Biology 161-01
Botany Exam I
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A. Multiple Choices. Choose the best answer. Each question is worth 3 points

1. You want to know if the quality of light will affect the development of a plant. You setup an experiment using filters. You choose two species of plants. One species you allow to develop in the light. The other plant you placed in the dark. What is the purpose the plant in the dark?
    a. To serve as a variable
    b. A source of data the helps to reject the hypothesis
    c. A control which will be used for comparison
    d. To be used to reject or modify theories only when the principle increases the understanding of phenomenon.

2. Looking in a microscope you observe a group of cells that contain suberin. The cells have a thicken wall and are localized close to the epidermal layer. The cells are most likely
    a. Parachenyma cells
    b. Collenchyma
    c. Pholem companion cells
    d. Vascular Tissue

3. All the following are true of xylem EXCEPT:
    a. tracheids and vessel elements are the two type of conducting cells that form the xylem
    b. Water and minerals are transported through the xylem
    c. Companion cells provide nutrition for tracheids
    d. Tracheids are characterized by pits.
    e. Xylem cells are dead at maturity.

4. Sclerids and fibers are two forms of
    A. sclerenchyma B. Protoderm C. Epidermal Tissue D. parenchyma

5. Which of the following is NOT a primary meristem?
    A. ground meristem B. Protoderm C. Cork Cambium D. procambium

6. The stomatal apparatus in leaves consists of a pore boardered by
    A. guard cells B. hydathodes C. bracts D. Bundle sheath cells

7. Which tissue layer in the leaf contains stomatal pores?
    A. palisade parenchyma B. veins C. spongy parenchyma D. epidermis

8. Roots that develop from a stem, leaf, or other part are called?
    A. root hairs B. adventitious roots C. taproots D. fibrous roots

9. Which part of the leaf has the main function to carry out photosynthesis?
A. stipule B. blade C. petiole D. veins E. cuticle

10. Who is the father of Botany?
A. Linnaeus B. Aristotle C. Darwin D. Wallace E. None of the Above

B. Define the Following Terms

1. Cell Theory

2. Hypothesis

3. Growth

4. Cell Cycle

C. Label the Following Drawings

Draw a shoot system and label the following structures:
a. Shoot apical meristem
b. node
c. internode
d. petiole
e. simple leaf blade

2. The diagram below illustrates a cross-section through a stem. Identify the labeled regions.

a._____
b._____
c._____
d._____

Is this an example of a monocot or dicot stem? _____

3. The diagram below illustrates a cross-section through a root. Identify the labeled regions.

A._____
B._____
C._____

Is this a monocot or dicot root? _____

4. The micrograph below shows a cross section through a leaf. Identify the labeled regions:

a._____

b._____

c._____

d._____

If you were told that this leaf has bundle sheath cells, what type of plant is it? (C3 or C4)
Is this type of anatomy associated with monocots or dicots?_____

D. Essay

Most plant meristems are located at the tips of shoots and roots and in cylindrical layers within stems and roots. What could happen if they were present in leaves only?