

## Soils Station: 2019 Area IV Envirothon

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1. "A **map unit** delineation on a soil map represents an area dominated by one or more major kinds of soil or miscellaneous areas." The map unit "Russell-Miamian silt loams, 2 to 6 percent slopes (RvB2)" in the Caesar Ford Park, Greene Co. Parks & Trails would this be considered prime farmland?
  - a. True
  - b. False
2. "Redoximorphic features (RMFs) are color patterns in a soil caused by loss (depletion) or gain (concentration) of pigment compared to the matrix color formed by oxidation/reduction of **these elements** coupled with their removal, translocation, or accrual";
  - a. Fe and/or Mn
  - b. Cu and/or Cd
  - c. N and/or P
  - d. C and/or N
3. In soil classification, capital letters are used to designate master horizons. "Root-limiting subsoil layers of human-manufactured materials" is designated with the capital letter(s):
  - a. H
  - b. M
  - c. R
  - d. R/L
4. What are the five soil forming factors?
  - a. Time, Climate, Relief, Parent Material, Living Organisms
  - b. Time, Climate, Relief, Rainfall, Tillage
  - c. Time, Climate, Relief, Organic Matter, Slope
  - d. Time, Climate, Relief, Rainfall, Living Organisms
5. Soil is made up of three major components: clay, silt, and sand. Which particle is the smallest?
  - a. Sand
  - b. Silt
  - c. Clay

6. "Hydric soils are defined by the National Technical Committee for Hydric Soils (NTCHS) as soils that formed under conditions of saturation, flooding, or ponding long enough during the growing season to develop anaerobic conditions in the upper part (Federal Register, 1994). Under natural conditions, these soils are either saturated or inundated long enough during the growing season to support the growth and reproduction of hydrophytic vegetation." Using the soil survey report provided to you, identify the soil map unit that is likely to have soils that are hydric in nature:
  - a. Eldean silt loam, 2 to 6 percent slopes
  - b. Sloan silty clay loam
  - c. Russell-Miamian silt loams, 2 to 6 percent slopes, moderately eroded
  - d. Miamian and Hennepin soils, 18 to 25 percent slopes
  
7. Ragsdale silty clay loam, 0 to 2 percent slopes in the Caesar Ford Park area is rated as "very limited" for the purpose of building dwellings with basement. Which of these is the least limiting factor of all the factors responsible for classifying this map unit as not ideal for dwellings with basements (*refer to the provided report*).
  - a. Ponding
  - b. Depth to Saturated zone
  - c. Shrink-Swell
  - d. None of the above
  
8. "The system of soil classification used by the National Cooperative Soil Survey has six categories (Soil Survey Staff, 1999 and 2003). Beginning with the broadest, these categories are the order, suborder, great group, subgroup, family, and series". Soil taxonomic description for **Sloan silty clay loam** is "Fine-loamy, mixed, mesic Fluvaquentic Haplaquolls". To which order does this map unit belong to:
  - a. Mollisol
  - b. Alfisol
  - c. Gelisol
  - d. Aridisol
  
9. By farming using soil health principles and systems that include no-till, cover cropping and diverse rotations, more and more farmers are actually increasing **this** and improving microbial activity in their soils:
  - a. Micronutrient Content
  - b. Water Content
  - c. Air Content
  - d. Organic matter Content

10. Soil hydrologic group rating is a good indicator of water infiltration rates. Which map unit under undrained condition would benefit the most from artificial tile drainage for agricultural production
- RvB (hydrologic soil group: C)
  - OcA (hydrologic soil group: B)
  - XeA (hydrologic soil group: C/D)
  - EmB(hydrologic soil group: B)
11. Based on the dominant **parent material** condition in the following map units (*refer to the provided report*) which soil map unit is not formed from wind deposited sediments
- MhC2
  - EmB
  - MpE
  - OcA
12. Using the Soil Survey what is the parent material of a Russell-Miamian silt loams, 2 to 6 percent slopes (RvB2).
- Alluvium
  - Glacial
  - Loess
  - Outwash
13. Organic matter accumulation is most pronounced in which soil horizon?
- B
  - A
  - E
  - O
14. Parent material is a key factor of soil formation at any location. The mixed angular gravel, rock, and soil found at the foot of a slope is typical of what type of parent material?
- Colluvial
  - Lacustrine
  - Glacial
  - Eolian
15. "Topsoil" is generally equivalent to which soil horizon?
- A
  - B
  - C
  - D

16. The amount of different sizes of mineral particles in a soil defines the soil \_\_\_\_\_.
- Profile
  - Structure
  - Pore Space
  - Texture
17. Which of the following soil pH values represents a neutral condition?
- 8.0
  - 7.0
  - 9.0
  - 3.0
18. Increasing the organic matter content of a soil is likely to:
- have no effect on water holding capacity of the soil
  - increase water holding capacity of the soil
  - decrease water holding capacity of the soil
19. Which of the following is not a soil textural class name?
- Sandy clay loam
  - Silty clay loam
  - Silt loam
  - Sandy silt
20. An understanding of topsoil is critical for decision making sustainable crop production, and nutrient management. What is the depth of topsoil in the soil pit?
- 0-4 inches
  - 0-12 inches
  - 8-12 inches
  - 4-8 inches
21. What is the structure of the soil at a depth of 0-8 inches in the soil pit
- Columnar
  - Prismatic
  - Blocky
  - Granular
22. What is the texture of the soil at a depth of 8-12 inches in the soil pit
- Silt loam
  - Silty clay loam
  - Sandy loam
  - Clay

23. The landform on which the soil pit is located:
- Outwash terraces
  - Flats
  - Flood plains
  - Till plains
24. Farm nutrients in agricultural runoff water is the leading cause for water quality impairment of Ohio's surface waters. The macronutrient that is responsible for the proliferation of harmful algal blooms in Lake Erie is
- Calcium
  - Potassium
  - Phosphorus
  - Sulfur
25. Soil map units often contain minor soil components in addition to the dominant soil series. Sloan silty clay loam in the report does not contain this minor soil component
- Brookston
  - Eel
  - Ross
  - Algiers