1. a) What type of cells are responsible for the constant growth of plants? ___**meristematic cells**___

2. Meristematic cells are constantly producing cells that become specialized and combine to form the three types of tissues found in the body of a plant. Identify these types of tissues and describe their functions.

   1. _____***Dermal Tissue***_____

      - forms the outermost covering of the plant's organs
      - a barrier between the plant and its external environment
      - protects the inner tissues from damage
      - controls the exchange of water and gases between the plant and its environment
      - example: epidermal cell

   2. _____***Ground Tissue***_____

      - forms the outermost covering of the plant's organs
      - a barrier between the plant and its external environment
      - protects the inner tissues from damage
      - controls the exchange of water and gases between the plant and its environment
      - example: epidermal cell

   3. _____**Vascular Tissue**_____

      - Performs the critical job of transporting water, nutrients, and sugars throughout the plant
      - Helps to provide physical support for the plant's body

3. There are four types of organs that make up the body of a plant. They are:

   - **_leaves____stem_____roots_____flowers_____**

4. The primary function of the leaf is ___**to provide a large surface area where photosynthesis can take place**.

5. Complete the following chart.

Specialized Cell of a Leaf	**Description and/or Function**
Xylem	• delivers water, in the form of water vapour, to the photosynthesizing cells
Phloem	• picks up sugars that have been produced by photosynthesis and delivers then cells throughout the rest of the plant
Stomata	• pores in the leaf where carbon dioxide enters the leaf, and oxygen and water vapour exit the leaf • are connected to the open spaces in the spongy parenchyma cells

6. What is ***transpiration***?

   ___the evaporation of water from leaves_____

7. The organelle in the leaf that is responsible for photosynthesis is the **____chloroplast_____**.

8. What are the two main functions of the stem?

   1. **____physical support_____**
   2. **____transportation of water, nutrients, and sugars_____**

9. What are the three functions of roots?

   1. **__anchor a plant to the ground_____**
   2. **__take up water and minerals from the soil_____**
   3. **__can act as a plant's storage area_____**

10. The main function of the flower is **____reproduction__**.
    This is referred to as **___pollination_____**.

11. In three to four sentences, describe the flow of water from the roots up to the leaves of the tree. Highlight the main components that facilitate this transfer by name.

    Water enters the plants through water absorption in the roots. This process is accomplished by the root hairs, which expand the root's total surface area to maximize absorption.

    Once in the roots, the nutrients and water move toward the xylem found at the centre of the root. The water and nutrients are then pushed into the xylem vessels.

    Xylem tissue ends when it reaches the leaves. Here, liquid water turns into water vapour where some of the water will be used during photosynthesis. Most of the water vapour, however, evaporates from the leaves and into the air.

    The process of water evaporating from leaves is referred to as transpiration.

    During this process, water evaporates when stomata open to take in carbon dioxide and release oxygen.

    Transpiration makes room for more water from the xylem to move into the leaves, pulling the water column up.