

## 2024 Soils Area 1 Envirothon Test

1. What is the A horizon known as?

- A. Topsoil
- B. Subsoil
- C. Parent material
- D. Bedrock

2. What is the E horizon known as?

- A. Topsoil
- B. Transition layer
- C. Subsoil
- D. Bedrock

3. Soil is made up of three major components. Which soil particle is the smallest in diameter?

- A. Sand
- B. Silt
- C. Clay

4. PH can directly affect the amount of nutrients available to plants. What is acidic on the pH scale?

- A. 0-14
- B. 0-6
- C. 7
- D. 8-14

5. What type of soil feels smooth when you rub it between your fingers?

- A. Clay
- B. Sand
- C. Silt
- D. Loam

6. Within the soil pit area, what is the soil type?

- A. Silt loam
- B. Clay loam
- C. Loam
- D. Sandy loam

7. Within the soil pit area, what is the drainage class?

- A. Well drained
- B. Moderately well drained
- C. Somewhat poorly drained
- D. Poorly drained

8. Within the soil pit area, what is the flood frequency?

- A. Very frequent
- B. Occasional
- C. Rare
- D. None

9. Knowing there is a body of water that runs inside the tree line near the soil pit area, what soil conservation practice could be implemented to prevent water quality issues?

- A. Grassed Waterway
- B. Wildlife Habitat Planting
- C. Filter Strip
- D. Channel Bed Stabilization

10. At about what depth do you begin to see evidence of a soil restrictive layer in the soil pit?

- A. 0-15 inches
- B. 16-25 inches
- C. 26-35 inches
- D. 36-42 inches

11. What is the approximate slope of the area that the soil pit is located?

- A. 0-2%
- B. 2-6%
- C. 6-12%
- D. over 12%

12. Which of the following is an advantage of clay soil?

- A. Well drained
- B. Easy to work
- C. Holds the most nutrients
- D. Little pore space

13. Which soil texture has the highest water holding capacity?

- A. Sand
- B. Silt
- C. Clay

14. This type of soil will form a large/sticky ribbon?

- A. Sand
- B. Silt
- C. Clay
- D. Loam

15. (Reflecting on the soils pyramid) If your soil sample contains 10% clay and 90 % sand what is it considered?

- A. Sandy clay loam
- B. Loamy Sand
- C. Sand
- D. Loam

16. Of the 92 naturally occurring chemical elements in soil, \_\_\_\_\_ have been shown to be essential elements, meaning that plants cannot grow and complete their life cycles without them.

- A. 17
- B. 30
- C. 55
- D. 92

17. What is a soil ped?

- A. An individual natural soil aggregate
- B. A group of rock fragments in the soil
- C. There is no such thing as a soil ped
- D. A group of natural soil aggregates

18. Soil Survey information is provided in a variety of formats. Which of the following formats would contain the most current and up to date information?

- A. Soil CD's and DVD's
- B. Web Soil Survey
- C. Soil survey booklet
- D. General soil surveys

19. Soil surveys are made to provide information about the soils and miscellaneous areas in a specific area. Who manages the web soil survey?

- A. Environmental protection agency
- B. USDA/Aphis
- C. Ohio Department of Agriculture
- D. USDA/ NRCS

20. The Urban Land Patton Complex (UpA) is often used to map soil in urban or suburban settings that have significant disturbance from development. Judging from the UpA profile, what indicator would you use to determine that this soil has been disturbed?

- A. The subsoil (B horizon) is below 15 in.
- B. There is a mixed B/C horizon
- C. There is 7 in. of fill material over the original top soil
- D. There is till material below 36 in.

21. Topsoil is significantly important to plant growth because it contains the majority of available nutrients and water that plants need. In Ohio's temperate climate, on average, how long does it take to form 1 inch of topsoil?

- A. 1000 years
- B. 24 months
- C. 500 years
- D. 10,000 days

22. One of the common parent materials found in Ohio is Loess. Which definition best describes Loess?

- A. Material that has moved from upslope
- B. Windblown silt material
- C. Material that weathered in place
- D. Water deposited material

23. The structure of soil determines how fast water and air will move through the soil system. What is the definition of soil structure?

- A. The relative amounts of sand, silt and clay
- B. The amount of water available to plants in the soil
- C. The point at which soil goes from a solid to a liquid
- D. The arrangement of soil particles into units called aggregates

24. Much of Ohio has been used for row crop agriculture for over 100 years. Due to early farming practices that turned the soil over each season, our soils have experienced a large loss of \_\_\_\_\_?

A. Organic matter

B. Sand

C. Earthworms

D. Heat

25. A restrictive soil feature is any soil layer that limits water and roots altogether, or into vertical seams and planes of weakness. Which of the following would **NOT** be considered a restrictive soil feature because it is not soil?

A. Gray layer

B. Bedrock

C. Frozen layers

D. Dense glacial till

26. What is the most important reason to keep the soil covered with some sort of vegetation during the winter months?

A. To gain a cash crop during the offseason

B. To prevent soil erosion and nutrient loss

C. To prevent pests from eating living organisms

D. To prevent snow and ice from being on exposed soil

27. In regions such as the western U.S., it is often desirable to reduce the soil PH of highly alkaline soils. What is something that can be used to lower the soil PH?

A. Animal Manure

B. Lime

C. Composting material

D. Organic and Inorganic materials

28. What is the most obvious farming practice that is being represented in this field where we are located?

- A. No-till
- B. Filter Strip
- C. Stripcropping
- D. Deep Tillage

29. 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

30. By farming using soil health principles and techniques that include no-till, cover cropping and diverse rotations, more and more farmers are increasing this and improving microbial activity in their soils:

- A. Micronutrient Content
- B. Water Content
- C. Air Content
- D. Organic matter Content

31. CEC or Cation exchange Capacity of alkaline soils are commonly higher than those of acid soils with comparable soil textures. What is one reason this is true?

- A. Irrigation not only alters the water balance by bringing in more water, it also brings more salts
- B. Boron deficiency is common at high PH levels in both sandy soils and clayey soils
- C. Soils of low rainfall areas commonly accumulate calcium carbonate
- D. Clays that are most common in alkaline soils have the highest amounts of permanent charge

32. Why is biomass still an important energy resource today?

- A. There is a lot of it and it is easy to access
- B. Many people don't have access to other energy resources
- C. It is easy to replant and grow new biomass resources
- D. It keeps lumberjacks employed

33. Assuming an average solar panel efficiency of 20%, and that the solar panels receive an average of 5 peak sunlight hours per day, 1 acre of solar farm could potentially produce about how many kilo-watts of energy per hour?

- A. 250-300 kilowatt-hours
- B. 500-600 kilowatts-hour
- C. 100-150 kilowatts-hour
- D. 1000-1300 kilowatts-hour

34. Which of the following is NOT a resulting effect of solar installation on forage production?

- A. More shade
- B. Increased soil moisture
- C. Late flower blooms
- D. Increased seed spreading

35. What is the lifespan of a wind farm?

- A. 5 years
- B. 20 years
- C. 75 years
- D. 100 years

36. What is the lifespan of a solar panel?

- A. 25-30 years
- B. 8-15 years
- C. 30-50 years
- D. 60-100 years

37. What is the lifespan of coal-gas plants/fossil fuel plants?

- A. 60-70 years
- B. 10-25 years
- C. 30-50 years
- D. 17-34 years

38. What is the average wind speed necessary for wind energy production?

- A. 15 MPH
- B. 2 MPH
- C. 9 MPH
- D. 30 MPH

39. What is the difference between electrical production between tracking and stationary solar panels?

- A. Tracking systems offer greater levels of energy output compared to fixed arrays
- B. Fixed arrays offer greater levels of energy output compared to tracking systems
- C. They create the same energy output
- D. Tracking systems don't exist and Stationary solar panels do

40. What is the average cost per kW Hr for Solar

- A. \$0.07-\$0.09
- B. \$17.00-\$20.00
- C. \$5.00-\$7.00
- D. \$0.80-\$1.00