



BIOLOGY

BOOKS - JBD PUBLICATION

ANATOMY OF FLOWERING PLANTS

Exercise

1. Which of the following statements is/are true?

Uneven thickening of cell wall is characteristic

of sclerenchyma

Periblem forms the cortex of the stem and the root.

Tracheids are the chief water transporting elements in gymnosperms.

Companion cell is devoid of nucleus at maturity.

The commercial cork is obtained from *Quercus suber*.

A. a and d only

B. b and e only

C. c and d only

D. a,b and c only

Answer: b, c and e only.



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2. All the following statements regarding sieve elements are true except?

A. their end walls have perforated sieve plates which become impregnated with lignin at maturity.

B. they possess a peripheral cytoplasm as well as large vacuole.

C. distinct proteinaceous inclusions, the P-proteins are seen evenly distributed through the lumen.

D. long, slender, tube like structures arranged in longitudinal series.

Answer:



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3. Passage cells are thin-walled cells found in:

A. Phloem elements that serve as entry points for substance for transport to other plant parts.

B. testa of seeds to enable emergence of growing embryonic axis during seed germination.

C. central region of style through which pollen tube grows towards ovary.

D. endodermis of roots facilitating rapid transport of water from cortex to pericycle.

Answer:



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4. For a critical study of secondary growth in plants which one of the following pairs is suitable?

A. Teak and pine

B. Deoder and ferm

C. Wheat and maiden hair fern

D. Sugarcane and sunflower.

Answer:



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5. The process in which mature differentiated cells reverse to meristematic activity to form callus is called:

- A. dedifferentiation
- B. differentiation
- C. cyco-differentiation
- D. redifferentiation.

Answer:



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6. Vessels and companion cells are found in:

- A. angiosperms

B. pteridophytes

C. hydrophytes

D. thallophytes.

Answer:



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7. Cork cambium results in the formation of cork which becomes impermeable to water due to the accumulation of:

A. resins

B. suberin

C. lignin

D. tannins.

Answer:



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8. Cork tissue is cut off by:

A. periderm

B. phellogen

C. phelloderm

D. phellem

Answer:



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9. How a dicot leaf differs anatomically from a monocot leaf?

A. Parallel venation

B. Differentiation of palisade and spongy parenchyma

C. stomata only on upper side

D. stomata on both sides.

Answer:



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10. Meristematic tissue in vascular bundle is:

A. phellem

B. procambium

C. interfascicular cambium

D. fascicular cambium

Answer:



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11. Fusiform initial forms:

A. vascular rays

B. ray parenchyma

C. tracheary elements

D. primary phloem.

Answer:



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12. Which one of the following pairs is an example for lateral meristem?

A. Procambium and Phelloderm

B. Interfascicular cambium and phellem

C. Phellogen and Phelloderm

D. Phellogen and fascicular cambium

Answer:



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13. Middle lamella is composed mainly of

A. muramic acid

B. calcium pectate

C. phospholglycerides

D. hemicellulose.

Answer:



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14. In barley stem vascular bundles are:

A. closed and scattered

B. open and in a ring

C. closed and radial

D. open and scattered.

Answer:



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15. Palisade parenchyma is absent in leaves of:

A. mustard

B. Soyabean

C. gram

D. sorghum

Answer:



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16. 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.

Answer:



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17. Anatomically fairly old dicotyledonous root is distinguished from the dicotyledonous stem by:

- A. absence of secondary phloem
- B. presence of cortex
- C. position of protoxylem
- D. absence of secondary xylem

Answer:



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18. Vascular tissues in flowering plants develop from:

- A. Periblem
- B. dermatogen
- C. phellogen
- D. plerome

Answer:



19. In the following pairs where do you get lignin in both the elements?

- A. Tracheid and Collenchyma
- B. Sclerenchyma and sieve tube
- C. Sclerenchyma and trachea
- D. Parenchyma and endodermis.

Answer:



20. One of the characteristics of sieve tube is:

A. it is part of phloem

B. function is transport of inorganic solutes

C. it is dead cell

D. sieve plate is not present.

Answer:



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21. Leaf mesophylls are composed of

A. palisade parenchyma

B. spongy parenchyma

C. both of them

D. none of these.

Answer:



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22. The way material deposited in the casparian strip of the endodermis is:

A. pectin

B. suberin

C. cellulose

D. lignin

Answer:



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23. The vascular cambial ring of a dicot stem is:

- A. primary in origin
- B. secondary in origin
- C. embryonic in origin
- D. tertiary in origin

Answer: partly primary and partly secondary in origin.



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24. Consider the following statements:

In a dicot root, the vascular bundles are collateral and endarch

the innermost layer of cortex in a dicot root is endodermis.

In a dicot root, the phloem masses are separated from the xylem by parenchymatous cells that are known as the conjunctive tissue of:

A. a is true, but b and c are false

B. b is true, but a and c are false

C. a is false, but b and c are true

D. c is false, but a and c are true.

Answer: c is true; but a and b are false



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25. Shoot apical meristem is found on the tip of:

A. plumule

B. radicle

C. root

D. apex.

Answer:



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26. Closed vascular bundles are characterized by:

A. presence of cambium

B. absence of cambium

C. both

D. none of these.

Answer:



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27. In stems of dicots, vascular cambium arises from:

A. procambium

B. cambium

C. promeristem

D. protoderm

Answer:



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28. Parenchymatous cells filling the space between dermal and vascular tissue is:

A. ground tissue

B. epidermal tissue

C. pith

D. vascular bundles.

Answer:



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Example

1. Fill in the blanks:

Vascular bundles are arranged in ain a dicot system.



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2. Fill in the blanks:

Vascular bundles are.....in a monocot stem.



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3. Fill in the blanks:

Roots hairs are.....whereas stem hairs
are..... .



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4. Fill in the blanks:

In monocot stems vessels are.....in shape.



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5. Fill in the blanks:

.....cavity is present in vascular bundle of monocot stem.



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6. Fill in the blanks

Species A	Species B	Type of Interaction	Example
+	-	(i)	(ii)
+	+	(iii)	(iv)
+	(v)	Commensalism	(vi)



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7. Fill in the blanks:

Xylem is exarch in root and..... In stem.



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8. Fill in the blanks:

Cells ofare suberised.



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9. Fill in the blanks:

Lenticels are present in..... .



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10. Fill in the blanks:

Guard cells are.....shaped in monocot leaf.



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11. Which tissue is living mechanical tissue?



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12. What is bicollateral vascular bundle?



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13. What is closed vascular bundle?



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14. Where do you find bicollateral vascular bundle?



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15. Name a monocot plant with secondary growth in stem.



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16. What is conjunctive tissue?



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17. Define intercalary meristem.



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18. Name the most durable wood.



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19. Name two plants with anomalous secondary growth.



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20. Where do you find radial vascular bundles?



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21. Where do you find bulliform cells?



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22. Give examples of secondary meristem.



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23. List the parts of which periderm consists of.



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24. Name the tissue enclosed between two epidermal layers of a leaf.



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25. Name the meristematic zone that produces root cap in maize.



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



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27. Why is cambium considered to be lateral meristem?



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28. Define intercalary meristem.



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29. What is palisade parenchyma?



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30. Define meristematic tissue. Write two characteristics.



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31. Define tissue. Name two types of plant tissues.



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



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33. Why are mechanical tissues lacking in hydrophytes?



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



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35. What do you mean by leptocentric and hadrocentric vascular bundles?



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36. What are the differences between apical meristem and lateral meristem?



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37. Differentiate between dicot and monocot roots.



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38. What is shoot apical meristem and mention its characteristics?



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39. What is root apical meristem? Write its characteristics.



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40. What are the different types of meristem?



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41. What are the differences between primary and secondary meristems?



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42. Define parenchyma tissue. Give its functions.



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43. Describe briefly vascular tissue system.



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44. What are the differences between earlywood and latewood?



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45. What are differences between softwood and hardwood?





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46. Differentiate sapwood and heartwood.



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47. What are the differences proto xylem and meta xylem?



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48. Differentiate between dicot and monocot leaves.



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49. Describe the anatomy of monocot stem.



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50. Draw neat labelled diagram of a cross section of maize root.



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

Explain



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52. 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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53. 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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54. Why are xylem and phloem called complex tissues?



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



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



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