

1. How does meristematic tissue differentiate?

### **Plant Cells**

Describe the following types of plant cells

Parenchyma:

Collenchyma

Sclerenchyma

### **Plant Tissues:**

I. Dermal tissue is comprised of the epidermis and periderm

Epidermis-

Periderm-

II. Vascular Tissue is comprised of xylem and phloem

Xylem-

Phloem-

III. Ground Tissue

**Plant Growth**

What is the difference between determinate and indeterminate growth?

Growth in roots originates in the \_\_\_\_\_. The \_\_\_\_\_ protects the apical meristem and secretes a lubricant as the root moves through the soil. This structure (is/is not) part of the zone of cell division.

Describe what happens in each region of the meristem:

Zone of Cell Division	
Zone of Elongation	
Zone of Cell Differentiation	

How does the organization of xylem and phloem differ in the roots of dicots and monocots?

How does the organization of xylem and phloem differ in the stems of dicots and monocots?

Lateral roots arise from which tissue? Where is this tissue found?

All plants have primary growth, but only \_\_\_\_\_ undergo secondary growth.

Layers of wood in tree trunk:

Heartwood:

Sapwood:

Springwood:

Summerwood:

Describe secondary growth in plants:

Which cells are no longer capable of carrying out the process of DNA transcription?

- A. Xylem
- B. Sieve tube elements
- C. Companion cells
- D. A and B
- E. A, B, and C

Which of the following are sugar-transporting cells in angiosperms?

- A. Parenchyma cells
- B. Collenchyma cells
- C. Clerenchyma cells
- D. Tracheids and vessel elements
- E. Sieve-tube elements

Which of the following are relatively unspecialized cells that retain the ability to divide and perform most of the plant's metabolic functions of synthesis and storage?

- A. Parenchyma cells
- B. Collenchyma cells
- C. Clerenchyma cells
- D. Tracheids and vessel elements
- E. Sieve-tube elements

A student examining leaf cross sections under a microscope finds many loosely packed cells with relatively thin cell walls. The cells have numerous chloroplasts. What type of cells are these?

- A. Parenchyma
- B. Xylem
- C. Endodermis
- D. Collenchyma
- E. Sclerenchyma

A plant has the following characteristics: a taproot system, several growth rings evident in a cross section of the stem, and a layer of bark around the outside. Which of the following best describes the plant?

- A. Herbaceous eudicot
- B. Woody eudicot
- C. Woody monocot
- D. Herbaceous monocot
- E. Woody annual

Use for following question:

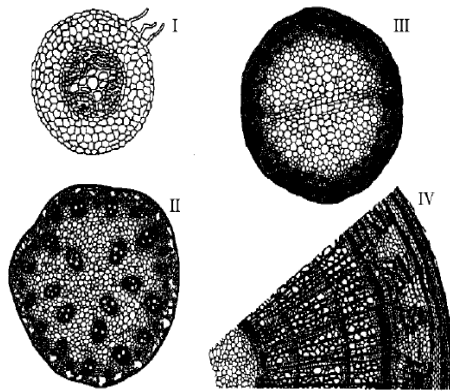
- I. Root Cap
- II. Zone of elongation
- III. Zone of cell division
- IV. Zone of cell maturation
- V. Apical meristem

Which of the following is the correct sequence from the growing tips of the root upward?

- A. I, II, V, III, IV
- B. III, V, I, II, IV
- C. II, IV, I, V, III
- D. IV, II, III, I, V
- E. I, V, III, II, IV

Which of the following root tissues gives rise to lateral roots?

- A. Endodermis
- B. Phloem
- C. Cortex
- D. Epidermis
- E. Pericycle



A woody eudicot is represented by:

- A. I only
- B. II only
- C. III only
- D. IV only
- E. Both I and III

You drive a nail in the trunk of a young tree that is 3 meters tall. The nail is about 1.5 meters from the ground. Fifteen years later, you return and discover the tree has grown to a height of 30 meters. The nail is now \_\_\_\_\_ meters above the ground

- A. 0.5
- B. 1.5
- C. 3.0
- D. 15.0
- E. 28.5

The vascular system of a three-year-old eudicot stem consists of:

- A. 3 rings of xylem and 3 of phloem
- B. 2 rings of xylem and 2 of phloem
- C. 2 rings of xylem and 1 of phloem
- D. 2 rings of xylem and 3 of phloem
- E. 3 rings of xylem and 1 of phloem

A monocot stem is represented by:

- A. I only
- B. II only
- C. III only
- D. IV only
- E. Both I and III

A plant that is at least 3 years old is represented by:

- A. I only
- B. II only
- C. III only
- D. IV only
- E. Both I and III