



**PLANT HISTOLOGY  
AND ANATOMY**

**Biology**



**Q. Transcellular strands are seen in**

- a) Xylem vessels**
- b) Tracheids**
- c) Parenchyma cells**
- d) Sieve tubes**

**Q. Epiphytes absorb water by a spongy tissue called**

- a) Mesophyll**
- b) Velamen**
- c) Conjunctive tissue**
- d) Phloem**

**Biology**

The background is a dark blue gradient with various biological illustrations. On the left, there is a purple and blue DNA double helix. In the center, a purple, textured spherical cell is shown with several thin, radiating lines. To the right, a green flower with yellow stamens is visible. The word "Biology" is written in a large, dark, semi-transparent font across the lower right portion of the image.

**Q.** The presence of vessels and companion cells are characters of

- a)** Gymnosperms
- b)** Angiosperms
- c)** Bryophytes
- d)** Pteridophytes

**Q. Amphivasal vascular bundle is found in**

- a) Cycas and Dryopteris**
- b) Dracaena and Yucca**
- c) Helianthus and Cucurbita**
- d) maize and Wheat**

**Q. Bamboo and grasses elongate by the activity of**

- a) Apical meristem**
- b) Intercalary meristem**
- c) Secondary meristem**
- d) Lateral meristem**

**Q. Fibres associated with phloem are called**

- a) Intraxylary fibres**
- b) Pericycle fibres**
- c) Bast fibres**
- d) Cortical fibres**

Biology

**Q. Callose is found in**

- a) Sieve Plates**
- b) Cross walls of tracheids**
- c) Phloem parenchyma**
- d) Comapanion cell**



**Q. Which are common in xylem and phloem tissues?**

- a) Parenchyma and Collenchyma**
- b) Collenchyma and Sclerenchyma**
- c) Parenchyma and Sclerenchyma**
- d) Aerenchyma and Sclerenchyma**

**Q. Quiescent centre is found in**

- a) Root tip**
- b) Shoot tip**
- c) Floral tip**
- d) Leaf tip**

**Biology**

**Q. The plastids in meristematic tissue are in a**

- a) Fully developed state**
- b) Half developed state**
- c) Proplastid state**
- d) Plasmolysed state**



**Q. In hydrophytes, aerenchyma helps in**

- a) Attachment**
- b) Photosynthesis**
- c) Buoyancy**
- d) Mechanical support**

**Q. Cistoliths are composed of**

- a) Calcium oxalate**
- b) Calcium carbonate**
- c) Glucosides**
- d)  $\text{MgCO}_3$**

**Q. Collenchyma differs from sclerenchyma**

- a) Retaining protoplasm at maturity**
- b) Having thick walls**
- c) Having wide lumen**
- d) Being meristematic**

**Q. The commercial fibre of *Cocos nucifera* is obtained from**

- a) Stem**
- b) Leaf**
- c) Seed**
- d) Fruit**

**Biology**

**Q. Parenchyma stores large quantities of water in**

- a) Succulents**
- b) Xerophytes**
- c) Halophytes**
- d) Heliophytes**

Biology



**Q. A typical parenchyma cell does not possess one of the following ?**

- a) Cell wall**
- b) Nucleus**
- c) Vacuole**
- d) Chloroplast**

**Biology**

**Q. Tracheae and companion cells are generally absent in**

- a) Angiosperms and gymnosperms**
- b) Pteridophytes and gymnosperms**
- c) Pteridophytes and angiosperms**
- d) Bryophytes and pteridophytes**

**Q. A mature sieve tube element lacks**

- a) Nucleus only**
- b) Nucleus and ribosomes**
- c) Nucleus, vacuole and ribosomes**
- d) Nucleus, vacuole, ribosomes and RER**

**Q. Sieve tubes are functionally and structurally associated with**

- a) Vessel members**
- b) Tracheids**
- c) Companion cells**
- d) Phloem parenchyma**

**Q. The albuminous cells of gymnosperms are comparable to the**

- a) Sieve tube elements**
- b) Companion cells**
- c) Vessel members**
- d) Spiral vessels**

**Biology**

**Q. Callose is chemically a**

- a) Lipid**
- b) Glycoprotein**
- c) Protein**
- d) Carbohydrate**

**Biology**

**Q. A bicollateral vascular bundle has**

- a) One xylem group placed in between two phloem**
- b) One phloem group placed in between two xylem**
- c) Cambium placed in between xylem and two phloem groups**
- d) Cambium placed in between two phloem groups**

**Q. In protoxylem the following thickenings are present**

- a) Annular, scalariform**
- b) Annular, pitted**
- c) Spiral and scalariform**
- d) Annular and spiral**





**Q. Amphicribal bundles are also called**

- a) Hastrocentric**
- b) Leptocentric**
- c) Radial**
- d) Bicollateral**

**Biology**

**Q. Secondary wood of angiosperm is referred as porous wood, because it contains**

- a) Pits**
- b) Pores**
- c) Tracheids**
- d) Vessels**

**Biology**

**Q. Conjoint, collateral, open and endarch vascular bundles are common in**

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

**Biology**

**Q. Myctoplasm represents the cytoplasm of**

- a) Companion cell**
- b) Sieve tube**
- c) Xylem parenchyma**
- d) Idioblasts**

**Q. Bordered pit occurs in**

- a) Sieve members**
- b) Sieve cells**
- c) Vessel members**
- d) Companion cells**

**Q. Phloem parenchyma is absent in**

- a) Dicot root**
- b) Dicot leaf**
- c) Dicot stem**
- d) Monocot stem**

**Biology**

**Q. Which of the following statements is correct with reference to the vascular bundles in monocot stem ?**

- a) Conjoint, collateral open and endarch**
- b) Conjoint, collateral closed and endarch**
- c) Conjoint, collateral closed and exarch**
- d) Radial polyarch and endarch**

**Biology**

**Q. Centripetal mode of differentiation of procambial cells lead to**

- a) Endarch**
- b) Exarch**
- c) Mesarch**
- d) Polyarch**

**Biology**



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

- a) Phellogen and phelloderm**
- b) Phellogen and vascular cambium**
- c) Procambium and phelloderm**
- d) Interfascicular cambium and phellem**

**Biology**

**Q. Vessels are found in**

- a) All angiosperms and some gymnosperms**
- b) Most of the angiosperms and few gymnosperms**
- c) All angiosperms, all gymnosperms and some pteridophytes**
- d) All pteridophytes**

**Q. Which of the following statement is true ?**

- a) Vessels are multicellular and with wide lumen**
- b) Tracheids are multicellular and with narrow lumen**
- c) Vessels are unicellular and with narrow lumen**
- d) Tracheids are unicellular and with wide lumen.**

**Q. Which of the following plants grow by a single apical cell ?**

- a) Gymnosperms.**
- b) Pteridophytes.**
- c) Pteridophytes and Bryophytes**
- d) Angiosperms**

**Biology**

**Q. Periblem gives rise to**

- a) Pericycle.**
- b) Cortex.**
- c) Epidermis.**
- d) Medulla.**

**Biology**

**Q. Star like branched/ lobed sclereids are called**

- a) Tricho sclereids.**
- b) Brachy sclereids.**
- c) Macro sclereids.**
- d) Astro sclereids.**

**Q Match the following:**

Column 1		Column 2	
A	Annular	p	Network
B	Spiral	q	Spring like
C	Reticulate	r	Ladder like
D	Scalariform	s	Ring like
		t	Plate like

- a) A-s, B-t, C-q, D-p**
- b) A-p, B-r, C-t, D-p**
- c) A-s, B-p, C-t, D-r**
- d) A-s, B-q, C-p, D-r**

Biology

**Q. Match the following:**

Column 1		Column 2	
A	Suberin	p	Xylem
B	Lignin	q	Collenchyma
C	Pectin	r	Epidermis
D	Cutin	s	Phellem
		t	Phloem.

- a) A-s, B-q, C-p, D-r.
- b) A-s, B-p, C-q, D-r.
- c) A-S, B-t, C-q, D-r.
- d) A-s, B-t, C-p, D-r.



**Q. Match the following:**

Column 1		Column 2	
A	Nageli	p	Collenchyma
B	Mettenius	q	Xylem and phloem
C	Schleiden	r	Sclerenchyma
D	Sanio	s	Tissue
		t	Tracheid

- a) A-s, B-t, C-r, D-p**
- b) A-p, B-q, C-s, D-t**
- c) A-q, B-r, C-p, D-t**
- d) A-t, B-p, C-q, D-s**

**Biology**



# Plant Anatomy

Biology

**Q. Cork is impermeable to water due to the deposition of**

- a) Pectin**
- b) Cellulose**
- c) Suberin**
- d) Lignin**

**Biology**

**Q. Polyarch condition is seen in**

- a) Dicot roots**
- b) Dicot stem**
- c) Monocot root**
- d) Monocot stem**

**Biology**

**Q. A common features shared by guard cells and mesophyll cells**

- a) Uniformly thin cell walls**
- b) Presence of chlorophyll**
- c) Differently thick cell walls**
- d) Dumbbell shaped cells**

**Q. Atactostelele is seen in**

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

**Biology**

**Q. Phellogen is**

- a) Intercalary meristem**
- b) Apical meristem**
- c) Primary meristem**
- d) Secondary meristem**

**Q. Lysigenous cavity is found in the vascular bundles of**

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

**Biology**

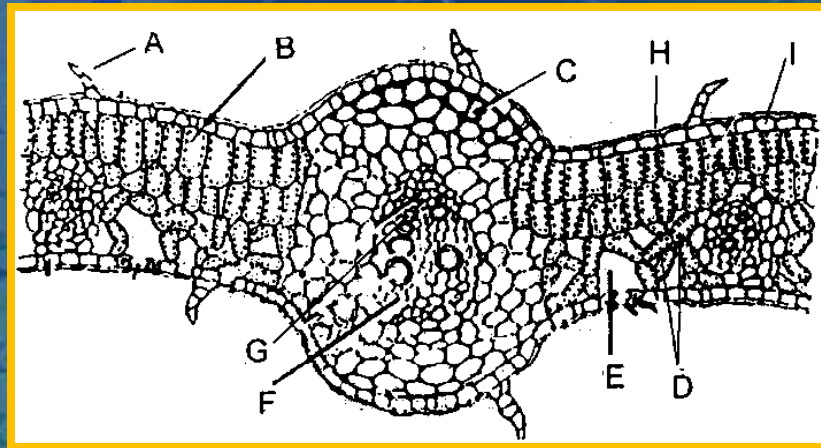


**Q. Bulliform cells are seen in**

- a) Lower epidermis of dicot leaf**
- b) Upper epidermis of monocot leaf**
- c) Upper epidermis of dicot leaf**
- d) Upper epidermis of both dicot and monocot leaves**

**Biology**

**Q.** In the diagram of T.S. of dicot leaf given below, different parts have been indicated by alphabets. Choose the answer in which these alphabets have been correctly matched with the parts they indicate



a) A=Trichome, B=Hypodermal collenchyma, C=Palisade parenchyma, D=spongy parenchyma, E=Substomatal cavity, F=Metaxylem, G=Phloem, H=Upper epidermis, I=Cuticle.

b) A=Trichome, B=Palisade parenchyma, C=Hypodermal collenchyma, D=spongy parenchyma, E=Substomatal cavity, F=Phloem, G=protoxylem, H=Cuticle, I=Upper epidermis.

c) A=Trichome, B=Hypodermal collenchyma, C=spongy parenchyma, D=Palisade parenchyma, E=Substomatal cavity, F=Protoxylem, G=Cuticle, H=Upper epidermis, I=Phloem

d) A=Substomatal cavity, B=Metaxylem, C=Phloem, D=Upper epidermis, E=Cuticle, F=Trichome, G=Hypodermal collenchyma, H=Palisade parenchyma, I=spongy parenchyma.

**Q. Tissue present in an annual ring is**

- a) Secondary xylem only**
- b) Primary phloem and secondary xylem**
- c) Primary xylem and secondary phloem**
- d) Secondary xylem and secondary phloem**

**Q. Enlarged pith (Large pith) is seen in**

- a) Dicot root**
- b) Monocot stem**
- c) Dicot leaf**
- d) Monocot root**

**Biology**

**Q. The lateral roots originate from**

- a) Endoderm cells**
- b) Pericycle cells**
- c) Epiblema**
- d) Cortical cells below the root hairs**

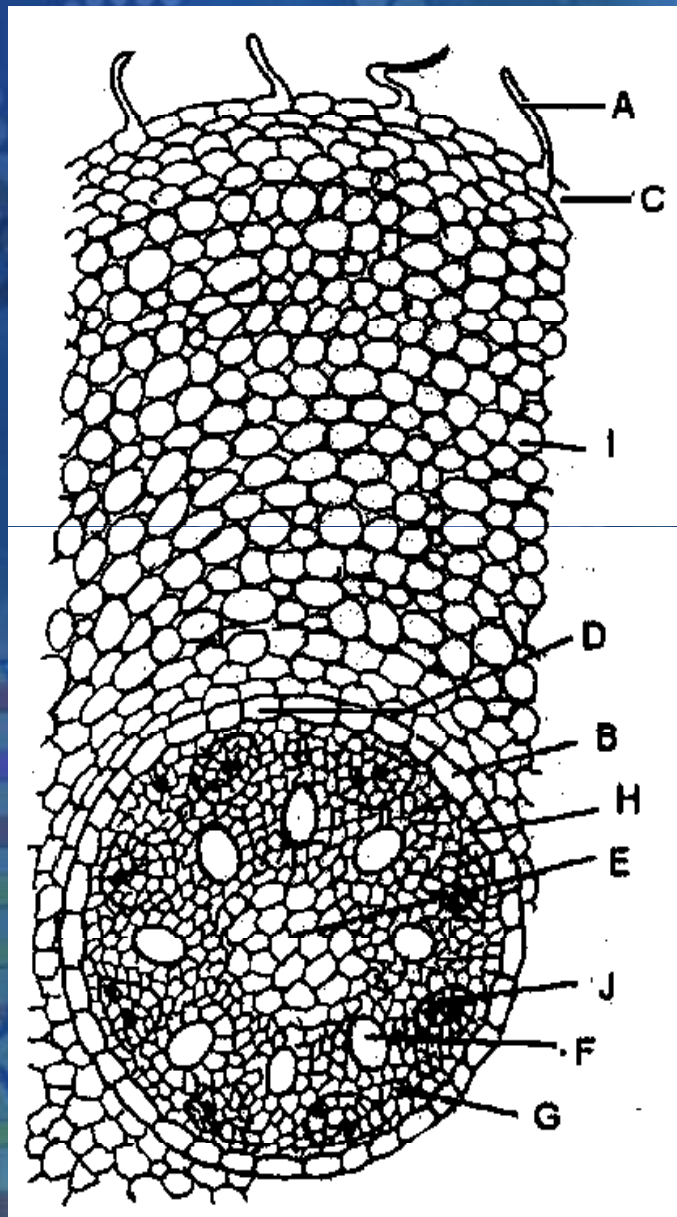
**Q. Cortex is the region between**

- a) Epidermis and stele**
- b) Hypodermis and stele**
- c) Epidermis and endodermis**
- d) Exodermis and stele**



**Q.** In the diagram of transverse section of monocot root given below, different parts have been indicated by alphabets. Choose the answer in which these alphabets have been correctly matched with the parts they indicate

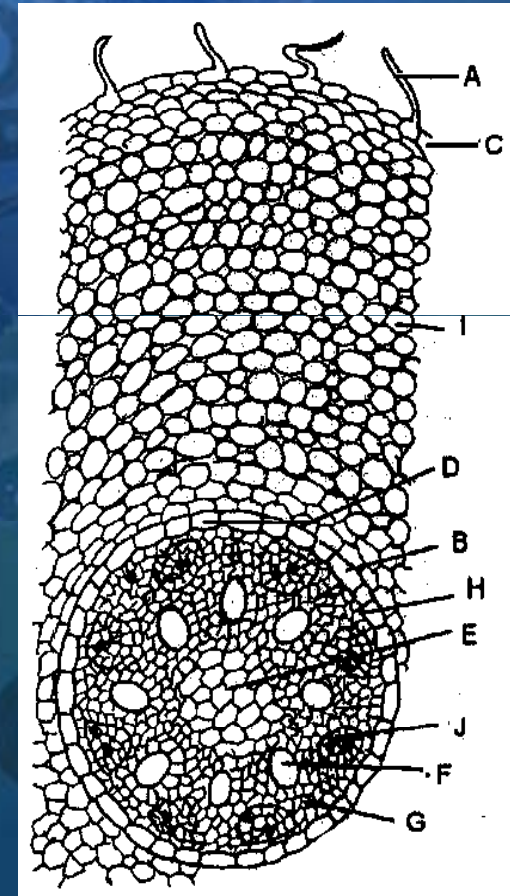
Biology



biology

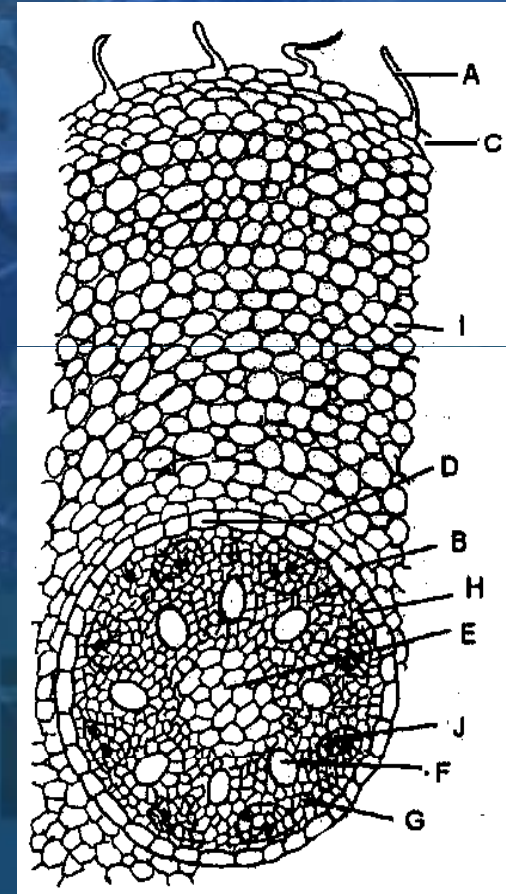
a) A=Root hair, B=Epiblema,  
C=Endodermis, D=Cortex,  
E=Protoxylem, F=Metaxylem,  
G=Conjunctive tissue,  
H=Phloem, I=Pith, J=Passage  
cells

b) A=Root hair, B=Epiblema,  
C=Endodermis,  
D= Protoxylem, E=Cortex,  
F=Conjunctive tissue,  
G=Metaxylem, H=Phloem,  
I=Passage cells, J=Pith



c) A=Root hair, B=Epiblema,  
C=Cortex, D=Endodermis,  
E=Passage cells, F=Pith,  
G=Metaxylem, H=Phloem, I=  
Protoxylem, J=Conjunctive  
tissue,

d) A=Root hair, B=Endodermis,  
C=Epiblema, D=Passage  
cells, E=Pith, F=Metaxylem,  
G= Protoxylem,  
H=Conjunctive tissue,  
I=Cortex, J=Phloem



**Q. Bundle cap of V.B. of sunflower stem is a**

- a) Parenchymatous tissue**
- b) Collenchymatous tissue**
- c) Sclerenchymatous tissue**
- d) Part of vascular tissue**

**Q. Growth rings are composed of**

- a) Spring wood and autumn wood**
- b) Heart wood and sap wood**
- c) Hard wood and soft wood**
- d) Any of these**

**Q. In old woody tissue region of plant gaseous exchange takes place through**

- a) Stomata**
- b) Hydathodes**
- c) Lenticels**
- d) Any of these**

**Biology**

**Q. Which of the following are absent in monocot stem, but present in dicot stem ?**

- a) Epidermis and stele**
- b) Epidermis and vascular bundles**
- c) Hypodermis and pericycle**
- d) Endodermis and pericycle**



**Q. Rhytidome consists of**

- a) All the tissue lie outside the vascular cambium**
- b) All the tissue lie outside the cork cambium**
- c) Endodermis, cortex and periderm**
- d) Bundle cap, endodermis, cortex and periderm**

**Q. Intra fascicular cambium is situated**

**a) In between the vascular bundles**

**b) Inside the vascular bundles**

**c) Outside the vascular bundles**

**d) In pith**

**Biology**

**Q. The cells which help in rolling and unrolling of leaf lamina in grasses are**

- a) Complementary cells**
- b) Motor cells**
- c) Passage cells**
- d) Companion cells**

**Biology**

**Q. With reference to the bark, which of the following statements is false**

- a) Protects the tree from infection**
- b) Prevents loss of water**
- c) It is a tissue present internal to phellogen**
- d) It is tissue, composed of dead and living cells**

**Q. Balloon like outgrowth of parenchyma into the lumen of vessel is known as**

- a) Phellogen**
- b) Tyloses**
- c) Pelloderm**
- d) Phellem**

**Biology**

## **Q. Stele includes**

- a) Cortex, xylem and pith**
- b) Pericycle, vascular bundles and pith**
- c) Epidermis, cortex and vascular bundles**
- d) Endodermis, pericycle and vascular bundles**

**Q. In old dicot stem, the conduction of water takes place through**

- a) Phloem**
- b) Xylem**
- c) Sap wood**
- d) Heart wood**

**Biology**

**Q.** The casparian bands found in the endodermal cells of roots are made up of

- a)** Cellulose
- b)** Pectin
- c)** Suberin
- d)** Cutin

**Biology**



**Q. The inner most layer of cortex**

- a) Exodermis**
- b) Endodermis**
- c) Pericycle**
- d) Hypodermis**

**Biology**

**Q. Fusiform initials of cambium ring produces**

- a) Secondary xylem**
- b) Secondary medullary rays**
- c) Secondary cortex**
- d) Periderm**

**Biology**

**Q. Intra fascicular cambium is**

- a) Primary in origin and primary in function**
- b) Secondary in origin and primary in function**
- c) Primary in origin and secondary in function**
- d) Secondary in origin and secondary in function**

**Q. Which of the following plant shows Kranz anatomy in their leaves ?**

- a) Bryophyllum
- b) Maize
- c) Sunflower
- d) Pea

**Biology**

**Q. Heart wood helps in**

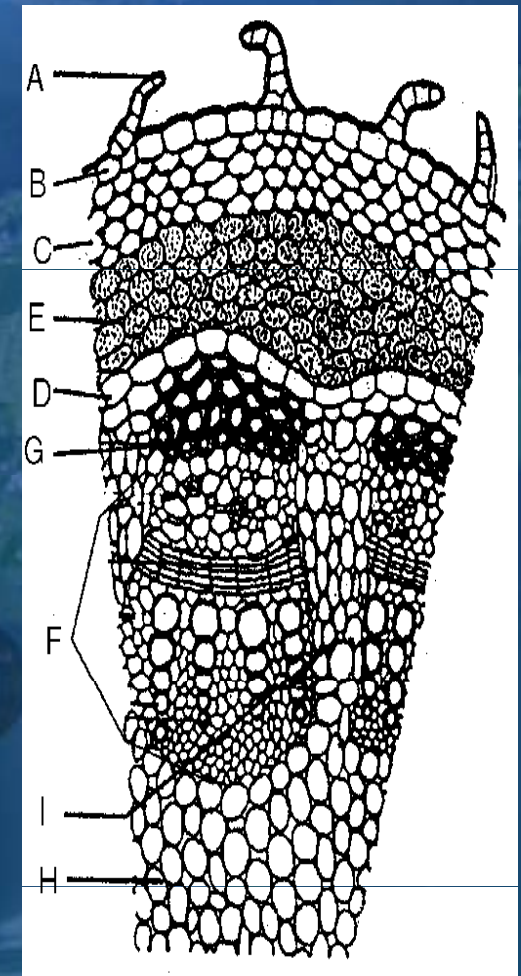
- a) Ascent of sap**
- b) Translocation of food**
- c) Mechanical support**
- d) Circulation of solutes**

**Q. Tyloses are the structures found in xylem vessels**

- a) Help in efficient flow of water**
- b) Help in efficient flow of nutrients**
- c) Function is neutral**
- d) All the time hinders the flow of water**

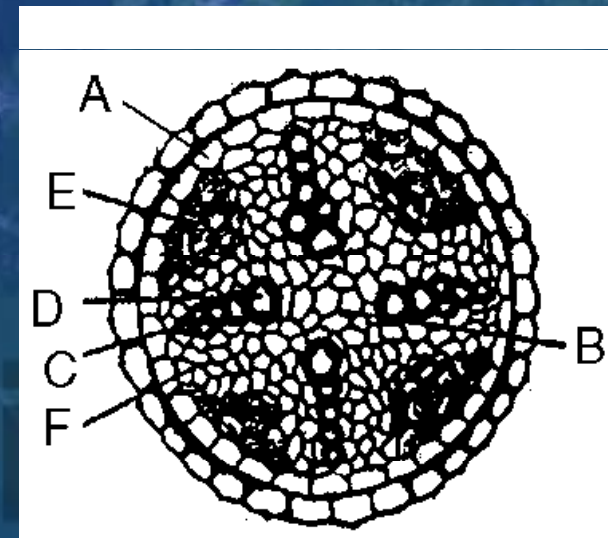
Q. In the diagram of the T.S. of Helianthus stem given below, certain parts have been indicated by alphabets; choose the answer in which these alphabets have been correctly matched with the parts which they indicate

- a) A=Epidermis, B=Epidermal hairs, C=Parenchyma, D=Starch sheath, E=Hypodermis (collenchyma), F=Vascular bundle, G=Bundle cap, H=Medulla or pith, I=Medullary rays
- b) A=Epidermal hairs, B=Epidermis, C=Hypodermis (collenchyma), D=Parenchyma, E=Starch sheath, F=Bundle cap, G=Vascular bundle, H=Medullary rays, I=Medulla or pith,
- c) A=Epidermal hairs, B=Epidermis, C=Hypodermis (collenchyma), D=Starch sheath, E=Parenchyma, F=Vascular bundle, G=Bundle cap, H=Medulla or pith, I=Medullary rays
- d) A=Epidermal hairs, B=Epidermis, C=Parenchyma, D=Hypodermis (collenchyma), E=Starch sheath, F=Vascular bundle, G=Bundle cap, H=Medulla or pith, I=Medullary rays



**Q. In the diagram of T.S. of Stele of Dicot Root, the different parts have been indicated by alphabets; choose the answer in which these alphabets correctly match with the parts they indicate**

- a) A=Pericycle, B=Conjunctive tissue, C=Metaxylem, D=Protoxylem, E=Phloem, F=Pith
- b) A=Endodermis, B=Conjunctive tissue, C=Protoxylem, D=Metaxylem, E=Phloem, F=Pith
- c) A=Endodermis, B=Conjunctive tissue, C=Metaxylem, D=Protoxylem, E=Phloem, F=Pith
- d) A=Pericycle, B=Pith, C=Protoxylem, D=Metaxylem, E=Phloem, F=Conjunctive tissue





**Q. Identify the plant parts whose transverse sections show a clear and prominent pith**

- a) Dicot root and monocot root**
- b) Dicot stem and dicot root**
- c) Dicot stem and monocot stem**
- d) Dicot stem and monocot root**

**Q. Age of a tree can be calculated by**

- a) Counting the number of branches**
- b) Measuring its height**
- c) Measuring its girth**
- d) Counting the number of annual rings**

**Q** What is/ are true about heart wood ?

- 1) It is also called alburnum
- 2) It does not help in water conduction
- 3) It has tracheary elements which are filled with tannin, resin etc
- 4) It is dark in colour but very soft

a) 1 , 2 and 4

b) 2 and 3

c) 2 and 4

d) 1 and 3

Biology

**Q Match the following:**

Column 1	Column 2
A Passage cell	p Lenticels
B Calyptrogen	q Epidermis of monocot leaf
C Complementary cells	r Hydathode
D Motor cells	s Root cap
	t Endodermis of root

- a) A-t, B-p, C-s, D-r.
- b) A-t, B-s, C-p, D-r.
- c) A-t, B-s, C-p, D-q.
- d) A-q, B-s, C-p, D-t.

Biology