CBSE

TISSUES WS 2

Class 09 - Science

Section A

1. Match the following Column A with Column B: **[2]**

Column A	Column B
(a) Aerenchyma	(i) Makes the plant hard and stiff
(b) Chlorenchyma	(ii) Gives buoyancy to the plants
(c) Collenchyma	(iii) Performs photosynthesis
(d) Sclerenchyma	(iv) Provides mechanical support to plants

2. Match the following Column A with Column B: **[2]**

Column A	Column B
(a) Xylem	(i) Clotting of blood
(b) Cardiac muscles	(ii) Acts as an insulator
(c) Blood platelets	(iii) Conducts water upwards in the plant
(d) Adipose connective tissue	(iv) Rhythmic contraction and relaxation of the heart

3. Match the following Column A with Column B: **[2]**

Column A	Column B
(a) Collenchyma	(i) Makes the plant hard and stiff
(b) Guard cells	(ii) Provides mechanical support to plants
(c) Epidermal cells	(iii) Helps in the opening and closing of stomata
(d) Sclerenchyma	(iv) Helps in water absorption

4. Match the following Column A with Column B: **[2]**

Column A	Column B
(a) Cork	(i) Xylem fibres
(b) Sclerenchyma	(ii) Sieve tubes
(c) Xylem	(iii) Lignin
(d) Phloem	(iv) Suberin

5. Match the following Column A with Column B: **[2]**

Column A	Column B
(a) Guard cells	(i) Helps in the exchange of gases

(b) Epidermal cells	(ii) Transports food from leaves to other parts of the plant
(c) Stomata	(iii) Increase the total absorptive surface area
(d) Phloem	(iv) Helps in the opening and closing of stomata

6. The root tips of a plant were cut and the plant was replanted. What will happen to the plant and why? **[2]**
7. Define the process of differentiation. **[2]**
8. Write the differences between xylem and phloem. **[2]**
9. How does the cork act as a protective tissue? **[2]**
10. Name the following:- **[2]**

    (a) Tissue that forms the inner lining of our mouth.

    (b) Tissue that connects muscle to bone in humans.

    (c) Tissue that transports food in plants.

    (d) Tissue that stores fat in our body.

    (e) Connective tissue with a fluid matrix.

    (f) Tissue present in the brain.
11. Name the following: **[2]**

    i. Tissue that forms inner lining of our mouth.

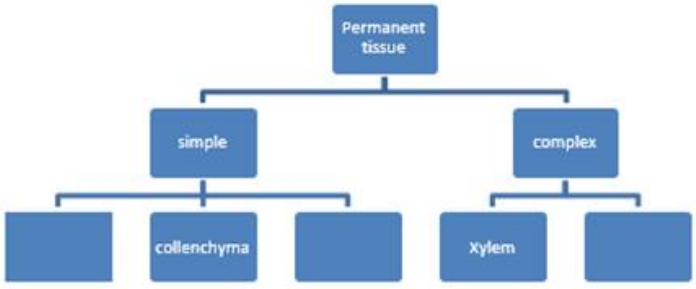
    ii. Tissue that connects muscle to bone in humans.

    iii. Tissue that transports food in plants.

    iv. Tissue that stores fat in our body.

    v. Connective tissue with a fluid matrix.

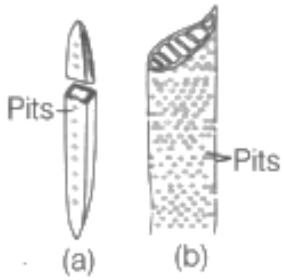
    vi. Tissue present in the brain.
12. A nail is inserted in the trunk of a tree at a height of 1 metre from the ground level. After 3 years, where will the nail be present? **[2]**
13. What are the functions of stomata? **[2]**
14. Write a short note on phloem. **[2]**
15. Complete the table: **[2]**



16. i. How is the epidermis of the plants living in very dry habitats adapted? **[2]**

    ii. Write functions of guard cells of stomata in the leaf.

    iii. Epidermal cells help in the absorption of water and nutrients from soil. How?
17. Branches of a tree move and bend freely in high wind velocity. Given reason? **[2]**
18. Why is epidermis important for the plants? **[2]**
19. Write a short note on ‘phellogen’. **[2]**
20. Differentiate between meristematic and permanent tissue. **[2]**
21. How many types of elements together make up the xylem tissue ? Name them. **[2]**
22. i. Identify the given figures. **[2]**



ii. Give any two major differences between the structures identified.

iii. Describe the role performed by these two in the plant body.

23. Name the regions in which parenchyma tissue is present. **[2]**

24. Why is the epidermis present as a thick waxy coating of cutin in desert plants? **[2]**

25. If a potted plant is covered with a glass jar, water vapours appear on the walls of the glass jar. Explain why? **[2]**

26. If the tip of a sugarcane plant is removed from the field, even then it keeps on growing in length. Why? **[2]**

27. What is the role of the epidermis in the plants? **[2]**

28. Name the different components of xylem and draw a living component? **[2]**

29. Differentiate between parenchyma, collenchyma and sclerenchyma on the basis of their cell wall. **[2]**

30. Identify the type of tissue in the following: **[2]**

Skin, bark of tree, bone, lining of kidney tubule, vascular bundle

31. List the characteristics of cork. How are they formed? **[2]**

32. Draw and identify different elements of phloem. **[2]**

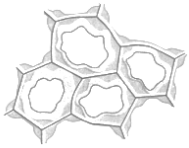
Section B

33. i. Identify the tissue given in the following figure. **[3]**

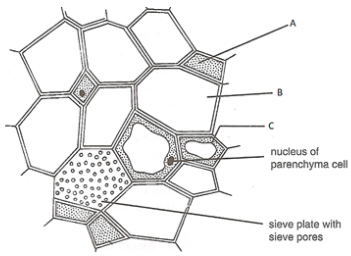
ii. Mention the characteristic features of the cells.

iii. Specify the function of this tissue.

iv. Name any one part of the plant, where these cells are present.



34. Study the following diagram of phloem and answer the following questions: **[3]**

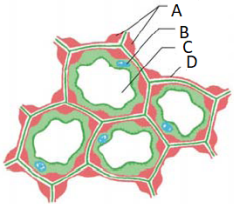


i. Identify A, B and C in the given diagram.

ii. What term is used for the end walls of the B?

iii. What are the two functions performed by C?

35. Study the following figure and answer the following questions: **[3]**

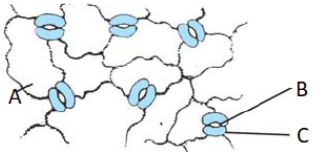


i. Identify the type of tissue shown in the given figure. Write the labellings - A, B, C, D.

ii. Is the given type of tissue in the figure is flexible or not? Give a reason for your answer.

iii. What are the functions of the tissue shown in the given figure?

36. Observe the given below diagram and answer the following questions: **[3]**



i. What does A represent in the given diagram? How does cell 'A' of root hairs cells help in water absorption?

ii. How does B in the given diagram help the plants?

iii. Out of A, B, and C cells in the above diagram, which cell helps in the closing and opening of the stomata? Write the name of the cell.

Section C

Question No. 37 to 40 are based on the given text. Read the text carefully and answer the questions: **[4]**

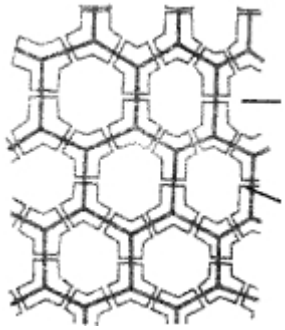
A few layers of cells beneath the epidermis are generally simple permanent tissue. Parenchyma is the most common simple permanent tissue. It consists of relatively unspecialized cells with thin cell walls. They are living cells. Collenchyma allows bending of various parts of the plant-like tendrils and stems of climbers without breaking. Sclerenchyma tissue makes the plant hard and stiff. We have seen the husk of a coconut. It is made of sclerenchymatous tissue. They are long and narrow as the walls are thickened due to lignin. The tissue is present in stems, around vascular bundles, in the veins of leaves and in the hard covering of seeds and nuts.

37. The flexibility in plants is due to which tissue?

38. Is aerenchyma provides mechanical support?

39. Is apical and intercalary meristems permanent tissue?

40. Menion the function of the tissue which is shown in the below diagram?



Question No. 41 to 44 are based on the given text. Read the text carefully and answer the questions: **[4]**

In older plants, the outer protective layer that is epidermis undergoes certain changes the epidermis of the stem is replaced. There is cork cambium which is simple tissue having one type of the cell. The cell of cork cambium are rectangular and their protoplast is vacuolated contain tannins. The cork cambium gives off new cell from its both side. The cell of the cork cambium is dead and compactly arranged without the intercellular space and there is suberin deposition.

41. The epidermis of the cell is replaced by?

42. How does a cork acts as a protective tissue?

43. There is suberin deposition what is the main disadvantage?

44. When cork cambium gives off new cells what does it form on its inner and outer side?

Question No. 45 to 48 are based on the given text. Read the text carefully and answer the questions: **[4]**

Plant tissue is consists of meristematic tissue and permanent tissue. Meristematic tissue which is responsible for the growth of plants they are dividing tissue and permanent tissue provides permanent shape, size, and function to the plant they are also further classified as simple permanent tissue and complex permanent tissue. The plant tissue is responsible for performing various functions such as providing flexibility to plant parts as to stalk which can bend easily without breaking while some provide strength to the plant some of them have modified themself to provide floatation in an aquatic plant.

45. Which part of the plant is responsible or growth of tip of stem and root?

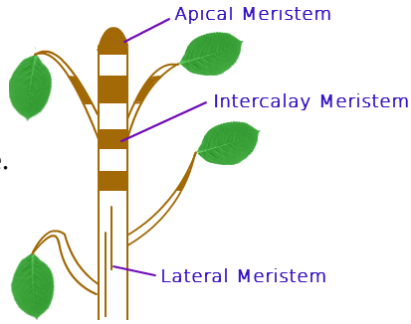
46. Which type of tissue present in the aquatic plants how it helps the aquatic plant to float?

47. Which plant tissue provide flexibility?

48. Why husk of the coconut is hard and stiff?

Question No. 49 to 52 are based on the given text. Read the text carefully and answer the questions: **[4]**

The tissue is a group of cells having similar origin, structure& function. Study of tissues is called Histology. In unicellular organism (Amoeba) single cell performs all basic functions, whereas in multi-cellular organisms (Plants and Animals) shows division of labour as Plant tissue & Animal tissues. Plant tissues are two types: Meristematic & Permanent tissue.



Meristematic tissue: The meristems are the tissues having the power of cell division. It is found on that region of the plant which grows.

Following are the types of Meristems:

The Apical meristems- It is present at the growing tip of the stem and roots and increases the length.

The lateral meristems- It present at the lateral side of stem and root (cambium) and increases the girth.

The intercalary meristems- It present at internodes or base of the leaves and increases the length between the nodes.

49. Which tissue help in the secondary growth of the plant?

50. In what region of the plant does intercalary meristematic growth occur?

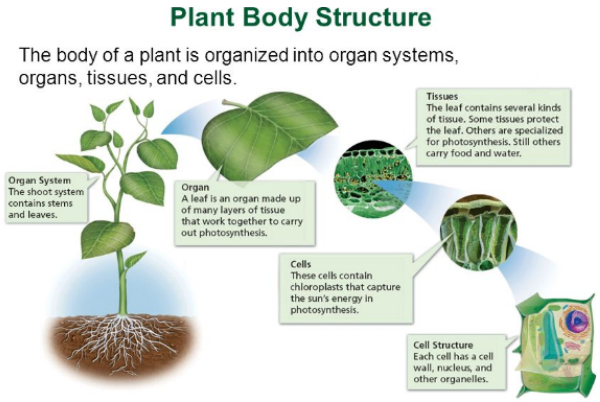
51. Where does meristematic tissue mostly found in a plant?

52. Why cambium is called lateral meristem?

Question No. 53 to 56 are based on the given text. Read the text carefully and answer the questions: **[4]**

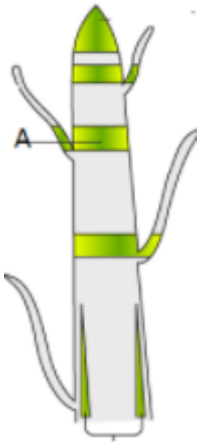
Plants are stationary or fixed they don't move. Since they have to be upright, they have a large quantity of supportive tissue. The supportive tissue generally has dead cells. Animals, on the other hand, move around in search of food, mates and shelter. Another difference between animals and plants is in the pattern of growth. The growth of plants occurs only in certain specific regions. New cells produced by meristem are initially like those of meristem itself, but as they grow

and mature, their characteristics slowly change and they become differentiated as components of other tissues. The girth of the stem or root increases due to lateral meristem (cambium). Cells of meristematic tissue are very active, lack vacuoles.



53. Is meristematic tissue composed of a single type of cell?

54. Identify A in the given figure



55. Which meristematic is present at the growing tips of stems and roots?

56. Mention some properties of cells of meristematic tissue.

Question No. 57 to 60 are based on the given text. Read the text carefully and answer the questions: **[4]**

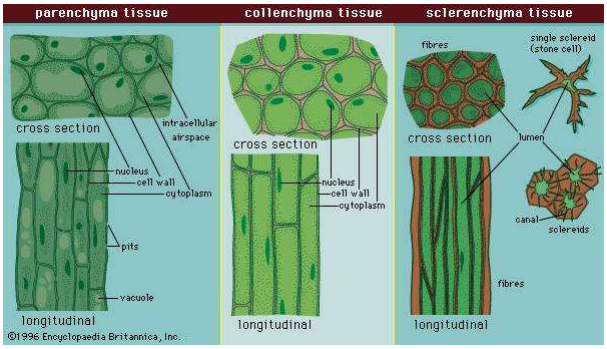
Permanent tissues are of two types that is Simple permanent tissues and Complex permanent tissues.

Simple permanent tissues subdivided as follows:

i. **Parenchyma:** Tissues provide support to plants. They are loosely packed and has large intracellular space. Parenchyma with chlorophyll which performs photosynthesis is called chlorenchyma.

ii. **Collenchyma:** Tissue are thickened at the corners, have very little intercellular space. It allows easy bending of various parts of a plant without breaking.

iii. **Sclerenchyma:** Cells of this tissue are dead and commonly seen in the husk of a coconut.



57. In which of the simple plant tissue, deposition of lignin is found? Also describe lignin.

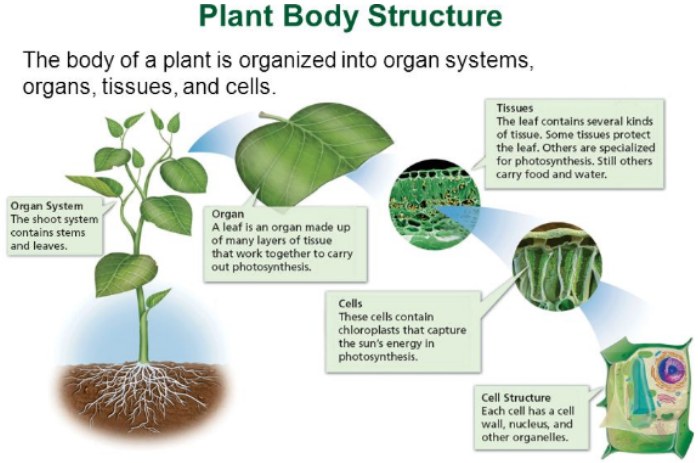
58. Why is cork impervious to gases and water?

59. Which type of tissue is present in the cortex of the root and veins of the leaves?

60. Which tissue in plants provides them flexibility ?

61. **Read the passage and answer any four questions:** **[4]**

Plants are stationary or fixed they don't move. Since they have to be upright, they have a large quantity of supportive tissue. The supportive tissue generally has dead cells. Animals, on the other hand, move around in search of food, mates and shelter. Another difference between animals and plants is in the pattern of growth. The growth of plants occurs only in certain specific regions. New cells produced by meristem are initially like those of meristem itself, but as they grow and mature, their characteristics slowly change and they become differentiated as components of other tissues. The girth of the stem or root increases due to lateral meristem (cambium). Cells of meristematic tissue are very active, lack vacuoles.



i. Meristematic tissues are those which help in increasing the length and girth of the plant. Which of the following statement given below is correct about the meristematic tissue?

I. It is made up of cell that is incapable of cell division

II. It is made up of cell that is capable of cell division

III. It is composed of a single type of cell.

IV. It is composed of more than one type of cells

a. (I) and (II)

b. (II) and (III)

c. (III) and (IV)

d. Only (II)

ii. The dividing tissue of the plant is

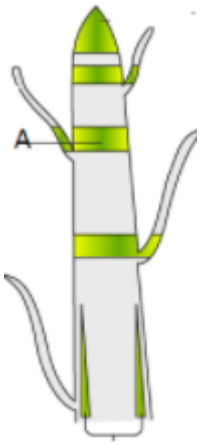
a. parenchyma

b. meristematic

c. aerenchyma

d. none of these

iii. Identify A in the given figure



a. apical

b. lateral

c. intercalary

d. none of these

iv. _____ is present at the growing tips of stems and roots

a. apical meristematic

b. intercalary meristematic

c. lateral meristematic

d. none of these

v. Cells of meristematic tissue are

a. dense cytoplasm

b. thin cellulose walls

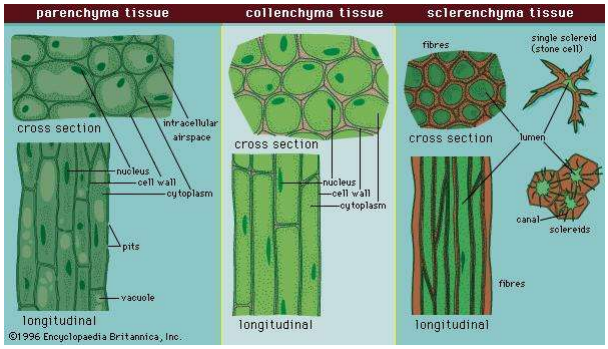
c. prominent nuclei

d. all of these

62. Permanent tissues are of two types that is Simple permanent tissues and Complex permanent tissues. **[4]**

Simple permanent tissues subdivided as follows:

1. **Parenchyma:** Tissues provide support to plants. They are loosely packed and has large intracellular space. Parenchyma with chlorophyll which performs photosynthesis is called chlorenchyma. The parenchyma with large air spaces to give buoyancy is called aerenchyma. Parenchyma also stores food and water.
2. **Collenchyma:** Tissue provides mechanical support, thickened at the corners, have very little intercellular space. It allows easy bending of various parts of a plant without breaking.
3. **Sclerenchyma:** Tissue makes the plant hard and stiff, thickened due to lignin and no intercellular space. Cells of this tissue are dead and commonly seen in the husk of a coconut.



Answer the following questions:

1. What is lignin?

2. In sclerenchyma tissue which substances responsible for make it strong and thickened?

   i. Protein

   ii. Lipase

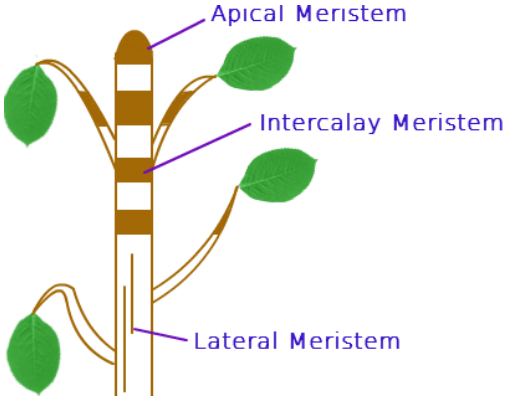
   iii. Lignin

   iv. All of the above

3. Which type of tissue is present in the cortex of the root and veins of the leaves?

4. Which tissue in plants provides them flexibility?

63. The tissue is a group of cells having similar origin, structure& function. Study of tissues is called Histology. In unicellular organism (Amoeba) single cell performs all basic functions, whereas in multi-cellular organisms (Plants and Animals) shows division of labour as Plant tissue & Animal tissues. Plant tissues are two types: Meristematic & Permanent tissue. **[4]**



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Answer the following questions:

i. Which tissue help in the secondary growth of the plant?

ii. In what region of the plant does intercalary meristematic growth occur?

   a. Apical region

   b. Root tips

   c. Between mature tissue segments

   d. Lateral region

iii. What is meristematic tissue? Where does these tissue mostly found in a plant?

iv. Why cambium is called lateral meristem?

Section D

64. Why are xylem and phloem called complex tissues? How are they different from one other? **[5]**

65. **[5]**
    i. Which process in meristematic tissue converts it to permanent tissue?
    ii. Which feature of meristematic tissue helps aquatic plants to maintain buoyancy in water?
    iii. Why epidermis of plants living in dry habitats is thicker?
    iv. Identify the following.
        a. Living component of xylem
        b. Dead element of phloem
    v. Which type of conducting tissues conduct water and minerals vertically?

66. Differentiate between sclerenchyma and parenchyma tissues. Draw a well-labeled diagram. **[5]**

67. The transportation system of plants is composed of complex permanent tissue. They have their transportation system within themselves. Justify in detail with appropriate diagrams. **[5]**

68. Differentiate between meristematic and permanent tissues in plants. **[5]**

69. Explain the significance of the following: **[5]**
    i. Hair-like structures on epidermal cells.
    ii. The epidermis has a thick waxy coating of cutin in desert plants.
    iii. Small pores in epidermis of leaf.
    iv. Numerous layers of epidermis in cactus.
    v. Presence of a chemical suberin in cork cells.

70. List the characteristics of cork. How are they formed? Mention their role. **[5]**

71. Write a note on the protective tissue in plants. (Give appropriate diagram also). **[5]**

72. What is a permanent tissue? Classify permanent tissues and describe them. **[5]**