



2022 STATE ENVIROTHON

Soils Test

INSTRUCTIONS: Write your answers on the Respondent Sheet.

MULTIPLE CHOICE: Select the best possible answer from those provided

1. Grey colors in soil are generally associated with _____.
 - a. Bedrock
 - b. Anaerobic conditions
 - c. Excess iron in the soil
 - d. Topsoil

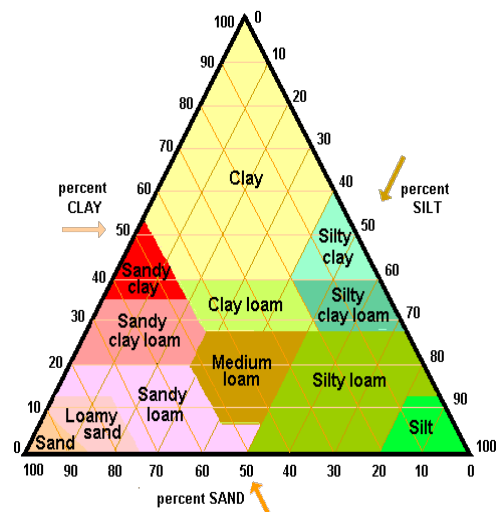
2. Soil health in Iowa has been negatively impacted by _____.
 - a. Erosion of topsoil
 - b. Extensive drainage
 - c. Repeated tillage and lack of soil covers in the winter
 - d. All of the above

3. Which of the following essential plant nutrients is most easily leached from the soil?
 - a. Phosphorus
 - b. Nitrogen
 - c. Potassium
 - d. Calcium

4. Which type of soil parent material is deposited by the wind?
 - a. Colluvium
 - b. Alluvial
 - c. Loess
 - d. Silt

5. The RUSLE equation _____.
 - a. Includes a gully erosion or streambank erosion factor
 - b. Includes only the three main factors that influence soil loss
 - c. Is used to estimate the average annual soil loss of a selected area
 - d. Incorporates a climate change factor for large rain events

6. Soil _____ describes the relative proportions of soil size particles.
- Texture
 - Structure
 - Horizon
 - Aggregate stability
7. The soil A horizon is where _____.
- An accumulation of organic matter is found
 - A layer of leaching is found
 - Parent material or partially broken-down inorganic matter is found
 - There is an impenetrable layer of rock
8. The Soil Food Web describes at least five trophic levels of organisms that get their nutrition from the soil; found in the second trophic level are _____.
- Arthropods
 - Birds and mammals
 - Photosynthesizers
 - Decomposers and root feeders
9. Which of the following is NOT one of the four main management practices that will improve soil health?
- Diversify the soil biota by increasing plant diversity
 - Reduce the amount of soil disturbance
 - Keep the soil covered as much of the year as possible
 - Maintain living roots in the soil throughout the year
 - Make sure cover crops are killed mechanically or chemically prior to crop emergence
10. If a soil is composed of 30% sand and 30% clay, using the soil texture triangle below what is its soil type?



- Silty Clay
- Clay Loam
- Sandy Loam
- Sandy Clay

11. Granular soil structure _____.
- Is a condition where nearly all structure is lost, leaving very little pore space
 - Is usually associated with rich organic matter and good aggregation
 - Is common in sandy and sandy loam soils
 - Has distinct layers that can be separated along a horizontal plane
12. Which of the following is NOT associated with the activity of earthworms in the soil?
- Bury and shred plant residue
 - Decrease microbial activity through feeding
 - Mix and aggregate the soil
 - Improve water infiltration and hold capacity
13. Healthy soil assessment indicators DO NOT INCLUDE which one of the following?
- Presence of biospores
 - Earthworm middens
 - Aggregates that are water stable
 - Decreased water infiltration rates
14. Mycorrhizal fungi _____.
- Are not killed by agricultural fungicides
 - Form a symbiotic relationship with plant roots
 - Feed on nematodes and bacterium found in the soil
 - Recover rapidly following a disturbance (tillage)
15. Which of these is NOT a factor in soil formation?
- Climate
 - Alluvial deposits
 - Parent material
 - Time
 - Living organisms
 - Position on the landscape

**QUESTIONS 16 - 25:
ANSWER THESE QUESTIONS AT THE SOIL PIT**

16. The 2D landscape position for the pit is _____.
- Summit
 - Shoulder
 - Backslope
 - Footslope
 - Toeslope

17. The Slope Range (Clinometer is available) for the soils in the pit is _____.
- 0-5%
 - 5-9%
 - 9-14%
 - 14-18%
 - 18+%
18. The parent material for the soil in the pit is _____.
- Loess
 - Glacial Till
 - Colluvium / Alluvium
 - Paleosol
 - None of the above
19. The hue for the top soil in the pit is _____.
- 7.5YR
 - N
 - 10YR
 - 2.5Y
 - None of the above
20. The soil pit has a drainage class of _____.
- Poorly drained (chroma 2 or less)
 - Somewhat poorly drained (chroma of 3)
 - Moderately well (chroma of 4)
 - Well drained (chroma of 4 or more)
 - None of the above
21. The depth of the A horizon is _____ inches.
- 0-5
 - 5-10
 - 10-15
 - 15-20
 - Over 20
22. The soils in the soil pit area are healthy.
- True
 - False
23. The structure of the soils in the C horizon is _____.
- Platy
 - Blocky
 - Rocky
 - Massive
 - Other / Unknown because we are not able to see the C horizon in this soil pit

24. What is the texture of the soil at 10 inches?
- a. Loam
 - b. Clay Loam
 - c. Silty Clay Loam
 - d. Silt Loam
 - e. Other
25. What MLRA (Major Land Resource Area) is Jester Park in?
- a. Prairie Pothole Region (The Des Moines Lobe)
 - b. Southern Iowa Drift Plain
 - c. Iowa Surface (Driftless area)
 - d. Missouri Alluvial Plain
 - e. None of the above

FOR CDI OFFICE USE ONLY	
TEST REVISION DATE	04/06/2022
CONTENT EXPERT	Julie McMichael - Compliance Soil Scientist at USDA-NRCS and CDI Personnel