2014 Iowa FFA Soil Judging CDE Exam

1. Landscape position is one aspect of evaluating the surface features of a certain tract of land. Identifying the correct landscape position will indicate:
   a. If the soil is subject to flooding
   b. If the soil is subject to potential erosion
   c. If the soil is capable of producing corn and soybeans
   d. A and B above
   e. All of the above

2. If a soil had the following horizons present in the profile: A, B, C, R and an E, what would be the correct order of the horizons from the surface to the base of the profile?
   a. A, B, C, E, R
   b. E, A, B, C, R
   c. A, E, C, B, R
   d. A, E, B, C, R
   e. None of the above are correct

3. The nature of soil development is a complex process and involves many processes that turn silt-sized particles in to clay-sized particles. What factors allow for this change to occur?
   a. Wetting and Drying
   b. Freezing and Thawing
   c. Erosion and Leaching
   d. A and B above
   e. All of the Above

4. Redox features, or mottles, contain various compounds of:
   a. Boron
   b. Calcium
   c. Iron
   d. Iodine
   e. Mercury

5. An E horizon is a lighter colored layer in the soils that developed from intensive leaching of the soil. If a farmer had a tract of forest land just recently cleared for crop production, what would be one recommendation you would make to improve the productivity of the soil?
   a. Build a terrace structure since all forest soils are really steep
   b. Add clay containing compounds to the soil
   c. Till the soil to get rid of the E horizon
   d. Add limestone to the soil
   e. All of the above

6. Which of the following is true regarding soil horizons?
   a. A horizon is darker in color and has a more open structure
   b. B horizon is darker in color and has a more open structure
   c. A horizon is higher in clay content and has a more dense structure
   d. B horizon is higher in clay content and has a more open structure
   e. None of the above are true

7. When evaluating a soil profile, you noticed certain features that could be described as spots or concentrations of one or more contrasting colors on a background of another color. What is the best term or phrase to label this condition?
   a. Mineral deposits
   b. Droughty soil complex
   c. Redox features
   d. Calcium Carbonate residue
   e. Leached organic material around plant roots

8. Accelerated erosion is detrimental because:
   a. It removes soil and plant nutrients slower than soil formation replenishes them.
   b. It removes soil and plant nutrients faster than soil formation replenishes them.
   c. Soil formation and soil erosion is occurring at the same rate.
   d. Soil formation is occurring at a rate faster than soil erosion.
   e. None of the above are true

9. In Iowa, most soils are deep enough to productively raise corn and soybeans. What is the minimal depth of soil needed for most plants to grow efficiently?
   a. 50
   b. 40
   c. 30
   d. 20
   e. 10

10. Calcareous soils can occur:
   a. From rapid erosion exposing calcareous parent material
   b. As a result of wetness in potholes or ponded locations
   c. In floodplains where wetness has been a problem
   d. A and B above
   e. All of the above

11. Soils that have a larger percentage of the A and B horizon removed from the area are best classified as:
    a. Overwash
    b. Slightly eroded
    c. Moderately eroded
    d. Severely eroded
    e. Gullied land

12. Which component of soil is expressed more strongly compared to the amount present when determining soil texture?
    a. Sand
    b. Silt
    c. Clay
    d. All are equal in terms of expression

13. What would be the best way to classify a tract of land in Northern Iowa described as deep, somewhat poorly drained, nearly level with medium and moderately fine textured soil?
    a. Class I
    b. Class II
    c. Class IIw
    d. Class IIe
    e. Class IIIw

14. In Iowa, the assignment of Corn Suitability Ratings (CSR) for soil map units specifies which of the following conditions?
    a. Natural weather conditions
    b. Surface or subsurface drainage installed where needed
    c. Landscape position
    d. No land leveling or terracing
    e. All of the above

15. Which one of the following is false concerning strip cropping as a means of reducing soils erosion?
    a. Alternating strips of different crops across the slope
    b. Is most effective on 2-14 percent slopes
    c. Placed in a location that intercepts the prevailing wind
    d. Can be placed next to a river or stream
    e. All of the above are true

16. Soils suited for a source of topsoil generally have which of the following characteristics:
    a. More than 14 inches of a dark A horizon
    b. Somewhat poorly drained or better subsoil
    c. More than 40 inches of medium textured soils
    d. A and C
    e. All of the above

17. Land which is colored red on land capability maps:
    a. Can have crops grown on it 2 out of 5 years as long as more soil conserving crops are grown for 3 years
    b. Will need erosion control measures such as strip cropping and conservation tillage.
    c. Can be used occasionally for cropland under careful management but is better suited for hay or pasture.
    d. Is suited for row crops 100 percent of the time.
    e. None of the above are true.

18. A soil with 6 inches of A horizon with and an accompanying 3 inches of E horizon directly below it would be classified as:
    a. Thick
    b. Moderately Thick
    c. Moderately Thin
    d. Thin
    e. An A/E complex

19. Class V land is good productive land but needs which of the following practices:
    a. Conservation tillage
    b. Contouring
    c. Strip cropping
    d. Terracing
    e. None of the above

20. Which class of surface drainage best fits the following tract of land: Slope of 13 percent, water has ample opportunity to infiltrate due to the grass cover crop, the A and B textures are both medium and the soil is colored red on the soil map?
    a. Rapid
    b. Medium
    c. Slow
    d. Ponded
    e. Cannot tell without knowing the internal drainage class

21. Which characteristic would have the greatest impact on the rate in which water moves through the soil profile?
    a. The color of the B-horizon
    b. The native vegetation
    c. The texture of the B-horizon
    d. The landscape position
    e. All of the above

22. A silty clay would be classified as _____ on the texture triangle.
    a. Coarse
    b. Moderately Coarse
    c. Medium
    d. Moderately Fine
    e. Fine

23. After spending some time studying a soil pit, you noticed the following characteristics: a strongly sloping hill, surface texture of medium, sub-surface texture of moderately fine, a dark surface color and a grayish brown sub-surface color. What would be the appropriate land class for this soil?
    a. Class 1
    b. Class 2
    c. Class 3
    d. Class 4
    e. Class 6

24. According to your soil judging manual, there are 8 different land classes used to classify land. Of these 8 classes, how many classes cannot have row crops grown on them based on the steepness of the hill and subsequent erosion potential?
    a. 1
    b. 2
    c. 3
    d. 4

25. Terracing is the practice of constructing ridges and channels across the slope to intercept runoff water. The type and kind of terrace that is constructed on land depends of which of the following:
    a. Slope of the land
    b. Erosion class of the land
    c. Internal drainage
    d. All of the above
    e. None of the above

26. Which of the following soils would have a shrink swell rating greater than 9 percent?
    a. Sandy Loam
    b. Sand
    c. Loam
    d. Silty Clay Loam
    e. All would be less than 9 percent

27. As a soil judge, you have been analyzing the surface layer of a soil pit. You have concluded that based on the characteristics of the soil profile, the surface layer could be called:
    a. A horizon
    b. O horizon
    c. E horizon
    d. All of the above
    e. None of the above

28. All but one of the following can be attributed to increased levels of organic matter content in the soil:
    a. Increased erosion potential
    b. Increased absorption
    c. Increased retention of moisture
    d. The Munsell Chroma of the A horizon
    e. All of the above are true

29. Rating the productivity potential of a soil will:
    a. Identify the soils ability to produce row crops
    b. Identify soils that need erosion reducing plants rotated with row crops
    c. Identify soils that are unsuited for row crops
    d. All of the above are true
    e. Only A and C above

30. A material that originated from glacial action but was transported by melt water and deposited on a broad flood plain; and finally was picked up by the wind and placed on the side slope of rolling uplands would now be called:
    a. Glacial
    b. Loess
    c. Colluvium
    d. Alluvium
    e. There is no correct name for this mixture

31. Inadequate surface drainage of soil may be detrimental to plant growth because:
    a. It may leach out all of the soil nutrients
    b. It may increase the growth of harmful bacteria
    c. It may inhibit root growth due to poor aeration
    d. It decreases organic matter content of the soil
    e. All of the above are true

32. The external soil characteristics that can be identified by observing the surface features are:
    a. Internal characteristics of the soil
    b. The profile and its horizons
    c. The textures located throughout the soil
    d. Slope and landscape position
    e. All of the above

33. A soil pit was dug to a depth of 57 inches. After evaluating the soil, you noticed a distinct layer of moderately fine textured soil starting at 31 inches and extending to the bottom of the pit. What is the correct depth of the soil pit?
    a. Shallow
    b. Moderately Shallow
    c. Moderately Deep
    d. Deep
    e. Very Deep

34. A uniform gray subsoil with very little or no redox features present could best be described as:
    a. A soil with an ideal air to water ratio throughout the year
    b. A soil with a uniform color and does not need tile drainage
    c. A soil that has a higher water table throughout the season
    d. A permeable soil with open structure
    e. All of the above are true

35. Dark A1 horizons owe their color mainly to:
    a. Moisture content
    b. Clay
    c. Mineral matter
    d. Organic matter
    e. All of the above dictate the color of the A horizon

36. Which class of surface drainage fits the following condition? Water has an avenue to escape, but rough surface vegetation causes the water to stand for several hours after a rain causing a temporary ponding condition.
    a. Rapid
    b. Medium
    c. Slow
    d. Ponded

37. Which of the following soils would be classified as having severe limitations?
    a. Soil colored red on and land capability map
    b. Soils with a 7 percent slope
    c. Soils suited for row crops 2 out of 5 years
    d. Soils not suited for row crops and having a 20 percent slope
    e. A and B above are the best choices

38. All land classes except class I have a subclass designation. What would be the best subclass designation for a soil on a 3 percent slope which is subject to wind and water erosion?
    a. Erosion
    b. Wetness
    c. Soil
    d. Climate
    e. None

39. Subsurface drainage is often required for soils that are farmed. Based on the following characteristics, which one of the following soils would not require tile drainage to eliminate wetness problems?
    a. Somewhat poorly drained soils
    b. Poorly drained soils
    c. Very poorly drained soils
    d. Soils with seep spots on side slopes
    e. All of the above require tile drainage

40. A soil with 18 inches of dark A horizon and an E horizon of 5 inches thick located on an upland flat with a concave position would be classified as a:
    a. Prairie soil
    b. Transitional Soil
    c. Forest Soil
    d. Marsh Soil

Answer Key

1. D
2. D
3. D
4. C
5. D
6. A
7. C
8. B
9. D
10. E
11. E
12. C
13. A
14. E
15. E
16. E
17. B
18. B
19. E
20. B
21. C
22. E
23. C
24. C
25. A
26. D
27. D
28. A
29. D
30. B
31. C
32. D
33. D
34. C
35. D
36. C
37. E
38. A
39. E
40. A