



2022 REGIONAL ENVIROTHON

Soils Test (25 total points)

INSTRUCTIONS: Write your answers on the Respondent Sheet.

MATCHING: Match the term to the description that best fits.

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|-------------------|------------------------|-----------------|
| A. Erosion | H. Sand | O. Limestone |
| B. A horizon | I. Glacial till | P. Infiltration |
| C. Organic Matter | J. Bacteria | Q. pH |
| D. Loess | K. Aggregate stability | R. Clay |
| E. Earthworms | L. C horizon | S. Compaction |
| F. Permeability | M. Silt | T. Manure |
| G. B horizon | N. Bedrock | |

- _____ This mineral particle has the most surface area and therefore interacts most with water and nutrients
- _____ This particle holds the least amount of water
- _____ The ability of a particular soil to absorb water
- _____ Process where soil particles are moved by wind or water
- _____ The highest biological activity would be expected in this layer
- _____ This layer lacks development and appears similar to the material as it was deposited (parent material)
- _____ Wind-blown material that covers much of Iowa
- _____ Organism associated with high levels of soil quality
- _____ This accumulated in Iowa's soils due to the wet prairie history
- _____ This soil component controls nutrient availability to plants

MULTIPLE CHOICE: Select the best possible answer from those provided.

- Which soil order makes up the majority of Iowa's land area?
 - Mollisols
 - Alfisols
 - Entisols
 - Inceptisols
 - Histosols

12. Soil texture refers to what?
- The mix of sand, silt, and clay
 - How the soil sticks together or aggregates
 - The appearance of the surface
 - How the soil holds together when put in water
13. In estimating erosion with the USLE or RUSLE, which of the following is NOT considered?
- Soil texture or susceptibility to erosion
 - Slope steepness and length
 - Previous year's erosion
 - Cropping practices
14. Compaction _____.
- Generally causes increased root growth
 - Is needed for nutrient transport
 - Is naturally forming in Iowa
 - Can cause more runoff and erosion
15. Which soil organism colonizes plant roots?
- Decomposer
 - Mycorrhizal fungi
 - Nematodes
 - Arthropods
16. The three main texture classifications of soil are _____.
- Loam, sandy loam, and silty loam
 - Clay, sand, and silt
 - Bedrock, sand, and clay
 - Rock, silt, and humus
17. Which of the following is NOT one of the five main soil forming factors?
- Climate
 - Living organisms
 - Time
 - Animal activity and waste
 - Parent material
18. Thin, wearing away of the uppermost surface of the soil profile is called _____.
- Rill erosion
 - Mass wasting
 - Sheet erosion
 - Soil creep

19. Which practice most effectively holds soil on a slope during a rain event?
- Live, rooted plant cover
 - Undisturbed residue from previous crop
 - Contour tillage
 - Vertical tillage parallel to the slope
20. A 3% slope _____.
- Is not steep enough to cause worry about soil erosion
 - Means that there is a 3 foot drop in elevation over a horizontal distance of 100 feet
 - Does not occur often in Iowa
 - Means that there is a 3 foot rise in elevation over a horizontal distance of 10 feet
21. Which of the following activities is most likely to decrease soils health?
- Contour farming
 - Leave soil bare over winter
 - Strip-cropping
 - Adding organic matter to the soil
22. The four principle components of soil are _____.
- Colloids, water, oxygen, and compost
 - Air, water, minerals, and organic matter
 - Sand, rocks, organic matter, and air
 - Water, rocks, oxygen, and compost
23. What area is adjacent to surface waters such as stream banks and shorelines?
- Upland
 - Wetland
 - Riparian
 - Buffer
24. The soil food web contains proportions of bacteria, fungi, and other organisms. Which of the following statements is true?
- Soil food web proportions are identical under different types of vegetation.
 - Forests and pastures have unique soil web proportions.
 - Management practices do not change the soil food web proportion if using conservation management practices.
 - None of the statements are true.

25. Growing cover crops is one practice that improves soil health. Cover crops can address which of the following concerns farmers may have in regards to their fields?
- a. Erosion control
 - b. Build organic matter levels
 - c. Break-up a compaction layer
 - d. Recycle nutrients
 - e. All of the above

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CONTENT EXPERT	Amber Anderson, MS - ISU Assistant Teaching Professor