



BIOLOGY

BOOKS - MBD

Anatomy of Flowering Plants

Example

1. What are meristems?



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2. Define meristematic tissue. Write two characteristics.



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3. Define intercalary meristem.



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4. Write location of (a) root apical meristem and (b) shoot apical meristem



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5. Why is root apical meristem subterminal?



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6. Which meristem is responsible for growth of plant body?



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7. What is location of intercalary meristem?



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8. Define shoot apex.



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9. Define root apex.



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10. Give examples of secondary meristem.



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11. State the differences in the function of collenchyma and aerenchyma.



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12. Name the tissue which acts as a sponge hygroscopic roots.



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13. Name the type of plant tissue that has characteristically thin-walled cells and retains the capacity of division even at maturity.



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14. Name the tissue provides mechanical strength to the plant organs.



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15. Name the two types of sieve elements found in phloem.



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16. Name the tissue represented by the jute fibres used in making ropes.



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17. Name the main components of xylem. Which of these is most suitable for carrying water.



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18. Name two example of fruits having sclereids.



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19. Name the two types of sieve elements found in phloem.



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20. What use are of phloem fibres put to ?



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21. A cross section of a plant material shows the following features under the microscope.

There are many vascular bundles scattered in the parenchymatous tissue. Xylem is endarch. What kind of plant part shows the above anatomy.



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22. A cross section of a plant material shows the following features under the microscope: vascular bundles are radially arranged. These are four xylem strands showing exarch condition. What is this plant part?



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23. What are type of vascular bundles in dicot and monocot leaf?



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24. What do you understand by exarch system?



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25. Why do annual rings not occur in dicot trees growing on sea shores?



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26. What is vascular cambium?



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27. List the parts of which periderm consists of.



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28. Which one out of root or stem shows endarch arrangement of xylem? What is meant by endarch arrangement?



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29. Which tissue of the leaf contains the chloroplasts?



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30. What is exarch condition?



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31. Name the components of secondary xylem.



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32. Name the tissue involved in linear and lateral growth in plants.





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33. What category of a permanent plant cell is a companion cell?



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34. The cross section of a plant material shows the following anatomical features under the microscope:

vascular bundles are radially arranged.



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35. The cross section of a plant material shows the following anatomical features under the microscope:

Four xylem strands with exarch condition of the protoxylem. To which organ should it be assigned?



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36. Write function of casparian strips in plant tissue.



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37. Fill in the blanks:

.....functions as conducting tissue for water androots to stem and leaves.



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38. Fill in the blanks:

Growth in plants is restricted to specialised regions of active cells called



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39. Fill in the blanks:

The first formed primary xylem elements are called.....



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40. Fill in the blanks:

Epidermis often covered by waxy thick layer called.....



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41. Fill in the blanks:

Xylem in roots is.....



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42. True or False

Root cap is formed from calyptrogen in monocots.



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43. True or False

Intercalary meristem is present at tip of branches.



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44. True or False

In stem branches arise endogenously.



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45. True or False

Shoot apex changes its activity in reproductive phase.



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46. True or False

Parenchyma is complex permanent tissue.



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47. Give the technical terms used for the following:

A conjoint vascular bundle in which a strip of cambium is present between xylem and pholem.



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48. Give the technical terms used for the following:

The xylem that is derived from procambium.



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49. Give the technical terms used for the following:

It is the first formed xylem element in the primary xylem, which has small tracheids and vessels.



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50. Give the technical terms used for the following:

These are thin walled cells of endodermins which permit the free passage of water.



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51. Give the technical terms used for the following:

The tissue which develops from the tunica initials of apical meristem and gives rise to epidermis.



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52. State the location and function of different types of meristems.



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53. Cork cambium forms tissues that form the cork. Do you agree with this statement?

Explain



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54. Explain the process of secondary growth in the stems of woody angiosperms with the help of schematic diagrams. What is its significance?



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55. Draw illustrations to bring out the anatomical difference between: Monocot root and Dicot root



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56. Draw illustrations to bring out the anatomical difference between: Monocot stem and Dicot stem



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57. Cut a transverse section of young stem of a plant from your school garden and observe it under the microscope. How would you ascertain whether it is a monocot stem or a dicot stem? Give reasons.



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58. The transverse section of a plant material shows the following anatomical features:

the vasucular bundles are conjoint, scattered

and surrounded by a sclerenchymatous bundle sheaths.



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59. The transverse section of a plant material shows the following anatomical features - (a) the vascular bundles are conjoint, scattered and surrounded by a sclerenchymatous bundle sheaths, (b) phloem parenchyma is absent. What will you identify it as?



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60. Why are xylem and phloem called complex tissues?



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61. What is stomatal apparatus? Explain the structure of stomata with a labelled diagram.



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62. Name the three basic tissue systems in the flowering plants. Give the tissue names under each system.



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63. How is the study of plant anatomy useful to us?



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64. What is periderm? How does periderm formation take place in the dicot stems?



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65. Describe the internal structure of a dorsiventral leaf with the help of labelled diagrams.



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66. How does the structure and location of bulliform cells help in performing their specialised function?



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67. Product of photosynthesis is transported from the leaves to various parts of the plants and stored in some cells before being utilised. What are the cells/tissues store them?



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68. Protoxylem is the first formed xylem. If the protoxylem lies next to phloem what kind of arrangement of xylem would you call it?



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69. What is the function of phloem parenchyma?



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70. What is present on the surface of the leaves which helps the plant prevent loss of water but is absent in roots?



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71. What is the epidermal cell modification in plants which prevents water loss?



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72. What part of the plant would show the following:

Radial vascular bundles

Polyarch xylem

Well developed pith



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73. What are the cells that make the leaves curl in plants during water stress?



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74. What constitutes the cambial ring?



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75. Give one basic functional difference between phellogen and phelloderm.



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76. Arrange the following in the sequence you would find them in a plant starting from the periphery-phellem, phellogen, phelloderm.



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77. If one debarks a tree, what parts of the plant is being removed?



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78. A cross section of a plant material shows the following features under the microscope: vascular bundles are radially arranged. There are four xylem strands showing exarch condition. What is this plant part?



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79. What do hard wood and soft wood stand for?



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80. While eating peach or pear it is usually seen that some stone like structures get entangled in the teeth. What are these stone like structures called?



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81. What is the commercial sources of cork. How is it formed in plant?



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82. Below is a list of plant fibres. From which part of the plant these are obtained.

Coir



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83. Below is a list of plant fibres. From which part of the plant these are obtained.

Hemp



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84. Below is a list of plant fibres. From which part of the plant these are obtained.

cotton



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85. Below is a list of plant fibres. From which part of the plant these are obtained.

Jute



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86. What are the characteristic differences found in the vascular tissue of gymnosperms and angiosperms?



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87. Epidermal cells are often modified to perform specialized functions in plants. Name some of them and function they perform.



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88. The lawn grass (Cynodon dactylon) needs to be mowed frequently to prevent its overgrowth. Which tissue is responsible for its rapid growth?



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89. Plants require water for their survival. But when watered excessively, plants die. Discuss.



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90. A transverse section of the trunk of a tree shows concentric rings which are known as growth rings. How are these rings formed? What is the significance of these rings?



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91. Trunks of some of the aged tree species appear to be composed of several fused trunks. Is it a physiological or anatomical abnormality?



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92. What is the difference between lenticel and stomata?



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93. Write the precise function of Sieve tube



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94. Write the precise function of

Interfascicular cambium



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95. Write the precise function of

Collenchyma



Watch Video Solution

96. Write the precise function of

Aerenchyma



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97. The stomatal pore is guarded by two kidney shaped guard cells. Name the epidermal cell surrounding the guard cells. How does a guard cell differ from an epidermal cell? Use a diagram to illustrate your answer.



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98. Point out the differences in the anatomy of, leaf of peepal and maiza. diagram and label the differences.



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99. Palm is monocotyledonous plant, yet it increases in girth. Why and how?



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100. The arrangement of ovules within the ovary is known as placentation. What does the term placenta refer to?



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101. Deciduous plants shed their leaves during hot summer or in autumn. This process of shedding of leaves is called abscission. Apart from physiological changes what anatomical mechanism is involved in the abscission of leaves.



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102. Is Pinus an evergreen tree? Comment.



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103. Assume that a pencil box held in your hand, represents a plant cell. In how many possible planes can it be cut? Indicate these cuts with the help of line drawings.



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104. Each of the following terms has some anatomical significance. What do these terms mean? Explain with the help of line diagram

Plasmadesmosomes / Plasmodesmata



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105. Each of the following terms has some anatomical significance. What do these terms mean? Explain with the help of line diagram

Middle lamella





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106. Each of the following terms has some anatomical significance. What do these terms mean? Explain with the help of line diagram

Secondary wall



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107. Distinguish between the following:

exarch and endarch condition of protoxylem



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108. Distinguish between the following:

Stele and vascular bundle



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109. Distinguish between the following:

Protoxylem and metaxylem



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110. Distinguish between the following:

Interfascicular cambium and intrafascicular cambium



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111. Distinguish between the following:

Open and closed vascular bundles



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112. Distinguish between the following:

Stem hair and root hair.



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113. What are meristems?



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114. Name the two types of sieve elements found in phloem.



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115. Explain the role of lenticels.



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116. Name of zone of slowly dividing cells in the middle of highly meristematic cells of the root tip.



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117. What is palisade parenchyma?



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118. What forms the cambial ring in a dicot stem during the secondary growth?



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119. Why are shells of nuts, guava and pear gritty?





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120. Name the anatomical layer in the root from which the lateral branch of root arises.



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121. Give examples of secondary meristem.



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122. When do you refer to a vascular bundle as a closed bundle?



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123. What makes the root's apical meristem sub-terminal?



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124. What is the function of companion cell?



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125. Describe the salient features of meristematic tissue.



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126. Define meristems. Why is cambium considered to be a lateral meristem?



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127. Draw a longitudinal section of root apex.



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128. Define intercalary meristems. How do they differ from other meristems?



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129. Differentiate meristematic cells and permanent cells.





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130. Describe the structure and organization of stem apical meristem with the help of neat labelled diagram.



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131. Write short note on epidermis.



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132. What are the origins of epiderms in stem and roots?



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133. List any four general functions of epidermis.



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134. What are the characteristics of parenchyma? Give two examples of specialized

parenchyma cells.



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135. Mention any two functions of parenchyma.



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136. Explain the structure of collenchyma.



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137. What is sclerenchyma? What are its two main kinds?



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138. What are different kinds of sclereids? Make a sketch of each.



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139. Differentiate parenchyma and collenchyma.



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140. What are sclereids?



Watch Video Solution

141. What is xylem? Write its two main functions.



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142. List the types of tracheids on the basis of secondary thickenings.



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143. Compare the xylem and phloem.



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144. Differentiate fibres and sclereids.



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145. What is meant by the primary body? How is it formed?



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146. What are the principal differences between dicotyledonous root and monocotyle-

donous root?



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147. Sketch the various types of vascular bundles.



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148. Give any two differences between monocot stem and monocot root on the basis of vascular bundle.



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149. Differentiate monocot stem and dicot stem on the basis of vascular bundles. Give two points only.



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150. Draw a labelled diagram of vascular bundle of monocot stem.



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151. Describe the formation and state function of periderm in roots.



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152. Describe the structure of root hair. List function of root hair.



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153. What is structure of stomata?



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154. What is wood ? What are the components of wood? Name two types of wood.



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155. Bring out the differences between:

Heart wood and Sap wood.



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156. Bring out the differences between:

Early wood and Late wood.



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157. Differentiate ring porous wood and diffuse porous wood.



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158. What is cork? How is it formed?



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159. Name the plant from which commercial cork is obtained.



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160. What are the uses of cork?



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161. Distinguish between:

Tracheids and vessels



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162. Distinguish between:

Sieve cells and sieve tube members



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163. Distinguish between:

Phellem and phelloderm



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164. Distinguish between:

soft wood and hard wood.



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165. Differentiate

Periderm and Bark



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166. Differentiate

Vascular cambium and cork cambium.



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167. Differentiate between dicot and monocot leaves.



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168. Differentiate between: Metaphloem and protophloem



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169. What is xylem? Explain the structure of various kinds of elements of xylem.



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170. Compare the anatomical features of stem and root.



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171. Which are three permanent tissues of plants? Write one important function of each?



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172. Describe the structure of monocot leaf.



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173. Give reason for the following:

Primary meristems persist throughout the life.



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174. Give reason for the following:

Chorenchyma is a type of parenchyma.



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175. Give reason for the following:

Sclerenchyma fibres and sclereids are both types of sclerenchyma.



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176. Give reason for the following:

In monocot roots and dicot roots, protoxylem lies towards inside of metaxylem.



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177. Define meristems. Why is cambium considered to be a lateral meristem?



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178. Why are mechanical tissues lacking in hydrophytes?



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Exercise

1. What is the function of phloem parenchyma?



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2. What are the cells that make the leaves curl in plants during water stress?



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3. What do hard wood and soft wood stand for?



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10. Write the precise function of

Aerenchyma



Watch Video Solution

11. Describe the salient features of meristematic tissue.



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12. Draw labelled diagram of V.S. of isobilateral leaf.



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13. Differentiate shoot apex and root apex.



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14. What is sclerenchyma? Write its two main kind .



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15. Differentiate anatomically dicot stem and monocot root.



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16. Draw well labelled diagram of T.S. of monocot root.



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