CHAPTER 6: ANATOMY OF FLOWERING PLANTS

ONE MARK QUESTIONS:

1. Define tissues. (K)
2. What are meristems? (K)
3. How are axillary buds formed? (K)
4. Which meristem regenerates the parts removed by the grazing herbivores in grasses? (K)
5. What do you call the meristem that occurs between mature tissues? (K)
6. What are primary meristems? (K)
7. Name the secondary meristem that produces woody axis. (K)
8. Why lateral meristem is considered as secondary meristem? (K)
9. Which meristem produces different tissue systems in primary plant body? (K)
10. What are permanent cells? (K)
11. Which simple tissue forms the major component within the plant organs? (K)
12. Which tissue shows angular wall thickening of its cells? (K)
13. Name the chemical component in the cell wall of sclerenchyma. (K)
14. Sclerenchyma cells are more rigid than collenchyma cells. Why? (U)
15. What are sclereids? (K)
16. What are fibres? (K)
17. Name the tissue that conducts water and minerals in plants. (K)
18. What are complex tissues? (K)
19. Why are xylem and phloem called complex tissues? (K)
20. Which component of the phloem is lacking in gymnosperms? (K)
21. What is the function of xylem parenchyma? (K)
22. How does radial conduction of water take place in plants? (K)
23. Xylem vessels towards the pith are broader in roots and narrow in stems. Why? (U)
24. Name the enucleated living cell of higher plants. (K)
25. A piece of wood showed no vessels when examined. Which division of plants does it belong to? (A)
26. Name the food conducting tissue in plants. (K)
27. Which component of the phloem lacks a nucleus? (K)
28. Which cells are present in the phloem of gymnosperms instead of companion cells? (K)
29. What are sieve plates? (K)
30. Which cells of the phloem have obliterated central lumens? (K)
31. How are sieve tubes and companion cells connected in phloem? (K)
32. Which cells control the functioning of sieve tubes? (K)
33. Which component of the phloem is absent in most of the monocots? (K)
34. Which component of the phloem dies at maturity? (K)
35. Which part of the dicot stem is also called starch sheath? (K)
36. Which component is lacking in primary phloem? (K)
37. Name the outermost layer of the primary plant body. (K)
38. Which type of tissue constitutes the epidermis of plant organs? (K)
39. What is the function of cuticle? (K)
40. Name the plant organ which lacks cuticle. (K)
41. How are subsidiary cells around stomata formed? (K)
42. What is stomatal apparatus? (K)

43. Which cells of the stomata regulate their opening and closing? (K)
44. What is mesophyll? (K)
45. Why dicot leaves are also called as dorsiventral leaf? (K)
46. Monocot leaf is an isobilateral leaf. Why? (K)
47. What is the shape of guard cells in grasses? (K)
48. What are vascular bundles? (K)
49. What are open vascular bundles? (K)
50. What are closed vascular bundles? (K)
51. What are radial vascular bundles? (K)
52. What are conjoint vascular bundles? (K)
53. What are casparian strips? (K)
54. What are root hairs? (K)
55. Which layer gives rise to lateral roots? (K)
56. What is the function of root hairs? (K)
57. What is the significance of trichomes in plants? (K)
58. Root epiblema is not covered by cuticle. Why? (A)
59. What is conjuctive tissue? (K)
60. What is stele? (K)
61. Which type of cells constitutes hypodermis in monocot stem? (K)
62. Which is the innermost layer of cortex in roots? (K)
63. What are trichomes? (K)
64. What is the epidermal cell modification in plants which prevents water loss? (K)
65. What are the cells that make the leaves curl in plants during water stress? (K)
66. What are the bundle sheath extensions in monocot leaf made of? (K)
67. What is primary growth in plants? (K)
68. What is secondary growth? (K)
69. Monocot stems do not form wood. Why? (U)
70. Monocots do not form secondary tissues. Why? (U)
71. What is vascular cambium? (K)
72. During secondary growth in dicot stem, the amount of secondary xylem produced is more than secondary phloem. Why? (K)
73. What are annual rings? (K)
74. What are lenticels? (K)
75. What is the function of lenticels? (K)
76. How is the age of a tree estimated? (K)
77. Why is heartwood resistant to attack of microbes and insects? (K)
78. Name the region of dicot stem where cork cambium develops. (K)
79. Why is cork impervious to water? (K)
80. What is periderm? (K)
81. 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? (A)

TWO MARKS QUESTIONS:

82. Name the two main groups of plant tissues. (K)
83. What are axillary buds? What do they form? (K)
84. Why are apical and intercalary meristems considered as primary meristems? (K)

85. Mention two characteristic features of permanent or mature cells of plants. (K)
86. Mention any two functions of parenchyma. (K)
87. Differentiate between Simple tissues and complex tissues(U)
88. Differentiate between Fibres and sclereids(U)
89. Differentiate between Tracheids and vessels (U)
90. Differentiate between Endarch and exarch (U)
91. Differentiate between Root hairs and trichomes(U)
92. Differentiate between Open and closed vascular bundles(U)
93. Differentiate between Radial and conjoint vascular bundles(U)
94. Differentiate between Anatomy of dicot root and monocot root(U)
95. Differentiate between Intrafascicular cambium and Interfascicular cambium. (U)
96. Differentiate between Spring wood and autumn wood(U)
97. Differentiate between heart wood and sap wood. (U)
98. Draw a neat labeled diagram showing collenchyma in cross section.(S)
99. What are complex tissues? Give any two examples. (K)
100. Name the different kinds of elements in xylem. (K)
101. List out the different functions of xylem. (K)
102. Mention the two types of primary xylem. (K)
103. Name the different components of phloem. (K)
104. Draw a neat labeled diagram showing different components of phloem in longitudinal section.(S)
105. What are companion cells? Mention their significance. (K)
106. How are sieve tube elements arranged in phloem? (K)
107. What are bast fibres? Mention any two commercially used bast fibres. (K)
108. Name the two types of primary phloem. (K)
109. What is cuticle? Write its function. (K)
110. What are stomata? Name any two processes in plants that are regulated by stomata. (K)
111. What are trichomes? How they are helpful to plants? (U)
112. Draw a diagrammatic representation of stomata.(S)
113. Formation of cambial ring in dicot root and dicot stem is not the same. Why? (A)
114. What are bulliform cells? What is their function? (K)
115. Write the difference between adaxial and abaxial surface of a dorsiventral leaf.(U)
116. Name the two types of parenchyma in the mesophyll of dicot leaves. (K)
117. Name the two lateral meristems involved in secondary growth. (K)
118. What are medullary rays? Write their function. (K)
119. What is phellogen? What does it form? (K)
120. What is bark? Mention the types. (K)
121. Draw a labeled diagram of lenticel.(S)
122. Draw a neat labeled diagram of shoot apex showing apical meristem.(S)
123. Differentiate between the stelar region of Dicot root and Dicot stem.(U)
124. Differentiate between early wood and late wood. (U)

THREE MARKS QUESTIONS:

125. Classify meristems based on their location in the plant body.(U)
126. Mention any three examples of lateral meristems. (K)
127. State the location and function of different types of meristems. (K)
128. List the different kinds of simple permanent tissues stating their location in the plant body. (K)

129. What are the important characteristic features of parenchyma? (K)
130. What are the important characteristic features of collenchyma? (K)
131. What are the important characteristic features of sclerenchyma? (K)
132. Why is sclerenchyma known as mechanical tissue? Mention the types of sclerenchyma cells. (K)
133. Explain the Parenchyma tissue with reference to their location, structure and function(U)
134. Explain the Collenchyma tissue with reference to their location, structure and function(U)
135. Explain the Sclerenchyma tissue with reference to their location, structure and function(U)
136. What is xylem? List the different elements of xylem. (K)
137. List the different types of tissue systems in plant body. (K)
138. Explain the structure of stomata.(U)
139. Differentiate between dicot stem and monocot stem with reference to ground tissue system.(U)
140. Diagrammatically represent various types of vascular bundles.(S)
141. What are the important anatomical features of Dicot root?(K)
142. What are the important anatomical features of Monocot root?(K)
143. What are the important anatomical features of Dicot stem?(K)
144. What are the important anatomical features of Monocot stem(K)
145. What are the important anatomical features of Dicot leaf?(K)
146. What are the important anatomical features of Monocot leaf?(K)
147. Both dicot and monocot roots do not posses cambium during their primary growth. Yet, dicot root begins its secondary growth, while monocot root does not. Comment. (A)
148. Which are the three sub-zones of cortex in dicot stem? (K)
149. What is secondary growth? Mention the two meristems involved in it. (K)
150. Explain how cambial ring is formed in dicot stem.(U)
151. Cork cambium forms tissues that form the cork. Do you agree with this statement? Explain.(U)
152. What is periderm? How does periderm formation take place in dicot stems? (K)

FIVE MARKS QUESTIONS:

153. Name the water conducting tissue in plants and also explain its different structural components. (U)
154. Describe the structure of phloem.(U)
155. What are complex tissues? Differentiate between xylem and phloem.(U)
156. Draw a neat labeled diagram to show the anatomical features of Dicot root(S)
157. Draw a neat labeled diagram to show the anatomical features of Monocot root(S)
158. Draw a neat labeled diagram to show the anatomical features of Dicot stem (S)
159. Draw a neat labeled diagram to show the anatomical features of Monocot stem (S)
160. Draw a neat labeled diagram to show the anatomical features of Dicot leaf(S)
161. Draw a neat labeled diagram to show the anatomical features of Monocot leaf(S)
162. Differentiate between the anatomy of Dicot root and monocot root (U)
163. Differentiate between the anatomy of Dicot stem and monocot stem(U)
164. Differentiate between the anatomy of Dicot leaf and monocot leaf(U)
165. Write an account of role of vascular cambium during secondary growth.(U)
166. Describe the internal structure of a dorsiventral leaf with the help of labeled diagrams.(U)
167. What is cork cambium? Explain its role in secondary growth.(U)
168. Summarize the process of secondary growth in dicot stem.(U)
169. What are annual rings? How are they formed? What is their significance? (K)
170. Explain the different structures of epidermal tissue system and state their function.(U)
171. Explain the process of secondary growth in the stems of woody angiosperms with the help of schematic diagrams. What is its significance? (U)

172. With respect to secondary growth in plants, define the following terms. (K)

a. Phellum b. Phellogen c. Phelloderm d. Bark e. Lenticel