Chapter 9: Soil and Hydroponics Management

Self Evaluation

A. Multiple Choice

1. An example of plant-growing media is...
   A. Soil  B. Water  C. Perlite  D. All of these

2. Which is not organic matter?
   A. Leaf mold  B. Peat moss  C. Sphagnum moss  D. Vermiculite

3. Decay of organic matter is caused by...
   A. Large animals  B. Microbes  C. Rodents  D. Water

4. Which is not a factor affecting soil formation
   A. Hydroponics  B. Gravity  C. Ice  D. Water

5. Humans affect soil formation by...
   A. Acid  B. Alkaline  C. Bull dozing  D. Weathering

6. The land class with the fewest limitations is
   A. Class I  B. Class III  C. Class VI  D. Class VIII

7. The land classes suitable for field crop production are
   A. I, II, IV, VI  B. I, II, III, IV  C. I, IV, V, VIII

8. The horizon that is most supportive of plant growth is
   A. Horizon O  B. Horizon A  C. Horizon B  D. Horizon C

9. The smallest clay particle is
   A. Clay  B. Gravel  C. Sand  D. Silt

10. Good soil structure means
    A. Aggregated  B. Crumbly  C. Raindrop endurance  D. All of the above

11. Soil pH is generally raised by adding
    A. Sulfur  B. Nitrogen  C. Lime  D. Complete fertilizer

12. Hydroponics refers to
    A. Aggregate culture  B. Aeroponics  C. Nutriculture  D. All of the above

13. The importance and use of hydroponics is
    A. Increasing  B. Decreasing  C. About the same  D. A new field

14. Hydroponically grown plants differ principally from soil-grown plants by
    A. Light requirements  B. Nutrient requirements  C. Oxygen requirements  D. Support mechanisms

15. The best and most economical light source for growing plants hydroponically is
    A. Incandescent  B. Fluorescent  C. Sodium  D. Sunlight
B. Matching (Group I)

- **D** 1. Colluvial a. Deposited by ice
- **I** 2. Alluvial b. Deposited by lakes
- **A** 3. Glacial c. Formed in place
- **B** 4. Lacustrine d. Deposited by gravity
- **J** 5. Loess e. Class II land with erosion problems
- **H** 6. Leaching f. Cross section of soil
- **G** 7. Organic matter g. Makes soil dark in colour
- **C** 8. Residual h. Removal of soluble materials
- **E** 9. Ile i. Deposited by streams
- **F** 10. Profile j. Deposited by wind

B. Matching (Group II)

- **C** 1. Horizon A a. Mostly organic matter
- **D** 2. Horizon B b. Parent material
- **B** 3. Horizon C c. Topsoil
- **A** 4. Horizon O d. Subsoil
- **J** 5. Coarse e. 5 - 10 - 5 problem
- **H** 6. Medium texture f. Equal parts of nitrogen, phosphorus, and potassium
- **I** 7. Fine texture g. Sulfur
- **F** 8. 10 - 10 - 10 h. Loamy soils
- **E** 9. Complete fertilizer i. Clay soils
- **G** 10. Lowers pH j. Sandy soils

C. Completion

1. Soil is defined as the top layer of the Earth's surface suitable for the growth of **plant life**.

2. Three groups of plants found in soil are **roots of higher plants**, **algae**, and **fungi**.

3. Three groups or types of animals that live in the soil are **herbivores**, **predators**, **microanimals**.

4. Five important benefits of organic matter in soil are **makes some porous**, **supplies nutrients**, **holds water**, **minimizes leaching**, and **stabilizes**.

5. In solution culture, about one-third of the roots must be exposed to air, or air must be bubbled through the solution to prevent damage or death from lack of the element **oxygen**.

6. The six mineral elements taken up by roots and needed in large quantities by plants are **nitrogen**, **phosphorus**, **potassium**, **calcium**, **magnesium**, and **sulfur**.
7. The seven mineral elements taken up by roots and needed in tiny quantities by plants are iron, manganese, boron, zinc, copper, molybdenum, and chlorine.