

2013 Iowa FFA Soils Exam

1. Organic matter is most likely to accumulate under the following conditions:
 - a. Poorly drained bottomlands
 - b. Excessively drained terraces
 - c. Well drained uplands
 - d. Any soil capable of being cropped every year
 - e. All of the above

2. Organic materials that accumulate in bogs, marshes and wetlands is best defined as a (n):
 - a. Organic soil
 - b. Alluvial soil
 - c. Loess soil
 - d. Glacial soil
 - e. Peat soil

3. Which of the following is not true about Calcareous soils:
 - a. Raise the pH above neutral
 - b. Limit the availability of phosphorus and iron
 - c. Extra potassium fertilizer may be required for corn and alfalfa
 - d. Soybeans may suffer from an iron deficiency
 - e. Herbicides are unaffected

4. Soils are rated according to their productivity potential. In agriculture class one day, you observed a soil that was located on a 1 percent upland with moderately coarse and coarse textures located throughout the profile. The farmer currently has corn planted in this field and has asked you to rate it according to land class. What land class would you put this soil in?
 - a. Class I
 - b. Class Is
 - c. Class IIe
 - d. Class IIs
 - e. Class III

5. Surface drainage is an important component in evaluating soils and their potential use throughout the growing season. These practices are often needed on nearly level landscapes for all of the reasons except:
 - a. To keep an area from being too wet
 - b. To keep an area from being flooded
 - c. Land leveling to eliminate depressions
 - d. Ditches to help excess water to escape on nearly level slopes
 - e. All of the above are acceptable practices

6. The surface soil is affected more by _____ when compared to the B horizon.
- Leaching
 - Physical and chemical weathering
 - Erosion
 - B and C are correct
 - All of the above are correct
7. A favorable subsoil:
- Is always high in nutrients, organic matter, air and water.
 - May become saturated for 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 permit excess water to drain out so air and roots can enter and roots can grow and develop
 - All of the above would be a favorable for a subsoil
 - None of the above would be a favorable subsoil
8. While judging soil, you discovered the following, an upland soil with 15 inches of silt sized material deposited by the wind located at the surface, 45 inches of brown soil mixed with sand, large pebbles and small rocks beneath the loess. The parent material of this soil would be:
- Colluvium from a glacial upland
 - Alluvium that was moved through glacial hills and summits
 - Glacial drift
 - Glacial Loess Complex
 - Loess
9. The depth of soil is defined as:
- The thickness of the top soil
 - The thickness of soil above a layer that stops root development
 - The top 3-5 feet of the soil
 - The depth down to the C horizon
10. Which of the following is not an important factor for a home owner to consider when evaluating a building site for a house with a basement?
- Landscape position
 - Presence of redox features above 40 inches
 - Shrink swell rating of the soil
 - Reshaping the land for landscaping and flower gardens
 - All of the above are correct

11. The surface soil can ~~include~~ ^{include} which horizon(s)?

- a. A horizon
 - b. O horizon
 - c. E horizon
 - d. All of the above
 - e. None of the above
12. 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
 - c. Reduces soil erosion
 - d. Turns a light colored B horizon darker in color
 - e. None of the above are incorrect
13. 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 this purpose rather than subsoil because:
- a. It has an ideal particle size
 - b. It is easier to obtain
 - c. It has more organic matter
 - d. None of the above
 - e. All of the above
14. The loose disintegrated rock material from which the mineral part of the soil originates is called:
- a. C horizon
 - b. B horizon
 - c. A horizon
 - d. Parent material
 - e. A and D are correct
15. Land capability subclasses are used to denote the type of hazard or limitation restricting the use of soils grouped in land classes:
- a. Classes 1-4 since these are row cropped
 - b. Classes 1-8 since all soil is important to preserve
 - c. Classes 5-8 since these soils are at the greatest risk
 - d. Classes 1-7 only because class 8 is not suited for agriculture
 - e. Classes 2-8 are the only ones

16. Landscape positions vary in soil composition and makeup. What landscape position would be characterized by have strata and lenses of different textures in the profile?
- Upland
 - Footslope
 - Terrace
 - Bottomland
 - All landscapes have this characteristic in common
17. Strip cropping is defined as strips of an erosion reducing crop placed to catch the soil that erodes from a cropped area. Strip Cropping is best suited for landscapes with slopes ranging from:
- 0 – 18 percent
 - 2-18 percent
 - 2- 14 percent
 - 2- 9 percent
 - None of the above
18. One of the following is not a true statement about a soil profile:
- it is a vertical section through the various layers that make up the soil
 - it extends down through the soil and plant root zones
 - it may be as shallow as a fraction of an inch
 - it is a list of characteristics of a soil group
 - all of the above are true
19. Internal drainage is an important characteristic to consider when evaluating soil for its intended purpose. When evaluating internal drainage, the top _____ inches of the B horizon are evaluated for color and redox features.
- 10 inches
 - 12 inches
 - 20 inches
 - 30 inches
 - 40 inches
20. In comparison to the overlying horizon, if present, an E horizon is usually:
- Darker in color
 - Higher in organic matter
 - Higher in clay content
 - Increased pH
 - None of the above

21. A tract of land was judged as having a 13 percent slope and is currently used for pasture with a few shade trees placed in the valley and around a large pond. The farmer has been using the land for pasture. What surface drainage class would this land most likely be:
- Ponded
 - Slow
 - Medium
 - Rapid
 - It will only become an issue if he decides to grow row crops.
22. Silt, sand and clay are the basic particles that make up our soil. According to *Soil Judging in Iowa*, there are _____ texture groups and _____ textural classes.
- 5 and 12
 - 12 and 5
 - 5 and 9
 - 9 and 5
 - None of the above are true – groups and classes are the same.
23. The purpose of a septic tank absorption field is to:
- Prevent affluent from reaching the water table
 - Keep the affluent contained in perforated pipes
 - Treat organic constituents in the affluent
 - Allow affluent to pass rapidly to the water table so surface ponding can be avoided
 - None of the above are correct
24. One way to classify soils is according to landscape position. One of the most common landscapes is known as uplands. Which of the following is false about upland soils?
- Includes summits and side slopes
 - Oldest and most developed in the area
 - Some are flat and may need artificial drainage
 - Subject to erosion unless it receives flood deposits
 - All of the above are true
25. Soil Depths in Iowa are commonly between:
- 30 – 50 inches
 - 30 – 60 inches
 - 30 – 70 inches
 - 30 – 80 inches
 - 30 – 90 inches

26. Which one of the following soils would you least likely expect to see an E horizon?
- Forest
 - Transition
 - Prairie
 - Marsh
 - All soils are capable of having an E horizon
27. When selecting a site for a building with a basement, which of the following would not be suitable?
- Water table located at 44 inches
 - Soft bedrock at 40 inches
 - Upland landscape position
 - Shrink Swell rating of 8 percent
 - All of the above are suitable
28. 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, somewhat poorly drained subsoil and a dark A horizon. What color would you code this tract of land on a land capability map?
- Green
 - Yellow
 - Red
 - Blue
29. What is the minimum width necessary to implement a strip cropping system adjacent to a river or stream?
- 16 feet
 - 36 feet
 - 56 feet
 - 66 feet
 - Strip cropping would not be considered useful in this situation
30. Class III land is fairly good land and:
- May be shallow
 - May be droughty or excessively drained
 - May be clayey and on a slope of less than 1 percent
 - All of the above are correct
 - Only b and c are correct

31. While judging soil, you discovered the following: an area of land that is deep, well drained, moderately fine textured with a 16 percent slope. You have decided based on the location of the soil pit and your knowledge of judging soil, the following would be suitable practices.
- Strip cropping and terraces
 - Conservation tillage and contouring
 - Growing row crops 3 out of 5 years
 - B and C are both good answers
 - None of the above
32. Water holding capacity of the soil is affected by the soil texture. As the particles decrease in size, the water holding capacity:
- Increases
 - Decreases
 - Not affected by
 - Need to know the B color to determine
 - None of the above
33. The R horizon is composed of:
- Loose underlying material
 - Soft bedrock
 - Hard bedrock
 - B and C are correct
 - All of the above are correct
34. Which of the following internal drainage classes would have a Munsell Chroma of 3 or higher and a value of 4 or higher?
- Excessively drained
 - Well drained
 - Somewhat poorly drained
 - Poorly drained
 - Very poorly drained
35. Slope is an important characteristic in regards to the inherit potential of a tract of land. Slopes can be gentle to steep, short or long, and smooth or variable. All of these characteristics influence:
- Soil development
 - Erosion
 - Land use
 - Runoff
 - All of the above

36. As part of your agronomy class at school, you were assigned to research soil maps and their potential uses. While you were conducting your research, you noticed over 50 percent of the land you were studying was colored yellow. As you summarized your data, you stated this land class was suited for:

- a. Cropland production
- b. Timber production
- c. Pasture land
- d. All of the above
- e. None of the above

37. Which of the following is true concerning the practices to overcome soil limitations:

- a. It need not be ~~assumed~~ assumed all land will be used as intensely as possible by landowners and operators
- b. Use of erosion control practices make it possible to decrease the frequency of row crops
 - c. Contouring, strip cropping and terracing are effective erosion controls on Class III and IV
 - d. Planting high quality corn seed in narrow rows is a must on class VI and VII.
 - e. All of these responses are true

38. One of the following is not a true statement about the influence native vegetation has on soil.

- a. 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 vegetation.
- b. The effect of vegetation is strong enough to influence the chemical, physical and biological characteristics of the soil.
- c. 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.
- d. After a forest soil has been cleared and put under cultivation, it is virtually impossible to distinguish it from soils developed under grass or marsh conditions.

39. Mechanical analysis is the best method to determine the texture of a soil. The field method is known as the ribbon test. While you were conducting a ribbon test at a soil contest, you discovered a sample described as: smooth, sticky, putty like with occasional sand grains. The best texture class for this soil would be:

- a. Coarse
- b. Moderately coarse
- c. Medium
- d. Moderately fine
- e. Fine

40. After spending some time analyzing a soil profile, you noticed the following soil characteristics and surface features: a 12 percent slope, a 2 inch moderately dark A horizon, moderately coarse A and B horizons and has a profile depth of 18 inches. What land class and subclass would this tract of land most likely fit the best?

- a. Class III e
- b. Class IIIs
- c. Class IV s
- d. Class VI s

2013 Iowa FFA Soils Exam Key

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