

**Questions 1 through 23 are based on general soils knowledge and the Soil Survey of Jefferson County Ohio**

1. Inherent soil properties are soil properties that are not easily changed. Human use and management of the soil has little to no impact on these soil properties. Which of the following is an example of an inherent soil property?

- a. Organic matter
- b. Texture**
- c. Bulk Density
- d. Structure

2. Water infiltration into the soil is important for preventing soil erosion. Soil structure in the surface and subsoil will influence the rate at which water infiltrates into the soil. Which of the following soil structures is the most limiting to water infiltration?

- a. Prismatic
- b. Platy**
- c. Blocky
- d. Granular

3. What is the natural soil process, which humans can accelerate, that is the main reason the USDA Natural Resources Conservation Service (NRCS) exists today?

- a. Erosion**
- b. Plate Tectonics
- c. Acid Rain
- d. Flooding

4. Soil health is determined by evaluating certain soil properties, characteristics and qualities. Which types of soil properties are evaluated when determining soil health?

**Chemical, Physical and Biological Properties**

5. Wetlands are an integral part of the natural landscape. Wetlands can filter out pollutants as well as retain water which helps to prevent flooding. It is estimated that Ohio has lost 90 percent of its original wetlands. Poorly drained soils with low oxygen due to saturation that are found in wetlands are referred to as:

- a. Griffinitic soils
- b. Hydric soils**
- c. Hydroponic soils
- d. Hydrophytic soils

6. This soil pit location is listed as having severe limitations to make local roads and streets due to low strength. What does this mean?

- a. The soil needs additional measures to ensure the subgrade of the road will hold up**
- b. The soil cannot support roads ever
- c. The soil is weak and should be cast aside, like in Sparta
- d. The soil has unrippable bedrock at less than two feet

7. In the section about detailed map units, the GoC unit is described as having areas of Berks and Guernsey soils in some of the map units. These are known as:

**inclusions or minor components**

8. Hydrologic soil groups are part of the soil and water features and are used to predict precipitation runoff from soils. The LnC unit is classified as:

- a. Hydrologic Group A – High Infiltration
- b. Hydrologic Group B – Moderate Infiltration
- c. Hydrologic Group C – Slow Infiltration**
- d. Hydrologic Group D – Very Slow Infiltration

9. A farmer has the option to buy land to expand his wheat production. Which soil in Jefferson County is potentially the most productive for wheat, based on bushels per acre?

- a. Brookside
- b. Glenford
- c. Lowell
- d. Nolin**

10. Due to high clay content in the soil and the slope of a site, some soils are unstable and prone to slippage. Which of the following soils are most prone to slippage?

- a. **BsD - Brookside**
- b. FcB -Fitchville variant
- c. No - Nolin
- d. Tg - Tioga

11. A water table is the highest part of the soil or underlying rock material that is saturated with water. Which of the following soils has the highest water table in its natural condition?

- a. **Melvin**
- b. Berks
- c. Elba
- d. Hazelton

12. A large acreage in eastern and southeastern Ohio has been surfaced mined for coal. Certain kinds of soil are present in mined, then reclaimed areas. Of the following soil series, which one formed in parent material that originated as a result of the mining process?

- a. Gilpin
- b. Westmoreland
- c. **Morristown**
- d. Steinsburg

13. In general, why is the north-aspect of a hillside more productive for timber than the south-aspect? **The north-aspect isn't as droughty as the south-aspect**

14. Based on the three map units listed; BsD, EbD2, GnD, which has the highest Woodland Potential Productivity, based on the Site Index, on the north aspect?

- a. **BsD – 96**
- b. EbD2 – 76
- c. GnD – 95
- d. None, they are all on south facing aspects

15. Identify the material that is fine grained, dominantly of silt-sized particles, deposited by the wind?

- a. loam
- b. loess**
- c. leachate
- d. alluvium

16. Which of the following choices best describes the makeup of organic matter?

- a. Bacteria and fungi
- b. Plant and animal material occupying water filled pore space
- c. Dead and decaying plant and animal remains**
- d. Residual waste products from respiration

17. Soil pH is an important soil property affecting plant growth. Select the most correct statement concerning soil pH.

- a. Soil pH is not affected by parent material.
- b. Soil pH cannot be changed by soil amendments.
- c. Soil pH is a measure of soil acidity.**
- d. Soil pH is independent of other soil properties.

18. Prime farmland is land that has the best combination of physical and chemical characteristics for producing food, feed, forage, fiber, and oilseed crops. Which of the following soils is considered prime farmland?

- a. Berks
- b. Morristown
- c. Nolin**
- d. Hazelton

19. In what month does Jefferson County receive the most rainfall? **July**

20. Forestry is an important part of the local economy in Jefferson County. Which species is listed as a common tree for the soil map unit this pit is located in?

- a. **Black Oak**
- b. Swamp White Oak
- c. Cottonwood
- d. Green Ash

21. Identify the full soil map unit name at location of the soil pit?

**Lowell silt loam, 7 to 15 percent slopes**

22. What is the Land Capability Class for this map unit? **3e or IIIe**

23. Based on the yields of tons per acre, what is the expected yield for orchardgrass-alfalfa hay for the soil map unit identified at this site? **4.2 tons**

**Questions 24 through 30 are site-specific and relate to the soil pit and surrounding area.**

24. The slope of the land is important in determining its proper use. The slope from the soil pit to the road is about:

- a. 2 percent
- b. **8 percent**
- c. 35 percent
- d. 50 percent

25. Texture classes are assigned to soil material based on its particle size distribution, or its sand, silt and clay content. The texture of the surface layer in this soil is:

- a. **silt loam**
- b. silty clay loam
- c. gravelly loam
- d. loamy fine sand

26. What is the texture of the first B-horizon:

- a. silt loam
- b. silty clay loam**
- c. gravelly loam
- d. loamy fine sand

27. Mottles or redoximorphic depletions are indications of a water table. At what depth are the redoximorphic depletions in this soil profile?

- a. 0 to 5 inches
- b. 5 to 15 inches**
- c. 15 to 25 inches
- d. No redoximorphic depletions present

28. Soil colors are used to determine soil drainage class. What is the natural drainage class for the soil at this site?

- a. Well drained
- b. Moderately well drained
- c. Somewhat poorly drained**
- d. Poorly drained

29. Landscape position influences soil properties and is important in determining land use. What landform is the soil pit located on?

- a. Floodplain
- b. Upland hillslope**
- c. Terrace riser
- d. Upland flat

30. Parent material influences soil properties. Knowing the type of parent material of the soil can be useful in making land use decisions. The soil at the soil pit formed from what type of parent material?

- a. Alluvium
- b. Residuum**
- c. Glacial Till
- d. Lacustrine

**Use the Soil Test provided to answer questions 31 through 35.**

31. Using the soil test report for this site, which macro-nutrients are considered deficient at this location?

- a. Mg and Ca
- b. P and K**
- c. K
- d. Mg

32. Fertilizers will often have values in the form of N-P-K on the packaging, which represents the percentages of nitrogen, phosphorous, and potassium, respectively, that are in that particular product. For example, a common fertilizer found in stores is 10-10-10, which consists of 10% nitrogen, 10% phosphate (P<sub>2</sub>O<sub>5</sub>), and 10% potassium (K<sub>2</sub>O), respectively. Using the nitrogen (lbs/N per acre), phosphate (lbs P<sub>2</sub>O<sub>5</sub> per acre) and potassium/potash (lbs K<sub>2</sub>O per acre) recommendations in the soil test report from this site, you decide to use urea (46-0-0), diammonium phosphate (18-46-0), and potash (0-0-60) to meet your field's nutrient needs. How many pounds per acre do you apply for planting orchardgrass? (hint: start solving for phosphorous needs first)

- a. Urea: 159 lbs/ac, Diammonium phosphate: 152 lbs/ac, Potash: 150 lbs/ac**
- b. Urea: 43 lbs/ac, Diammonium phosphate: 32 lbs/ac, Potash: 54 lbs/ac
- c. Urea: 217 lbs/ac, Diammonium phosphate: 152 lbs/ac, Potash: 150 lbs/ac
- d. Urea: 152 lbs/ac, Diammonium phosphate: 150 lbs/ac, Potash: 159 lbs/ac

33. How much elemental phosphorous (P) is reported in the soil? What is this number in lbs/acre for elemental phosphorous?

- a. 18 ppb; 36 lbs/acre
- b. 18 ppm; 9 lbs/acre
- c. 18 ppb; 18 lbs/acre
- d. 18 ppm; 36 lbs/acre**

34. Soil pH is one of the most important factors listed on a soil test report as it determines nutrient availability for plants. For example, a soil pH that is too high will tie up iron in the soil and result in iron deficiencies in plants, while a soil pH that is too low will tie up phosphorous and nitrogen, resulting in deficiency symptoms in the crops. Agricultural lime is a common soil amendment made of calcium carbonate that is applied to correct soil pH. Does this site require an application of lime? Select the best answer.

- a. Yes – the soil pH is neutral and will require lime to lower the pH to optimal levels
- b. No – the soil pH is already neutral, and applications of lime will only increase the soil's pH**
- c. Yes – the pH is alkaline and will need to be decreased
- d. No – the pH is already acidic, and applications of lime will only increase the soil's pH

35. How often should a soil testing occur if a crop is being grown at this location?

- a. Every year
- b. Every other year
- c. At least once every three years**
- d. Once a nutrient deficiency is suspected