(ii)

283. The secondary meristem originates from-
a) Promeristem b) Primary meristem c) Primary permanent tissue
d) Secretory tissue

284. Study the following statements regarding the anatomy of isobilateral leaf.
(i) Stomata are equally distributed on both the surfaces.
(ii) Certain adaxial epidermal cells are modified into bulliform cells in grasses.
(iii) The vascular bundles are radial.
(iv) Phloem is adaxially placed.
Which of the above statements are correct?
a) (i) and (ii) b) (ii) and (iii) c) (ii) and (iv) d) All are correct

285. Match the following:

| | | | |
|---|---|---|---|
| (a) | Parenchyma | (i) | Root pericycle |
| (b) | Collenchyma | (ii) | Hypodermis of dicot stem |
| (c) | Sclerenchymatous | (iii) | Pericycle of stem of Linum fibres |
| (d) | sclerenchymatous sclereids | (iv) | Pulp of pear |

a) a-i, b-ii, c-iii, d-iv b) a-iv, b-iii, c-ii, d-i c) a-i, b-ii, c-iv, d-iii
d) a-i, b-iii, c-ii, d-iv

286. **Assertion:** Phloem fibres or bast fibres are made up of collenchymatous cells.
**Reason:** Phloem fibres are generally found in primary pholem.
a)
If both assertion and reason are true and reason is the correct explanation of assertion.
b)
If both assertion and reason are true but reason is not the correct explanation of assertion.
c) If assertion is true but reason is false.
d) If both assertion and reason are false.

287. How many types of cells are present in vascular cambium of dicot stem
a) Two types, fusiform & ray initial b) Only fusiform initial c) Only ray initial
d) Three types fusiform, ray and medullary ray

288. Vascular issue having abundant vessels and fibers is

a) Primary xylem b) Secondary xylem c) Protoxylem d) Metaxylem

289. Read the following statements regarding meristematic cells and select the correct ones.
(i) Cells possess the ability to grow and divide.
(ii) Cells have dense cytoplasm with prominent nucleus.
(iii) Well developed ER and mitochondria are present.
a) (i) and (ii) b) (ii) and (iii) c) (i) and (iii) d) (i), (ii) and (iii)

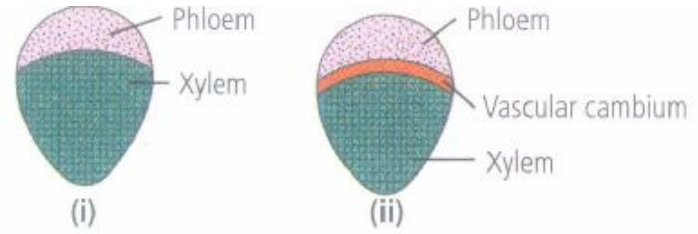
290. The terms 'wood' and 'bast' respectively refer to
a) xylem and cork b) phloem and xylem c) xylem and phloem
d) phloem and cork

291. Transport of food material in higher plants:
a) Companion cells b) Transfusion tissue c) Tracheids d) Sieve elements

292. In which of the following pairs of parts of a flowering plant is epidermis absent?
a) Root tip and shoot tip b) Shoot bud and floral bud c) Ovule and seed
d) Petiole and pedicel

293. Which is correct about transport or conduction of substances?
a) Organic food moves up through phloem
b) Organic food moves up through xylem
c) Inorganic food moves upwardly and downwardly through xylem
d) Organic food moves upwardly and downwardly through phloem

294. Identify the types of vascular bundle in the figures (i) and (ii) and select the correct option.




a)

| (i) | (ii) |
|---|---|
| Conjoint collateral | Conjoint bicollateral |

b)

| (i) | (ii) |
|---|---|
| Conjoint bicollateral | Conjoint collateral |

c)

| (i) | (ii) |
|---|---|
| Conjoint collateral closed | Conjoint collateral open |

d)

| (i) | (ii) |
|---|---|
| Conjoint collateral open | Conjoint collateral closed |

295. Epiblema of roots is equivalent to

a) pericycle b) endoderm c) epidermis d) stele.

296. **Assertion:** Sclereids are found in fruit walls of nuts, pulp of fruits like guava, pear and sapota and seed coats of legumes.
**Reason:** Sclereids are spherical, oval or cylindrical, highly thickened dead cells with narrow lumen.
a)
If both assertion and reason are true and reason is the correct explanation of assertion.
b)
If both assertion and reason are true but reason is not the correct explanation of assertion.
c) If assertion is true but reason is false.
d) If both assertion and reason are false.

297. Cork is impervious to water due to the presence of _____in its cell wall.
a) silica b) $CaCO_3$ c) suberin d) cuticle

298. Anatomically fairly old dicotyledonous root is distinguished from the dicotyledonous steme by:
a) Absence of secondary phloem b) Presence of cortex
c) Position of protoxylem d) Absence of secondary xylem

299. Four radial vascular bundles are found in _____ .
a) Dicot root b) Monocot root c) Dicot stem d) Monocot stem

300. Intrafascicular cambium is situated
a) In between the vascular bundles b) Inside the vascular bundles
c) Outside the vascular bundles d) In pith

301. Given are a few peculiar parts/structures found in plants. Cucurbita stem, potato tuber, walnut shell, jute fibres. Identify the tissue responsible for the distinguishing feature in each part respectively and select the correct option.
a) Collenchymatous hypodermis, Parenchyma, Sclerenchyma, Phloem
b) Collenchymatous hypodermis, Sclerenchyma Parenchyma, Phloem
c) Parenchymatous hypodermis, Parenchyma, Sclerenchyma, Xylem
d) Collenchymatous hypodermis, Parenchyma, Sclerenchyma, Xylem

302. Read the following statements with 1-2 blanks in each one of them
(i) In monocot root, a large number of vascular bundles are arranged in the form of a _____ around the central _____.
(ii) Due to the presence of _____the endodermal cells do not allow wall to wall movement of substances between cortex and pericycle, in a primary dicot root.

(iii) The epidermis of stem of sunflower bears several unbranched _____hair.

(iv) The central portion of a dicot stem is usually occupied by _____comprising of thin-walled parenchymatous cells.

Select the option that correctly fills the blanks in any two of them.

a) (i) ring, pith; (ii) hypodermis  b) (ii) Casparian strips; (iii) unicellular

c) (i) ring, cortex; (iv) vascular bundles  d) (iii) multicellular; (iv) pith

303. Bundle sheath extensions in a dicot leaf and in a monocot leaf are _____and _____respectively.

a) parenchymatous, collenchymatous  b) parenchymatous, sclerenchymatous

c) sclerenchymatous, parenchymatous

d) collenchymatous, sclerenchymatous

304. Which one of the following is not a lateral meristem ?

a) Intercalary meristem  b) Intrafascicular cambium

c) nterfascicular cambium  d) Phellogen

305. Study carefully the following statements and select the incorrect one(s).

(i) Lateral roots develop from pericyde.

(ii) Endodermis is the innermost layer of cortex.

(iii) Sapwood is the central, dark coloured, nonconducting part of secondary xylem.

a) (i) and (ii)  b) (ii) and (iii)  c) (i) only  d) (iii) only

306. The vascular bundles in dicot root are

a) Radial and endarch  b) Conjoint and exarch  c) Concentric and exarch

d) Radial and exarch

307. Which of the following tissues form the main bulk of storage organ-

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

308. Gymnosperms are also called soft wood spermatophytes because they lack:

a) Thick-walled tracheid  b) Xylem fibres  c) Cambium  d) Phloem fibres

309. Both apical meristem and intercalary meristem are _____meristems.

a) primary  b) secondary  c) lateral  d) both (b) and (c)

310. Identify the wrong statement in context of heartwood.

a) Organic compounds are deposited in it  b) It is highly durable

c) It conducts water and minerals efficiently

d) It comprises of dead elements with highly lignified walls

311. Assertion: Cork or phellem is impervious to water.

Reason : Cork has suberin deposition in the cell wall.

a)
If both assertion and reason are true and reason is the correct explanation of assertion.
b)
If both assertion and reason are true but reason is not the correct explanation of assertion.
c) If assertion is true but reason is false.
d) If both assertion and reason are false.

312. **Assertion:** A simple tissue is made of only one type of cells.
**Reason :** Various simple tissues in plants are parenchyma, collenchyma and sclerenchyma.
a)
If both assertion and reason are true and reason is the correct explanation of assertion.
b)
If both assertion and reason are true but reason is not the correct explanation of assertion.
c) If assertion is true but reason is false.
d) If both assertion and reason are false.

313. Which of the following is an incorrect pair?
a)
Hypostomatic - Stomata present more on lower epidermis than on upper epidermis
b)
Epistomatic - Stomata present more on upper epidermis than on lower epidermis
c) Amphistomatic - Stomata non-functional or absent
d) Sunken stomata - Stomata deep seated below the surface

314. Tissue is the group of cells which are
a) Similar in origin, but dissimilar in form and function
b) Similar in origin and form, but dissimilar in function
c) Similar in origin, form and function
d) Dissimilar in origin, but similar in form and function