

## 2010 Iowa FFA Soils Judging Test

1. Soils that are dark colored when moist owe their color mainly to the content of:
    - a. silt
    - b. clay
    - c. organic matter
    - d. water and mineral matter
    - e. all of the above
  
  2. The topsoil may be called the:
    - a. A horizon
    - b. O horizon
    - c. E horizon
    - d. all of the above
    - e. none of the above
  
  3. Silt and clay sized soil particles are the result of the breaking down of larger particles.  
This process is called:
    - a. bacterial decomposition
    - b. stratification
    - c. weathering
    - d. soil decomposition
    - e. accelerated erosion
  
  4. Before Iowa was settled by European immigrants soil erosion and soil formation:
    - a. were clearly out of balance
    - b. were controlled by Native Americans
    - c. were in equilibrium
    - d. both b and c are correct
    - e. both a and b
  
  5. All but one of the following can be attributed to organic matter in the soil:
    - a. increased absorption and retention of moisture
    - b. provides nutrients for plant growth upon decomposition
    - c. increases the erosion of soils
    - d. enhances structural development and stability of soil aggregates
    - e. none of the above
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6. Shrink-swell of the soil relates to:
  - a. the external drainage of the soil
  - b. the expansion of soil when it freezes
  - c. the percent of volume change during wetting and drying
  - d. needs to be considered with a septic tank absorption field
  - e. both c and d are correct
  
7. Topsoil is often removed from its place of origin and used to cover an area of either disturbed or undisturbed soil so that vegetation can be established. Topsoil is preferred for the purpose rather than subsoil because:
  - a. of its particle size
  - b. it is easier to obtain
  - c. of its organic matter content
  - d. all of the above
  - e. none of the above
  
8. A soil is considered suitable for a septic tank absorption field if:
  - a. the depth of soil to bedrock is six feet or greater, not subject to flooding and the water table is five feet or greater from the surface.
  - b. the depth of soil to bedrock is six feet or less, not subject to flooding and the water table is at least 30 inches below the surface.
  - c. the soil texture is medium, 14 inches of topsoil and does not have a water table in the top 12 inches of the profile.
  - d. all the above are correct.
  - e. none of the above are correct
  
9. One of the following is not a true statement about terraces constructed for soil and water conservation purposes:
  - a. terraces must be constructed on an exact contour
  - b. terraces reduce erosion by shortening the effective slope length and preventing large streams of water to flow
  - c. terrace may either intercept runoff water and dispose of it safely or hold it until it infiltrates
  - d. terrace may be constructed on slopes of two percent gradient and steeper

10. Erosion of the stream bed to a level too low to flood the surrounding area any longer produces a:
- terrace
  - drainage way
  - bottomland
  - footslope
  - upland
11. Which of the following statement (s) is (are) true about horizons in the soil profile?
- horizons are roughly parallel to the surface of the soil
  - soil profile formation has been influenced by weathering
  - characteristics of each horizon is a result of the nature of parent material and the physical, chemical and biological processes that have acted upon it.
  - All of the above
12. Muck or peat soils are those which were developed:
- in a cool climate
  - under excessively wet conditions
  - under poor drainage conditions
  - all of the above
  - none of the above
13. The loose disintegrated rock material from which the mineral part of the soil originates is called:
- sand
  - silt
  - clay
  - parent material
  - all of the above
14. A material that may have originated from glacial action but was transported by melt water and deposited on a broad flood plain, and finally picked up by the wind and placed in a layer of the landscape is called:
- glacial drift
  - loess
  - colluvium
  - alluvium
  - there is not a correct name for this mixture

15. One of the following is not a true statement regarding calcareous soils:
- a. calcareous soils can be identified in two ways: by color and the acid test
  - b. some calcareous soils are the result of wet spots where water evaporated, leaving behind calcium carbonate
  - c. calcareous soils are acid, a condition which can be corrected by adding lime
  - d. snail shells contribute to the calcareous nature of many wet soils because snails like the wet environment
16. Land capability subclasses are used to denote the type of hazard or limitation restricting use of soils grouped in:
- a. all eight classes
  - b. only classes I through IV
  - c. classes II through VIII
  - d. classes VI through VIII
  - e. none of the above are correct
17. The depth of soil is defined as:
- a. the thickness of the top soil
  - b. the thickness of soil above a layer that stops plant root development
  - c. the top 3 feet of the soil
  - d. the depth down to the C horizon
  - e. all of the above are true
18. What is land called that occurs down slope from some adjacent land and receives sediment from those adjacent lands?
- a. alluvium
  - b. colluvium
  - c. glacial drift
  - d. overwash
  - e. loess

19. One of the following is not a true statement about the influence native vegetation has on soil:
- it is possible to identify the native vegetation of a soil even though the soil has been under cultivation for a long period of time
  - after forest soil has been cleared and put under cultivation, it is virtually impossible to distinguish it from soils developed under grass or marsh conditions
  - a forested soil is usually more acid and has had more clay movement from the A horizon to the B horizon than a soil formed under grass
  - the effect of vegetation is strong enough to influence the chemical, physical and biological characteristics of the soil
20. A level line around a hill or slope laid out and marked by a surveyor to establish a line for the farmer to follow when planting on the contour, is called:
- surveyor's mark
  - contour setting
  - key contour line
  - all the above are correct
21. Texture of soil has a strong influence on soil productivity and management requirements. A soil may be fertile but is hard to work because it is sticky and plastic when wet and hard when dry, and may have low permeability to air and water and high resistance to root penetration. This soil likely has a \_\_\_\_\_ texture.
- loam
  - sand
  - silt
  - clay
22. The Land Capability Classification system identifies land as to use for which it is best suited as well as identifying limitations and hazards in its use for agricultural purposes. In which class does land fall that has a slope of 5 percent and can be adapted for cropland if erosion control measures are taken such as strip cropping and terracing?
- Class I
  - Class II
  - Class III
  - Class IV

23. A tract of land was judged as having a 7 percent slope with tall grass and a few trees present. The land is currently being used for pasturing cattle. What surface drainage class would this land most likely be:
- rapid
  - medium
  - slow
  - It does not matter since it is not crop land
24. A grassed waterway would most likely be used to protect a (an):
- bottomland from flooding
  - intermittent drainageway from erosion
  - footslope from runoff water
  - terrace from erosion
  - all of the above
25. An average loam is made up of:
- 40 percent sand, 40 percent clay and 20 percent silt
  - 40 percent sand, 40 percent silt and 20 percent clay
  - 40 percent silt, 40 percent clay and 20 percent sand
  - none of the above
  - all of the above
26. Inadequate surface drainage of soil may be detrimental to plant growth because:
- it may leach out all of the soil nutrients
  - it may increase growth of harmful bacteria
  - it may inhibit root growth due to poor aeration
  - all of the above
  - none of the above
27. Which class of surface drainage fits the following condition? Water has an avenue of escape but, because of nearly level, but rough surface vegetation, water stands on the surface for several hours following a rain.
- rapid
  - medium
  - slow
  - ponded

28. Identify which one of the following is not a true statement with reference to an upland soil.
- upland soils may be subject to flooding
  - upland soils are normally the oldest and most strongly developed soils in the general area
  - some upland soils are flat enough to need artificial drainage
  - some upland soils are low in fertility
  - all of the above
29. The B horizon can be distinguished from the A horizon because of all of the following reasons except one:
- it tends to accumulate organic matter but loses other materials by leaching
  - it tends to accumulate clay, and in some soils, humus and iron
  - it typically has a lighter color
  - it tends to have a denser structure
30. The internal drainage of a soil is determined by all but one of the following factors:
- permeability of the various soil horizons
  - the material beneath the soil
  - the presence or absence of a water table
  - the lay of the land
31. In comparison to the overlying horizon, if present, an E horizon is usually:
- lighter in color
  - lower in organic matter
  - lower in clay content
  - all of the above
32. In preparing to determine soil texture with the "ribbon test", a general rule of thumb is that if individual sand grains can be seen, the sample usually consists of a minimum of \_\_\_\_\_ percent sand.
- 3
  - 6
  - 9
  - 12
  - none of the above

33. Most conservation practices save soil in one of two basic ways by:
- decreasing the protective cover and shortening the slope
  - decreasing the protective cover and lengthening the slope
  - providing more protective cover and shortening the slope
  - providing more protective cover and lengthening the slope
34. Soil horizons can be distinguished because they differ from one another in such properties as:
- hardness
  - structure
  - color
  - all of the above
  - none of the above
35. A conventional septic tank absorption field has laterals placed at a depth of \_\_\_\_\_ inches below the ground surface.
- 12-23
  - 24-30
  - 31-36
  - 37-42
  - None of the above
36. A favorable subsoil
- is always high in nutrients, organic matter, air and water
  - may become saturated for a an extended period of time but is good for plant growth if it has a high nutrient level
  - must retain enough water for plant growth but will not permit excess water to drain out so air and roots can enter and roots can grow and develop
  - all of the above
  - none of the above
37. Class III land is fairly good land and
- may be between 5-14 percent slope
  - may have clayey textures that make it difficult to work
  - may be clayey and on a 0-1 percent slope
  - may be shallow and sandy and therefore may be droughty
  - all of the above



38. The upper part of the soil usually contains the
- most plant roots
  - lightest color
  - accumulation of organic matter
  - a and c are correct
  - all of the above
39. If two limitations restrict the same soil, the subclass coming first in the official list is assigned to that soil. What is the order of the official subclass list?
- w, s, c e
  - s, c, e, w
  - e, w, s, c
  - c, w, s, e
40. While judging a soil, you discovered the following facts: 3 percent slope, medium textured A horizon, moderately fine B horizon, 6 inches of A horizon, 18 inches deep and is well drained. What land class would this soil be classified?
- Class II
  - Class III
  - Class IV
  - Class VI

## 2010 Iowa FFA Soils Judging Test

1. C
2. D
3. C
4. C
5. C
6. C
7. D
8. A
9. A
10. A
11. D
12. D
13. D
14. B
15. C
16. C
17. B
18. D
19. B

### 20. C (Question Dropped)

21. D
22. C
23. B
24. B
25. B
26. C
27. C
28. A
29. A
30. D
31. D
32. E
33. C
34. D
35. B
36. E
37. E
38. D
39. C
40. B