

1997

## Iowa FFA Soil Career Development Event

(Mark the best answer on the score card)

1. The part of the soil that usually contains the most plant roots, accumulates the most organic matter, and has the darkest color is the:
  - a. A horizon
  - b. B horizon
  - c. C horizon
  - d. E horizon
  
2. The greatest amount of physical and chemical weathering of the soil occurs in which horizon?
  - a. A
  - b. B
  - c. C
  - d. R
  
3. Which of the following is NOT true about a footslope landscape position?
  - a. It is an area of accumulation of soil material that moves down from a steeper area above.
  - b. Its soils are usually deep and fertile.
  - c. It is a relatively moist site because they receive seepage.
  - d. It is an area of steep slope above a relatively flat area below.
  
4. Which of the following is true?
  - a. Soil depths in Iowa are commonly between 3 and 5 feet.
  - b. A soil profile extends downward from the soil surface through the plant zone.
  - c. The depth of a soil profile may be as shallow as a fraction of an inch where bedrock is near the surface.
  - d. All of the above.
  
5. Which one of the following correctly explains the character of each horizon of the soil?
  - a. The character of each horizon is a result of the nature of its parent material and the physical, chemical, and biological processes that have acted upon it.
  - b. Horizons are directly the result of soil layers having been developed in the soil profile.
  - c. The gradient of the slope determines the character of each soil horizon.
  - d. The climate in which the soil developed determines the number of horizons in the soil profile.

6. The effect of percolating water removing clay and some organic matter from the A horizon of the soil is most evident in the:
- O horizon
  - B horizon
  - C horizon
  - E horizon
7. One of the following is not a true statement concerning dark colored soils.
- Dark colored soils usually are fertile.
  - Dark colored soils are the result of accumulations of organic matter which may be the result of a cool climate or excessive wetness.
  - Dark color comes from the oxidized iron compounds
  - Dark color indicates that abundant vegetative growth is supplying plant remains that become organic matter
8. Soils that have partially decomposed organic materials in the O and/or A horizon due to wet conditions may be classified as:
- Transition.
  - Peat
  - Residuum.
  - Glacial drift.
9. 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.
- 5
  - 10
  - 15
  - None of the above
10. The texture of the B horizon influences other properties such as:
- permeability to air and water.
  - resistance to root penetration.
  - strength for supporting construction and buildings.
  - all of the above.
11. When conducting a "ribbon test", a sample that kneads into short ribbons, usually less than 1 inch long and readily breaks apart would be considered to have a soil texture of:
- Fine.
  - Moderately Fine.
  - Medium.
  - Moderately Coarse.

12. Which of the following is true about mottles?
- Mottles contain various compounds of iron.
  - Mottle colors can range from rust, dusky red, to gray or grayish green.
  - Mottles are always an indication of present air-water relationships in the subsoil.
  - Both a and b are true.
13. Prairie soils developed under grass vegetation:
- may have E horizons if they have poor internal drainage resulting from flat topography and clayey subsoils.
  - usually have shallow, dark A1 horizons.
  - usually have B horizons with more clay accumulation than those of forest soils.
  - none of the above are true.
14. Evaluation of the internal drainage class is best accomplished by:
- the "ribbon test"
  - measuring the organic matter content.
  - identifying the dominant colors at the base of the A horizon.
  - mechanical analysis.
15. Inadequate drainage produces waterlogged soil that may:
- allow a building to settle.
  - become muddy when exposed to mechanical disturbance.
  - prevent growth of plant roots because of poor aeration.
  - all of the above.
16. With reference to erosion classes, land that still has the same use potential and management needs as it had when the settlers first began cultivating the land (which correlates with 7 to 12 inches of A horizon material at 2 to 5 percent slope) is called:
- uneroded or slightly eroded.
  - moderately eroded.
  - severely eroded.
  - overwash.
17. For a serious limitation to occur due to stoniness or rockiness, the surface layer of the soil should contain \_\_\_\_\_ percent or more rock or rock fragments by volume.
- 2
  - 5
  - 10
  - 15

24. Why is the internal drainage of a soil important when selecting a site for a house?
- Poor internal drainage increases the likelihood of a dry basement.
  - Internal drainage influences the weight the soil can support.
  - Because of its relationship to the depth of bedrock.
  - Horizons are always too thin.
25. Field borders must be a minimum of at least \_\_\_\_\_ feet wide.
- 32
  - 24
  - 20
  - 16
26. For contour stripcropping, if your crop residue cover was 40% and your slope was 10%, what should be your maximum row crop width?
- 100 feet
  - 80 feet
  - 50 feet
  - Contour stripcropping would not be recommended.
27. The high residue producing crops are considered more conserving because they provide better protection to the land than the low residue producing crops. Which one of the following is considered to be a high residue producing crop?
- Soybeans
  - Corn (silage)
  - Corn (grain)
  - Vegetable crops
28. Broadbase terraces are flatter looking terraces. They should not be built on land slopes greater than:
- 2%
  - 4%
  - 6%
  - 8%
29. Which of the following are recommended procedures to aid in keeping terraces working?
- Don't operate farm equipment on steep frontslopes and/or backslopes.
  - Remove sediment build-up and trash from around the intakes.
  - Control rodents.
  - All of the above.

18. How many land capability classifications are there that are suitable for cropland?
- one
  - four
  - five
  - eight
19. Land capability subclasses are used to identify limitations restricting the use of the land. If soils have two or three types of limitations, which subclass is used?
- The most severe limitation.
  - Selection is based on the alphabetical listing.
  - The limitation related to unfavorable physical or chemical characteristics always ranks more severe.
  - Soils never have to be restricted to only one subclass.
20. Productivity indexes reflect the physical and chemical properties of the soil in terms of commonly grown crops. In Iowa, the index is called:
- CBS
  - NRCS
  - SCS
  - CSR
21. According to the productivity index, a soil that could be row-cropped 3 out of 5 years and has a 4 to 9 percent slope, would be classified as:
- High
  - Medium
  - Low
  - Unsuited
22. Estimate the percentage of crop residue in a corn field, using the CAM-line method, when the results of three observations were 24, 37, and 41. The row spacing was 30 inches.
- 37%
  - 34%
  - 30%
  - 34%
23. The criteria for a conventional septic tank absorption field requires that the total lineal footage of laterals be calculated based on the:
- soil percolation rate and the number of bedrooms in the home
  - depth to bedrock
  - percent of volume change during wetting and drying
  - rate of periodic flooding

30. Which of the following is NOT an advantage of pasture planting?
- a. Builds topsoil by adding organic matter.
  - b. Eliminates all need for fertilizer and pesticides.
  - c. Improves soil tilth.
  - d. Disrupts disease, insect, and weed cycles of continuous rowcrops.
31. Which of the following is NOT a “cool season grass” for pasture planting?
- a. Orchard grass
  - b. Tall fescue
  - c. Switchgrass
  - d. Timothy
32. Actual installation costs for various conservation practices will vary according to:
- a. land slopes.
  - b. soil types.
  - c. type of seed or trees used.
  - d. all of the above.
33. According to the estimates for installation costs found in the “Conservation Catalog”, which conservation practice would cost more per acre?
- a. Grass waterways
  - b. Contour stripcropping
  - c. Cover crops
  - d. Filter strips
34. Water and sediment control basins are used for all of the following except:
- a. any areas suited to terrace systems.
  - b. trap sediment.
  - c. reduce gully erosion
  - d. reform the land surface.
35. Planting windbreaks as a soil conservation practice will also:
- a. conserve energy.
  - b. give shelter to livestock.
  - c. control snowdrifts.
  - d. all of the above.
36. The “Iowa Job Sheets” on soil conservation are provided by:
- a. ISU Extension Service.
  - b. Iowa Job Corps.
  - c. a division of the USDA.
  - d. the Iowa FFA Foundation.

**1997**  
**Iowa FFA Soil Test**  
**KEY**

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|-------|-------|
| 1. a  | 21. b |
| 2. a  | 22. b |
| 3. d  | 23. a |
| 4. d  | 24. b |
| 5. a  | 25. d |
| 6. d  | 26. b |
| 7. c  | 27. c |
| 8. b  | 28. d |
| 9. c  | 29. d |
| 10. d | 30. b |
| 11. c | 31. c |
| 12. d | 32. d |
| 13. a | 33. a |
| 14. c | 34. a |
| 15. d | 35. d |
| 16. a | 36. c |
| 17. d | 37. b |
| 18. b | 38. c |
| 19. a | 39. a |
| 20. d | 40. b |