PLEASE DO NOT WRITE ON THIS TEST: USE CORRESPONDING SCANTRON

2025 Area 2 Envirothon – SOILS

1. What is the texture of soil in the **A horizon**?
   A. Clay Loam
   B. Loam
   C. Sandy Loam
   D. Silt Loam

2. Soil tests can indicate the amount of plant available phosphorus present in a soil sample and are utilized by land managers when making nutrient application decisions. If a soil test value is above the "maintenance limit" for the planned crop, what kind of phosphorus application is recommended?
   A. Build Up
   B. Maintain
   C. Draw Down
   D. All the above

3. Which of the five soil formation factors is defined as the shape of the land or the relative difference in elevation between the upland summits and the lowlands or valleys of a given region?
   A. Parent Material
   B. Relief
   C. Time
   D. Living Organisms

4. What type of soil map unit is defined as a group of soils or miscellaneous areas geographically associated in a characteristic repeating pattern and is delineated as a single map unit?
   A. Miscellaneous Areas
   B. Undifferentiated Group
   C. Association
   D. Complex

5. What is the structure of the soil between 14 and 18 inches?
   A. Angular
   B. Blocky
   C. Massive
   D. Platy

6. Which of the following statements best describes the "E" horizon of a soil profile?
   A. The mineral horizon or layer, excluding indurated bedrock, that is little affected by soil forming processes.
   B. The mineral horizon in which the main feature is loss of silicate clay, iron, aluminum, or some combination of these.
   C. The mineral horizon at or near the surface in which an accumulation of humified organic matter is mixed with mineral material.
   D. An organic layer of fresh decaying plant residue.

7. Which of the following statements best describes the soil parent material called Alluvium?
   A. Material transported and deposited by wind and consisting dominantly of silt-sized particles.
   B. Unconsolidated material, such as gravel, sand, silt, clay, and various mixtures of these, deposited on land by running water.
   C. Unsorted, non-stratified, glacial drift consisting of clay, silt, sand and boulders that was transported and deposited by glacial ice.
   D. Unconsolidated, unsorted earth material being transported or deposited on side slopes and/or at the base of slopes by mass movement (e.g., direct gravitational action) and by local, unconcentrated runoff.

8. Hydric soils are one of the factors utilized when delineating a wetland. Hydric soils are soils that formed under conditions of saturation, flooding, or ponding long enough during the growing season to develop anaerobic conditions in the upper part. What element is lacking from an environment when under anaerobic conditions?
   A. Iron
   B. Magnesium
   C. Potassium
   D. Oxygen

9. What kind of soil contains enough calcium carbonate (commonly combined with magnesium carbonate) to effervesce visibly when treated with cold, dilute hydrochloric acid?
   A. Calcareous Soil
   B. Gleyed Soil
   C. Saturated Soil
   D. Impervious Soil

10. Redoximorphic features are associated with wetness that results from alternating periods of oxidation and reduction of iron and/or manganese in the soil. What is the depth to redoximorphic features in this soil profile?
    A. 0-8 inches
    B. 8-15 inches
    C. 15-25 inches
    D. 25-40+ inches

11. Slope positions refer to the type and location of a slope. Determining the position of the slope can help soil scientists predict and rule out certain soil types. Which simple slope position occupies the lowest point in the landscape?
    A. Summit
    B. Shoulder
    C. Backslope
    D. Toeslope

12. Which term below refers to the smallest volume that can be called "a soil"? This term represents a three-dimensional area that is large enough to permit study of all horizons. Its area ranges from about 10 to 100 square feet (1 square meter to 10 square meters), depending on the variability of the soil.
    A. Pan
    B. Pedon
    C. Mapunit
    D. Aggregate

13. Soil texture is defined as the relative proportions of sand, silt, and clay particles in a mass of soil. Texture influences many soil properties and resource concerns. A topsoil with which USDA soil texture listed below would be the most susceptible to compaction when wet?
    A. Clay
    B. Silt Loam
    C. Sandy Loam
    D. Sand

14. Healthy soil gives us clean air and water, bountiful crops and forests, productive grazing lands, diverse wildlife, and beautiful landscapes. Fill in the blank with the most appropriate answer for the following statement: Soil health is defined as the continued capacity of soil to function as a vital _____ that sustains plants, animals, and humans.
    A. Medium
    B. Foundation
    C. Filter
    D. Living Ecosystem

15. Subsoil is the layer of developing soil beneath the surface layer. What is the texture of the subsoil between 18 and 25 inches in this profile?
    A. Clay
    B. Clay Loam
    C. Loam
    D. Silty Clay Loam

16. Soil taxonomy at the highest hierarchical level identifies 12 soil orders. Which of the soil orders listed below is <u>most</u> commonly found in Ohio?
    A. Gelisols
    B. Alfisols
    C. Spodosols
    D. Vertisols

17. Soil provides an important ecosystem service by removing contaminates from water. The longer it takes for water to flow through soil, the longer it must interact with the soil, and the cleaner the water becomes. Fill in the blank with the most appropriate answer for the following statement: Generally speaking, water moves more slowly through _____ soils because the spaces between the individual particles are the smallest.
    A. Sandy
    B. Silty
    C. Clayey
    D. Gravely

18. Soil particles are held together by various organic substances. For example, glomalin, acts as a “soil glue” to create stable soil aggregates. The gluing of soil particles together into aggregates helps maintain pores and channels in the soil. Soil aggregates are more stable and harder to wash away than individual soil particles during rainstorms. What group of soil biology is responsible for producing glomalin?
    A. Fungi
    B. Nematodes
    C. Protozoa
    D. Arthropods

19. Soil organisms can be divided into six groups: bacteria, fungi, protozoa, nematodes, arthropods, and earthworms. Each group of organisms plays important roles. Even within each group, there is great diversity in form and function. Which of the following is not a function of soil biology?
    A. Decomposition
    B. Mineralization
    C. Carbon Cycling
    D. Water Cycling

20. Landscape position is important in determining land use. What landform is the soil pit located on?
    A. Floodplain
    B. Kame
    C. Terrace Riser
    D. Upland Hillslope

21. What landform is often produced by the outwash of melting glaciers and consists of two parts (riser and bench)?
    A. Upland Hillslope
    B. Upland Depression
    C. Floodplain
    D. Terrace

22. A state soil is a soil that has special significance to a particular state. Each state in the United States has selected a state soil, twenty of which have been legislatively established. Ohio's state soil encompasses more than 750,000 acres. What is Ohio's state soil?
    A. Blount
    B. Miamian
    C. Hoytville
    D. Wetzel

23. Soil structure is defined as the arrangement of primary soil particles into compound particles or aggregates. Soil structure is the most important indicator of soil development. Which of the following is not one of the principal forms of soil structure?
    A. Massive
    B. Rounded
    C. Granular
    D. Platy

24. The upper part of the soil, topsoil, is the most favorable for plant growth. It is used to top-dress road banks, lawns, and land affected by mining. Fill in the blank with the most appropriate answer for the following statement: Ordinarily, topsoil is the darkest portion of a soil profile because it contains the most _____?
    A. Iron
    B. Clay
    C. Loess
    D. Organic Matter

25. At some point in time, most soils become saturated. The duration of saturated conditions will contribute to certain chemical reactions which influence the soil color. These variations in soil color are a key component in identifying the soil drainage class. Which elements are primarily involved in the formation of redoximorphic features in the soil profile?
    A. Sulfur, Phosphorus
    B. Nitrogen, Potassium
    C. Iron, Manganese
    D. Manganese, Sulfur

ALL DONE!

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