

State of Iowa
DEPARTMENT OF EDUCATION
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Iowa FFA Soils Judging Contest
Colo-Nesco Community School
Colo, Iowa
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1. Land that is on a current floodplain of a stream and may be covered by water when a stream overflows its banks is a description of which landscape position?
 - a. Intermittent drainageway
 - b. Foothlope
 - c. Bottomland
 - d. Terrace
2. Which of the following would explain why a surface feature called a terrace soil might be droughty?
 - a. Terraces are no longer subject to flooding.
 - b. Terraces drain well because of their position in the landscape.
 - c. Terraces contain flood deposits related to the time the stream was at that level.
 - d. Some terraces are droughty because they have gravel layers at shallow depths.
3. Identify which one of the following is not a true statement with reference to an upland soil.
 - a. Upland soils may be subject to flooding.
 - b. Upland soils are normally the oldest and most strongly developed soils in the general area.
 - c. Some upland soils are flat enough to need artificial drainage.
 - d. Some upland soils are low in fertility.
4. Steepness of a slope is measured on a percentage scale and is classified into slope groups. Calculate the percent of slope when the data reveals a six (6) foot difference in elevation in an 80 foot distance.
 - a. 10 %
 - b. 7.5 %
 - c. 4.75 %
 - d. 3 %
5. Which of the following is a correct definition of a soil profile?
 - a. A single horizon in the soil lying roughly parallel to the land surface.
 - b. A dark -colored mineral layer formed at or below the surface of the soil.
 - c. A vertical section through the layers that make up a soil, extending downward from the soil surface through the plant root zone.
 - d. Soil horizons range from a fraction of an inch to perhaps two or three feet.
6. Dark colored soils usually are fertile. This is best explained by which of the following?
 - a. Dark colored soils contain more moisture.
 - b. Dark colored soils warm up faster in the spring.
 - c. Dark colored soils are the result of organic matter that returns plant nutrients to the soil.
 - d. Dark colored soils may be the result of poor drainage.
7. The E horizon, often found in forest soils and certain other intensely leached soils, can be described as:
 - a. the bottom most layer of the soil profile.
 - b. a layer high in clay content
 - c. a layer that is mostly made up of organic matter.
 - d. a layer located at or near the surface and light in color due to its sand and silt particles being stripped of organic matter, clay coatings, and oxidized iron compounds

8. The B horizon can be distinguished from the A horizon because of all of the following reasons except one:
- it tends to accumulate organic matter but loses other materials by leaching.
 - it tends to accumulate clay, and in some soils, humus and iron.
 - it typically has a lighter color.
 - it tends to have a denser structure.
9. The texture of the soil refers to:
- the condition of the soil when it is wet.
 - how hard the soil becomes after it is compacted.
 - the proportions of sand, silt, and clay in the soil.
 - the thickness of the top soil.
10. The smallest soil particle is called:
- an atom.
 - clay.
 - a grain of sand.
 - crumb.
11. When a soil has about an equal proportion of sand, silt, and clay in a mixture it is called:
- unfit for growing of crops.
 - hardpan.
 - cloddy.
 - loam.
12. If a soil is made up predominately of silt sized particles, which of the following is it most likely to be referred to as?
- Fine.
 - Medium.
 - Moderately coarse.
 - Coarse.
13. The "ribbon test" is a field method of determining the texture of a soil. If it is found to be smooth and sticky when moistened, it likely is high in:
- clay.
 - sand.
 - silt.
 - sand and silt.
14. The thickness of the soil or soil depth is determined by:
- the number of layers in a soil profile.
 - the amount of erosion that has taken place.
 - the depth at which a layer that stops root penetration lies.
 - the level of the water table.
15. A dominantly silt-sized rock material transported and deposited by wind describes a soil parent material called:
- peat.
 - loess.
 - colluvium.
 - glacial drift.
16. Sediments deposited by running water describes a soil that is classified by parent material as:
- alluvium.
 - colluvium.
 - loess.
 - residuum.
17. Waterlogged soil is likely to prevent growth of plant roots because of:
- low fertility.
 - leaching of nutrients out of root zone.
 - poor aeration.
 - high acidity.
18. Surface drainage depends upon all but one of the following.
- Slope.
 - Soil texture.
 - Surface roughness.
 - Vegetative covering.
19. The internal drainage of a soil is determined by all but one of the following factors.
- Permeabilities of the various soil horizons.
 - The material beneath the soil.
 - The presence or absence of a water table.
 - The lay of the land.

20. A very slow rate of erosion that occurs over a very great length of time and is thought to have been in equilibrium with soil formation before the settlement of Iowa by European immigrants, is called:
- wind erosion.
 - sheet erosion.
 - geologic erosion
 - slight erosion.
21. An erosion class that is described as being land so cut up by gullies that traffic across the area is difficult or impossible and the A and B horizons are gone from a considerable percentage of the area is called:
- overwash.
 - gullied land.
 - severely eroded.
 - moderately eroded
22. One of the following is not a true statement as it relates to calcareous soil.
- Will effervesce when drops of dilute hydrochloric acid is applied to a soil sample.
 - Calcium carbonate is white and causes soil to be light in color.
 - Soil pH is high resulting in a high availability of phosphorous and other nutrients
 - Calcareous conditions can influence the type and amount of herbicides that will give best results in a field.
23. Land capability classification is a system that:
- identifies the limitations and hazards of using the land for agricultural purposes.
 - divides the state into grain producing areas, hay and pasture regions, and wooded areas
 - enables soil scientists to name soils.
 - became outdated and was discontinued due to the widespread use of commercial fertilizer
24. One of the following is not a true statement concerning the use of a terrace structure for erosion and runoff control.
- Reduces erosion by shortening the length of slope.
 - Provides little or no benefit on land with less than a nine (9) percent slope
 - Intercepts runoff water and disposes of it safely or holds it until it infiltrates.
 - May be effectively utilized on slopes of two (2) percent gradient and steeper to reduce water runoff and erosion.
25. Soils that show influence of both grasses and trees in their development are classified under this native vegetation category:
- forest
 - prairie
 - transition
 - marsh
26. Which of the following best describes the O horizon?
- The surface of soil.
 - A soil layer dominated by organic material.
 - Also known as the zero horizon because it is the bedrock on which the soil profile lies.
 - The layers of soil which are well aerated and high in oxygen.
27. The B horizon is also known as:
- subsurface soil.
 - parent material.
 - subsoil.
 - bedrock.
28. When subsoil has a gray color this is an indication that the soil:
- has poor internal drainage.
 - is well aerated.
 - has a coarse textured B and C horizon.
 - has a high organic material content.
29. In the land capability classification, a class that is suitable for nearly any use because it has no special hazards or limitations is:
- Class I
 - Class IV
 - Class V
 - Class VIII

30. A Corn Suitability rating of 100 is reserved for soils:
- located in areas of most favorable weather condition
 - that have high yield potential.
 - that can be continuously row-cropped.
 - all of the above.
31. The practice of leaving plant residue on the surface or leaving ridges and surface roughness to reduce the loss of soil and water is called:
- moldboard plowing
 - conservation tillage.
 - contouring.
 - no-till
32. An instrument which is used to estimate the percentage of residue on the surface of soil is known as a:
- Cam-line.
 - surveyor's transit & rod.
 - clinometer.
 - all of the above
33. One of the following would be a limiting factor for a conventional septic tank absorption field.
- 12-foot soil depth.
 - Water table at 4-foot depth.
 - Permeable soil.
 - Medium textured soil.
34. The topsoil is likely to be the most permeable layer of soil in the profile. This means that it:
- is usually hard and dry.
 - will allow water and air to enter and pass through.
 - is high in plant nutrient content.
 - has high water holding capabilities.
35. Estimate the percentage of crop residue in a corn field, using the meter stick method, when the row spacing is 75 centimeters and residue measurement in centimeters in the row were 4,6,3,3,and 8.
- 12%
 - 24%
 - 32%
 - 36%
36. Which of the following descriptions best fits upland soils developed solely under prairie grass?
- High in peat content.
 - Thick, dark A 1 horizon and no E horizon.
 - Relatively thin A 1 horizon, an E horizon present, and a tendency for both the topsoil and subsoil to be acid.
 - Five to ten inches of topsoil and an indistinct E horizon.
37. A conservation practice consisting of a band of grass or legume at the edge of a field used in place of end rows is called:
- buffer strips.
 - field borders.
 - strip cropping.
 - filter strips.
38. Residue management as a conservation practice can be accomplished by all but one of the following tillage methods:
- no-till.
 - moldboard plowing.
 - ridge till.
 - mulch till.
39. Identify which of the following is not a typical terrace cross section shape.
- Narrow base terrace.
 - Broad base terrace.
 - Second bottom terrace.
 - Grassed backslope terrace.
40. 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 soiling crop.
 - cover crop.
 - double cropping.
 - filter crop.