

1998

## Iowa FFA Soil Career Development Event

(Mark the best answer on the score card)

1. Which of the following is true?
  - a. All soils have the same properties and are equally suited for all uses.
  - b. Some soils have properties that make them well suited for some uses, but poorly suited for other uses.
  - c. Most soils are suitable for several purposes and are therefore low in demand.
  - d. Most soils are suitable for only one use and are therefore high in demand.
  
2. External soil characteristics that can be identified by observing the landscape are referred to collectively as:
  - a. surface features
  - b. internal features
  - c. profile traits
  - d. textural differences
  
3. Which of the following characteristics is judged as a surface feature?
  - a. runoff
  - b. erosion
  - c. slope
  - d. land use
  
4. One slope group with 0 - 2 percent slope is called "nearly level". Another with a slope of 5 - 9 percent is called "moderately sloping". If the measured slope is exactly 3.5 percent, it would be classified as:
  - a. nearly level
  - b. moderately sloping
  - c. strongly sloping
  - d. none of the above
  
5. Which one of the following is NOT a true statement regarding horizons?
  - a. An O horizon would normally be located below an B horizon.
  - b. A single soil profile will not have all of the horizons and subhorizons that are possible.
  - c. Most Iowa soils have an A, B, and C horizon.
  - d. The thickness of a soil horizon ranges from a fraction of an inch to perhaps 2 to 3 feet.

6. The greatest amount of physical and chemical weathering of the soil occurs in which horizon?
- A
  - B
  - C
  - R
7. 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
8. Soil texture can be determined by:
- a laboratory procedure called mechanical analysis
  - visual analysis
  - feeling it with your fingers; called the "ribbon test"
  - both "a" and "c"
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 \_\_\_\_\_ percent sand.
- 3
  - 9
  - 12
  - none of the above
10. The depth of soil is defined as:
- the thickness of the top soil
  - the top 9 to 12 inches of soil
  - the thickness of soil above a layer that stops plant root development
  - the depth down to the C horizon
11. Which of the following is true about colluvium parent material?
- it is moved down a steep slope with gravity as the driving force
  - it is deposited in a sorted nature similar to alluvium
  - water is the transportation agent
  - the movement is always very slow (soil creep)

12. Which of the following is NOT a classification of native vegetation?
- a. transition
  - b. peat
  - c. prairie
  - d. forest
13. Surface drainage can be defined as the escape of water by flowing across the soil surface. The flow is influenced LEAST by which of the following?
- a. slope
  - b. vegetative cover
  - c. soil acidity
  - d. surface roughness
14. Calcareous soil conditions may cause:
- a. decreased availability of phosphorus and iron
  - b. the type or amount of herbicide used to be altered
  - c. a need for extra potassium fertilizer
  - d. all of the above
15. Accelerated erosion:
- a. is the opposite of induced erosion
  - b. is usually caused by people disturbing the vegetative cover of the land
  - c. actually replenishes plant nutrients at a faster rate
  - d. has no relationship to the classification phases and the restriction of the use of the land
16. A system that identifies the limitation and hazards of using land for agricultural purposes is called:
- a. corn suitability rating
  - b. land capability classification
  - c. sustainable agriculture
  - d. shrink-swell rating
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.
- a. 2
  - b. 5
  - c. 10
  - d. 15

18. How many land capability classifications are there that are NOT suitable for cropland?
- one
  - four
  - five
  - eight
19. Estimate the percentage of crop residue in a corn field, using the CAM-line method, when the results of three observations were 44, 39, and 28. The row spacing was 24 inches.
- 37%
  - 34%
  - 30%
  - 24%
20. Which one of the following is a limitation to the effectiveness of a conventional septic tank absorption field?
- bedrock is more than 6 feet from the surface
  - permeable soils deeper than 6 feet
  - area where flooding is possible
  - soils in which the water table is more than 6 feet from the surface
21. 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
22. Which of the following is a recommended conservation practice?
- diversions
  - cross slope farming
  - water and sediment control basins
  - all of the above
23. Conservation tillage is any tillage and planting system that leaves at least \_\_\_\_\_ % of the soil surface covered by the previous year's crop residue.
- 15
  - 25
  - 30
  - 45

24. Generally with contour buffer strips, for each percent of the slope left in grass, you get \_\_\_\_\_ % increase in soil savings.

- a. 1
- b. 2
- c. 3
- d. 4

25. Grassed waterways can be best maintained by:

- a. planting end rows along the side of the waterways
- b. fertilizing them periodically
- c. not mowing the waterways
- d. using the waterways as a road

26. Which of the following is NOT an advantage of pasture planting?

- a. builds topsoil by adding organic matter
- b. eliminates fertilizer and pesticide applications
- c. improves soil tilth
- d. disrupts disease, insect, and weed cycles of continuous row crops

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 low residue producing crop?

- a. corn (silage)
- b. sorghum (grain)
- c. small grain
- d. forages

28. Which one of the following is NOT a true statement as it relates to filter strips?

- a. strips of vegetation 15-25 feet wide
- b. removes sediment, organic matter, and other pollutants from runoff
- c. can be used on cropland next to streams, ponds, and lakes to reduce sediment reaching the waterway
- d. a channel 3-5 feet deep to hold runoff and allow sediment to settle out

29. For conservation compliance, residues are measured:

- a. post harvest
- b. pre harvest
- c. after planting
- d. pre plant

30. When soil is left undisturbed from harvest to planting except for nutrient injecting, this is referred to as:

- a. conventional till
- b. mulch till
- c. no till
- d. ridge till

31. A general rule that helps farmers manage residue includes:

- a. higher plant population and wider rows increases residue at harvest
- b. shallower tillage depth leaves more residue on the surface
- c. faster tillage speeds leave more residue on the surface
- d. all of the above

32. Using this information, predict your percent of ground cover after planting:

| <u>Tillage operation for soybeans</u> |     |
|---------------------------------------|-----|
| % after harvest                       | .89 |
| % over winter decomposition           | .80 |
| Field cultivator                      | .65 |
| Planter                               | .90 |

- a. 24
- b. 31
- c. 34
- d. 42

33. Which of the following is NOT a “warm season grass” for pasture planting?

- a. Big bluestem
- b. Switchgrass
- c. Indiangrass
- d. Reed canarygrass

34. A crop rotation’s effectiveness depends on:

- a. capability of the land; rotations work best with other conservation practices such as conservation tillage, contouring and grassed waterways
- b. the type of crops used in the rotation and how the crops are grown
- c. how the crop residue is managed
- d. all of the above

35. A crop of close-growing grasses, legumes, or small grains grown to control erosion during periods when major crops do not furnish enough protection to the soil is called:

- a. strip crop
- b. cover crop
- c. cool season crop
- d. double crop

36. Practices which will help leave more residue include
- use straight shanks and sweeps on chisel plows rather than twisted shanks
  - fall till soybean ground
  - using moldboard plow tillage system
  - none of the above
37. Which one of the following is NOT considered to be a benefit received from field borders?
- controls sheet, rill and gully erosion at the edges of a field where rows would otherwise run up and down hill
  - improves the landscape
  - provides food and cover for wildlife
  - none of the above
38. Which one of the following is NOT a benefit of terraces?
- terraces reduce sheet and rill erosion and prevent gully development
  - terraces reduce sediment pollution of lakes and streams
  - terracing eliminates the need for other practices such as conservation tillage, crop rotations, and field borders
  - grassed front slopes and back slopes of some terraces provide cover for wildlife
39. A terrace designed as a channel to slow runoff water and carry it to a stable outlet like a grassed waterway is called a:
- broadbase terrace
  - narrow base terrace
  - gradient terrace
  - storage terrace
40. Which one of the following best defines soil judging:
- soil judging consists of evaluating certain properties of a soil and interpreting these evaluations into recommendations for land use
  - soil judging does not relate to building sites for houses
  - soil judging is a method of determining current land value
  - soil judging is a method used to eliminate the need for conservation practices