

Name: \_\_\_\_\_ Date: \_\_\_\_\_ Period: \_\_\_\_\_

### **Unit 12: Interaction of Plant Systems Test Review**

#### **1. Levels of Organization**

- a. List the levels of organization from smallest to largest (Cells → Organism):

#### **2. Plant Structures:**

- a. What carbohydrate is synthesized in the leaves of plants? \_\_\_\_\_
- b. What process occurs in the chloroplast that synthesizes sugars? \_\_\_\_\_
- c. Explain what structures are found in the roots system and in the shoots system.
- i. Roots: \_\_\_\_\_
- ii. Shoots: \_\_\_\_\_
- d. What is the function of the roots of plants? What is the process by which water enters the roots called?
- \_\_\_\_\_
- e. Describe the pathway of nutrients from the soil through the reproductive, roots, and shoots systems of the plant: \_\_\_\_\_
- \_\_\_\_\_

#### **3. Hormones and Tropisms**

- a. What causes tropisms? \_\_\_\_\_
- b. What happens to seeds when they are in favorable conditions? How is this a way plants respond to their environment?
- \_\_\_\_\_
- c. Explain the following tropisms:
- i. Thigmotropism - \_\_\_\_\_
- ii. Phototropism - \_\_\_\_\_
- iii. Hydrotropism - \_\_\_\_\_
- iv. Geotropism- \_\_\_\_\_

#### **4. Transpiration & Properties of Water**

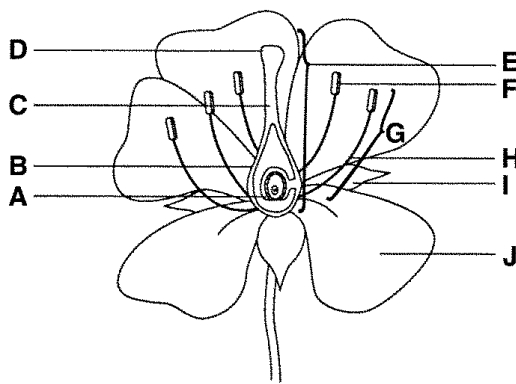
Watch this transpiration review video: <https://www.youtube.com/watch?v=mc9gUm1mMzc>

- a. What is transpiration? How does this occur? What plant structures are involved in transpiration? \_\_\_\_\_
- \_\_\_\_\_
- b. What are the cells surrounding the stomata of a plant called? \_\_\_\_\_
- c. How does a stoma respond to regulate the rate of transpiration? \_\_\_\_\_
- \_\_\_\_\_
- d. What gasses enter & exit through stomata?
- i. Enter: \_\_\_\_\_
- ii. Exit: \_\_\_\_\_
- e. What is cohesion and how is it important to water? \_\_\_\_\_
- \_\_\_\_\_
- f. Which two properties of water work together to allow to climb narrow tubes(capillary action)?
- \_\_\_\_\_

**5. Vascular Plants**

- a. The vascular system of a plant is made of \_\_\_\_\_ and \_\_\_\_\_. What does each of these structures transport in the plant, and in what direction do they deliver their substance (upwards, downwards, both directions)?
- i. Xylem
    - 1. Substance transported: \_\_\_\_\_
    - 2. Direction transported: \_\_\_\_\_
  - ii. Phloem
    - 1. Substance transported: \_\_\_\_\_
    - 2. Direction transported: \_\_\_\_\_
- b. To live on land, what resource did plants have to adapt to conserve? \_\_\_\_\_

**6. Plant Reproduction – Label the parts of the angiosperm below**



- a. \_\_\_\_\_
- b. \_\_\_\_\_
- c. \_\_\_\_\_
- d. \_\_\_\_\_
- e. \_\_\_\_\_
- f. \_\_\_\_\_
- g. \_\_\_\_\_
- h. \_\_\_\_\_
- i. \_\_\_\_\_
- j. \_\_\_\_\_

- k. Which letter produces pollen? \_\_\_\_\_
- l. Pollen grains from the \_\_\_\_\_ attach to \_\_\_\_\_ transferred by a pollinator.
- m. Which letters are male structures? \_\_\_\_\_
- n. Which letters are female structures? \_\_\_\_\_

**7. Kingdom Plantae**

- a. Circle the features of organisms in Kingdom Plantae:
- |                                     |                     |                                |                      |                     |                      |
|-------------------------------------|---------------------|--------------------------------|----------------------|---------------------|----------------------|
| <i>Prokaryotic</i>                  | <i>Eukaryotic</i>   | <i>Unicellular</i>             | <i>Multicellular</i> | <i>Autotrophic</i>  | <i>Heterotrophic</i> |
| <i>Cell walls made of Cellulose</i> | <i>No cell wall</i> | <i>Contain central vacuole</i> | <i>DNA</i>           | <i>No cell wall</i> |                      |
- b. Explain the benefit of the following plant adaptations:
- i. Stomata that only open at night: \_\_\_\_\_
  - ii. Thorny stems: \_\_\_\_\_
  - iii. Thick, waxy cuticle on stems: \_\_\_\_\_
  - iv. Venus fly trap catching insects: \_\_\_\_\_
  - v. Colorful petals in angiosperms: \_\_\_\_\_