

2019 Area 5 Envirothon Soil

On-Site Soil Questions:

1. A seasonal high water table can be seen in a soils pit when gray colors appear on soil ped faces. The gray colors occur when the iron oxides in the soil are reduced to ferrous iron due to a lack of oxygen in the soil. At what depth in the soils pit is there evidence of a seasonal high water table?

- A. 0-10"
- B. 10-20"
- C. 20-30"
- D. 30"-bottom of pit
- E. No evidence found

2. What is the depth to bedrock in the pit?

- A. 20-30 inches
- B. 30-40 inches
- C. 40-50 inches
- D. 50-60 inches
- E. Below the bottom of the pit

3. Which soil series is predominant on this site?

- A. Allegheny
- B. Peoga
- C. Omulga
- D. Licking

4. What is the predominant parent material?

- A. Glacial Till
- B. Loess
- C. Alluvium
- D. Residuum

5. A bucket containing subsoil from the pit has been set aside. What is the texture of the subsoil?

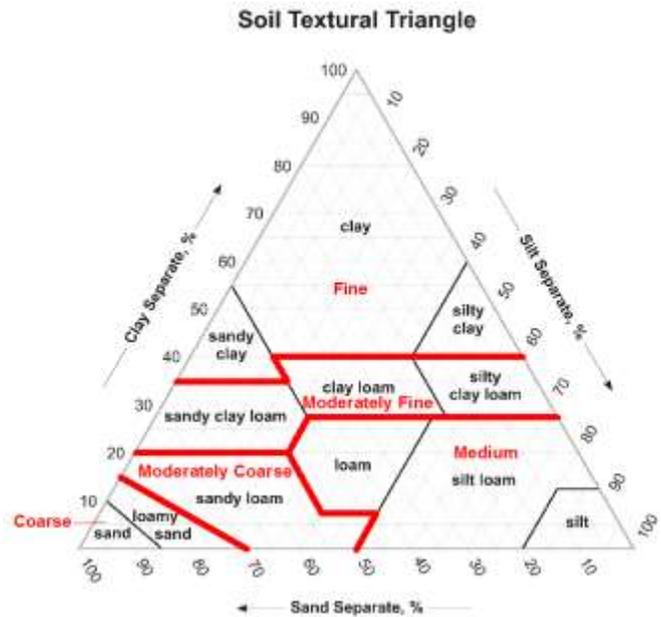
- A. Moderately Coarse
- B. Medium
- C. Moderately Fine
- D. Fine

6. What is the thickness of the topsoil in the soil profile?

- A. Less than 4 inches
- B. 4-8 inches
- C. 8-12 inches
- D. Greater than 12 inches

7. Landform categories are used to describe what type of geological formation in which the soil developed. According to the map unit description, in what landform setting would you find a Licking silt loam?

- A. Flood plain
- B. Stream terrace
- C. Upland hillslope
- D. Upland Depression



8. The soil map scale is 1:15,800. That means that each inch on the map represents 15,800 _____ on the landscape.
- A. Inches
 - B. Feet
 - C. Kilometers
 - D. Miles
9. Allegheny loam is 2.3% of the area and has a drainage class of _____, while Peoga is 45.1% of the area and has a drainage class of _____.
- A. Poorly drained; Well drained
 - B. Well drained; Poorly drained
 - C. Moderately well drained; Poorly drained
 - D. Well drained; Moderately well drained
10. What is the structure of the soil at a depth of 18”?
- A. Granular
 - B. Blocky
 - C. Platy
 - D. Massive
11. If we were to construct a basement in this area, which of the following reason would cause the most limitation?
- A. Depth to Saturation Zone
 - B. Slope
 - C. Slippage
 - D. Shrink-Swell
12. If we were to construct a basement in this area, which soil series is the least limiting?
- A. Allegheny
 - B. Peoga
 - C. Omulga
 - D. Licking

General Soil Questions:

13. How does the Ohio interpretation of Dwellings with Basements differ from the national interpretation?
- A. Ohio considers dense glacial till as a limitation, while it is not nationally recognized
 - B. Ohio does not consider soil slippage as a limitation even though it is nationally recognized
 - C. The depth at which basement excavation is assessed is deeper than the national standard
 - D. Ohio does not consider cemented pans as a limitation
14. Currently, soils are mapped according to the boundaries of _____, which are geographically associated land resource units that share common characteristics related to physiography, geology, climate, water resources, soils, biological resources, and land uses.
- A. Counties
 - B. Major Land Resource Areas (MLRA)
 - C. Soil Regions
 - D. Soil Mapping Units (SMU)

15. What material is added to soils to raise the pH level?
- A. Nitrogen
 - B. Manure
 - C. Compost
 - D. Lime
16. A soil contains over 12 inches of dark A horizon with a predominantly gray horizon directly underneath. Which statement is true?
- A. Gray horizon will have a greater proportion of silt than A horizon.
 - B. Due to the thick, dark A horizon the drainage class is likely to be moderately well drained.
 - C. The soil is likely poorly/very poorly drained and shows indication of having a high seasonal water table.
 - D. The dark A horizon gets its color from an accumulation of clay particles and iron minerals.
17. When a soil becomes saturated, the iron oxides in the soil are reduced to ferrous iron (Fe^{+2}). This reaction can be seen by a change in soil color and is referred to as redoximorphic features. Areas where the soil is reduced will show a gray color that is called a _____. Areas where the soil is oxidized will show a bright orange-red color that is called a _____.
- A. Gleyed soil, hydric soil
 - B. Concentration, depletion
 - C. Depletion, concentration
 - D. Hydric soil, gleyed soil
18. Of the three particles that make up a soil texture, which is the largest in size?
- A. Sand
 - B. Silt
 - C. Loam
 - D. Clay
19. Of the three particles that make up soil textures, which has the greatest surface area and is the most chemically reactive?
- A. Sand
 - B. Silt
 - C. Loam
 - D. Clay
20. Soil structure is a result of soil formation. Better structure aids water movement and root growth. Which of the soils below has the best structure?
- A. very young soils
 - B. older, more developed soils
 - C. all soils have basically the same structure
 - D. clayey soils
21. What are the 3 essential macronutrients needed for adequate plant growth?
- A. Nitrogen, Sulfur, Phosphorus
 - B. Phosphorus, Sulfur, Magnesium
 - C. Nitrogen, Potassium, Magnesium
 - D. Phosphorus, Potassium, Nitrogen

22. Soil that is tilled and cropped intensively for long periods of time can eventually become “worn-out,” and crop productivity will decline. This productivity loss is mainly due to the decrease of the soils:
- A. Organic matter
 - B. Iron
 - C. Water holding capacity
 - D. Phosphorus
23. Soil _____ is the arrangement of aggregates which leads to different shapes and is an important indicator of soil development.
- A. Structure
 - B. Texture
 - C. Horizonation
 - D. Viscosity
24. _____ is a measure of how fast water enters soil from the surface.
- A. Endo-saturation
 - B. Capillary action
 - C. Respiration
 - D. Infiltration
25. Soil erosion increases the amount of sediment, nutrients, pesticides, and herbicides entering waterways, which can negatively impact fisheries. All the following are measures that can be taken to reduce soil erosion **except**:
- A. Cover crops
 - B. Grassed waterways
 - C. Organic herbicide use
 - D. Contour farming