2012 Iowa FFA Soils Exam

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

2. When giving a soil sample the "ribbon test" for soil texture groups; in which group should a soil that feels smooth, floury, and with a little grit would be classified?
    a. moderately coarse
    b. medium
    c. moderately fine
    d. fine

3. 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 erodibility of soils
    d. enhances structural development and stability of soil aggregates

4. 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. none of the above are correct
    e. all of the above are correct

5. The surface soil is affected more by _____ that any other profile layers.
    a. leaching
    b. parent material
    c. physical and chemical weathering
    d. time
    e. all of the above

6. A material that has moved down a steep slope with gravity as the driving force is called:
    a. glacial drift
    b. loess
    c. alluvium
    d. residuum
    e. none of the above

7. Surface features are soil characteristics that can be identified by:
    a. feeling the soil texture
    b. examining the internal horizons of the soils
    c. observing the landscape
    d. all of the above
    e. none of the above

8. 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.
    a. loam
    b. sand
    c. silt
    d. clay
    e. silt loam

9. A tract of land was judged as having a 6 percent slope. In the past years, the farmer who owns the land has harvested corn silage from this field. This year however, he chose to combine the field and will allow the stalk residue to lay on the ground all winter. What surface drainage class would this land most likely be:
    a. rapid
    b. medium
    c. slow
    d. It does not matter, residues are not measured until after planting

10. 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.
    a. rapid
    b. medium
    c. slow
    d. ponded

11. Soil horizons can be distinguished because they differ from one another in such properties as:
    a. hardness
    b. structure
    c. color
    d. all of the above
    e. none of the above

12. Horizons have different air and water ratios, which soil horizon should have the best air to water ratio
    a. A
    b. B
    c. C
    d. E
    e. R

13. Soils which have partially decomposed organic materials in the O and or A horizon may be classified as
    a. marsh soils
    b. permeable
    c. moderately eroded
    d. calcareous
    e. none of the above

14. A favorable subsoil:
    a. is always high in nutrients, organic matter, air and water
    b. may become saturated for an extended period of time but is good for plant growth if it has a high nutrient level
    c. must retain enough water for plant growth but will permit excess water to drain out so air and roots can enter and roots can grow and develop
    d. all of the above
    e. none of the above

15. _____ are spots of one or more contrasting colors on the background of another color.
    a. parent material
    b. colluvium
    c. mottles
    d. overwash
    e. stratified soil

16. The soil particle that tends to be most expressed when compared to the amount present is
    a. sand
    b. silt
    c. clay
    d. all of the above

17. For conservation compliance, residues are measured
    a. before planting
    b. after harvest
    c. after planting
    d. after tillage

18. Inadequate drainage produces
    a. waterlogged soil that is likely to enhance plant maturity at harvest
    b. waterlogged soil that prevents growth of plant roots because of poor aeration
    c. waterlogged soils that cause peat and muck soils which are more productive
    d. All of the above
    e. none of the above

19. The water holding capacity of a soil is affected by soil texture. As the size of the soil particles decreases the water holding capacity
    a. decreases
    b. increases
    c. is not affected
    d. remains the same

20. While judging soil, you discovered the following: a soil with 20 inches of silt sized material located at the surface, 35 inches of uniform brown soil mixed with sand, large pebbles, and small rocks. The parent material of this soil would be:
    a. Glacial drift
    b. Glacial Sediments
    c. Glacial Loess Complex
    d. Loess

21. Mineral grains such as sand, silt and clay are responsible for determining the texture of a soil sample. After observing the sample and having a mechanical analysis completed, you noticed 30 percent of the sample contains mineral grains with a size range of .002 mm to .05 mm. What mineral grain would this most likely be?
    a. Sand
    b. Silt
    c. Clay
    d. Pebbles

22. After spending some time analyzing a soil profile and the related features associated with this tract of land, you noticed the following: a slope of 1 percent, a medium textured A and B horizons, poorly drained subsoil and a dark A horizon. What color would you code this tract of land on a land capability map?
    a. Green
    b. Yellow
    c. Blue
    d. Red

23. While judging a soil pit during agriculture class one day, you noticed the following: upland landscape with a concave appearance, a slope of 1 percent, a thick dark A horizon, a medium textured A, a moderately fine textured B, and a uniform gray subsoil with rust colored mottles. What would be the appropriate Land Class for this area?
    a. Class I
    b. Class Iw
    c. Class IIw
    d. Class IIIw
    e. Not enough information available

24. After spending some time analyzing a soil profile, you noticed the following soil characteristics and surface features: a 2 percent slope, a moderately dark A horizon, moderately coarse A and B horizons, you suspect the soil is excessively drained. What land class and subclass would this tract of land most likely fit the best?
    a. Class I
    b. Class IIs
    c. Class IIIs
    d. Class VIs

25. Topsoil is often removed from it 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

26. 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

27. Most conservation practices save soil in one of two basic ways by:
    a. decreasing the protective cover and shortening the slope
    b. decreasing the protective cover and lengthening the slope
    c. providing more protective cover and shortening the slope
    d. providing more protective cover and lengthening the slope

28. Strip Cropping is defined as strips of an erosion reducing crop placed to catch the soil that erodes from a cropped area of land is a very practical method of controlling erosion on land with 2 – 18 percent slopes. What is (are) the name(s) for this type of conservation practice?
    a. Contour strip cropping
    b. Wind strip cropping
    c. Border strip cropping
    d. All of the above
    e. None of the above

29. Soils with what percent slope can be used for continuous row crops?
    a. 0-4 percent
    b. 0-9 percent
    c. 0-18 percent
    d. depends on the needs of the farmer and the conservation practices used

30. The upper part of the soil usually contains the
    a. most plant roots
    b. lightest color
    c. accumulation of organic matter
    d. a and c are correct
    e. all of the above

31. Which of the following statements is TRUE concerning surface features of soils?
    a. some upland soils are flat enough to need artificial drainage
    b. grassed waterways work well to help control erosion on bottomland soils
    c. terrace soils are usually underlaid with enough clay that drought is not a concern
    d. footslopes are generally considered droughty sites because of their landscape position

32. While judging soil, you discovered the following facts: 4 percent slope, medium textured A and B horizons, a severely eroded A horizon, well drained and more than 40 inches of useable soil. What land class would this soil be classified?
    a. Class II
    b. Class III
    c. Class IV
    d. Class VI

33. A soil with a slope of 1.5 percent, has a clayey texture and with an obvious wetness problem would have a _____ productivity potential.
    a. High
    b. Medium
    c. Low
    d. Unsuited

34. Calcareous conditions in a soil can be the result of calcareous parent materials being exposed at the surface or excessive wetness. Either way, phosphorus and iron in these soils can be limited for plant uptake and growth. What crop(s) are most likely affected by this calcareous condition?
    a. Corn
    b. Soybeans
    c. Alfalfa
    d. None of the above
    e. All of the above

35. Terracing is the practice of constructing ridges and channels across the slope to intercept runoff water and dispose of it safely. The kind of terrace constructed depends on all of the following except:
    a. Slope
    b. Parent material
    c. Land use
    d. Internal Drainage

36. Conventional septic tank absorption field has laterals placed at a depth of 24 to 30 inches below the ground surface. These fields must meet the total lineal footage outlined by the DNR and EPA. The total lineal footage of laterals is based on:
    a. Number of bathrooms
    b. Number of bedrooms
    c. Percolation rate of the soil
    d. Only b and c
    e. All of the above

37. The accumulation of clay in subsoil is due to:
    a. glacial deposits
    b. decomposition of minerals and organic matter
    c. the percent of material from which the soil was developed
    d. the effect of percolating water removing clay from the upper regions of the soil profile

Missing: Questions 38-40

2012 Iowa FFA Soils CDE Exam Key

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