­­­­Guided Notes- Soilless Media

1.\_\_\_\_\_\_\_\_\_\_\_ is the exchange of gases in the \_\_\_\_\_\_\_\_\_\_\_\_\_. This is required for cellular respiration.

2. It is important that a medium has sufficient \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_to allow an exchange of \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.

3.\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ is found in the pore spaces of the medium.

4. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ is a thin film of water that binds so tightly on media particles that it cannot be used by plants.

5. Medium pH plays a large role in the availability of nutrients in the medium and is the measure of \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ of the medium.

6. A \_\_\_\_\_\_\_\_\_\_\_\_\_ scale is used to measure pH. A neutral pH is 7.0.

8. Any reading between zero and 7.0 is acid, and a solution between 7.0 and 14.0 is said to be \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.

9. The pH is determined by the concentration of hydrogen (H+) ions and hydroxyl ions (OHB) in the soil solution. A sample of pure water has an equal number of H+ and OHB ions and is therefore \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.

10. Most essential elements for plant growth are available to most plants when the soil pH is between \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.

11. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ is the measure of a media’s capacity to hold nutrients.

Many nutrients are positively charged cations, such as Potassium (K+), Calcium (Ca+2), Magnesium (Mg+), Copper (Cu+), Iron (Fe+2 or Fe+3), Manganese (Mn+2), and Zinc (Zn+2).

12. Clay and organic matter particles in the medium have \_\_\_\_\_\_\_\_\_\_\_\_\_\_ charged sites. The cations are attracted to these negatively charged sites on media particles. The cations can leave the medium particle and be replaced by a cation held in the medium solution.

For instance, a potassium atom may leave the particle and be replaced by a copper atom dissolved in the soil water.

13. This replacement of one cation for another is called \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.

14. The \_\_\_\_\_\_\_\_\_\_\_\_\_\_ of a medium is directly related to the number of cations a medium can attract and hold. The greater the cation exchange capacity, the greater the fertility of the medium.

15. In the greenhouse industry, the growing medium must provide conditions that encourage uniform plant growth.

16. Nutrients \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ of the medium during watering.

17. In the greenhouse industry, the growing medium must provide conditions that encourage \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ plant growth.