2018 Area 2 Envirothon - Soil

General Soil Questions

1. Increasing the amount of organic matter within the soil profile improves soil health. From the choices below choose the best definition of soil organic matter.
   A) An end product of natural processes
   B) A never ending process of things living, dying and decomposing
   C) A chemical process resulting in dark inert substances
   D) The end results of physical bacterial processes

2. Under proper land management the percent content of soil organic matter can be increased through natural processes. How is most of the topsoil organic matter lost?
   A) Mostly from worm and ground hog activity
   B) Contractors removing the topsoil by excavation before building and road construction
   C) Wind and water erosion
   D) By oxidation in warm dry weather as climate changes

3. Storm water runoff and the detrimental effects of erosion are influenced by the infiltration and movement of water in the soil. Choose the statement which best describes soil water movement.
   A) Water movement occurs mostly in the larger old and new root channels
   B) Water movement occurs in the root and worm channels and in the spaces between soil structural units.
   C) Water movement occurs uniformly throughout the soil profile
   D) Water movement is from saturated zones into drier zones as it moves through the interior of soil structural units.

4. Soil type and characteristics are mostly the result of the geologic material, referred to as parent material, in which the soil formed. Choose the most correct statement concerning parent material and the soils that form in it.
   A) A soil can form in only one type of parent material.
   B) All soils in Ohio formed in glacial till parent material.
   C) **Soils can form in more than one type of parent material.**
   D) Most soils have horizons (layers) that form in different parent materials.

5. Soil pH is an important soil property affecting plant growth. Select the most correct statement concerning soil pH.
   A) Soil pH is a measure of soil acidity/alkalinity.
   B) Parent material does not influence soil pH.
   C) Soil pH is not changed by soil amendments.
   D) Soil pH is specific and independent of other soil properties.

6. There are five soil forming factors. Select the soil forming factor used to describe the breaking down of larger sized soil particles into smaller ones.
   A) Topography is sometimes called the lay of the land
   B) Weathering is sometimes referred to as climate
   C) Reduction and oxidation of iron in the soil is sometimes called mottling
   D) Time needed to form the soil is sometimes called chronological inference

7. The federal government along with state and local agencies is responsible for the publication of soil surveys and maintaining the information in Web Soil Survey. Which statement below is most correct?
   A) All counties in Ohio have published soil surveys and are in Web Soil Survey.
   B) All counties in Ohio have published soil surveys with most in Web Soil Survey.
   C) About 90% of the counties in Ohio have published soil surveys and are in Web Soil Survey.
   D) All counties in Ohio have published soil surveys but Ohio does not use Web Soil Survey.

8. Soil characteristics can be changed by the influence of human activities such as farming and construction practices. What effect would operating heavy equipment on wet soils have and on the plants growing in them?
   A) Soil structure would be diminished with less air movement and water storage for plant growth
   B) Soil classification of the soils at the specific site would change which would affect plant species recommendations
   C) Soil infiltration and permeability would increase causing stunted plant growth.
   D) Soil wetness in rutted areas would make hydrophytic plants the best species option

9. Specific soil properties influence its ability to store water for plant use. What is the soil property listed in the soil survey rating soils for this property?
   A) Moist bulk density
   B) Soil permeability
   C) Available water capacity
   D) Shrink-swell potential

10. Soils formed under wet conditions with slow permeability and the capacity to store and sustain desired water levels provide opportunities for wetland restoration. Choose the type of soil where wetland restoration would be most successful.
   A) Hydric
   B) Lacustrinic
   C) Hydraulic
   D) Catostrophic

11. Relief, also known as topography, is one of the five soil forming factors. Choose the most correct statement.
   A) Relief affects soils through its effect on drainage and erosion.
   B) Relief accelerates clay movement through the soil profile.
   C) Relief is responsible for moist, south facing slopes to be more productive.
   D) Relief does not influence depth to water tables.

Soil Questions Using the Web Soil Survey

12. When using soil information aerial photographs have polygonal lines depicting soils on the landscape. These polygons represent soils or miscellaneous areas within the survey area and are defined as map unit delineations. Choose the correct statement.
   A) A map unit delineation is based on geologic properties.
   B) There is little if any variability within the map unit delineation.
   C) A soil sample was always taken from the area of the map unit delineation as the soil survey was conducted.
   D) A map unit delineation usually represents an area dominated by a major kind of soil.

13. The map unit delineation is marked on the map on page 6. What is the soil name for this area?
    A) Condit
    B) Haskins
    C) Mahoning
    D) Trumbull

14. Parent material is one of the five soil forming factors. Choose the parent material the soil at the soil pit site formed in.
    A) Floodplain deposits
    B) Glacial Till
    C) Lacustrine sediments
    D) Outwash deposits

15. Soil map unit delineations are placed in Interpretive Groups. Choose the Hydrologic Soil Group for the map unit delineation the soil pit is located in.
    A) A
    B) B
    C) C
    D) D

16. Using the Top Soil Source (OH) Table on page 20, choose the rating and the reason(s) for the rating for the dominate soil that the soil pit is located in.
    A) Poor---steep slope
    B) Poor---wetness, too clayey
    C) Poor---wetness, too clayey, too acid
    D) Fair---wetness

17. Using the Camp Areas (OH) Table on page 25, choose the rating and the reasons for the rating for the dominate soil that the soil pit is located in.
    A) Very Limited---depth to saturated zone, ponding, restricted permeability
    B) Somewhat limited---restricted permeability, depth to saturated zone
    C) Very limited---depth to saturated zone, restricted permeability
    D) Very Limited--- depth to saturated zone, restricted permeability, ponding

Soil Questions to be Answered at the Soil Pit

18. Using the redoximorphic features (different soil colors within the soil profile) determine the internal drainage class for the soil in his pit.
    A) Excessively drained
    B) Well drained
    C) Moderately well drained
    D) Somewhat poorly drained
    E) Poorly drained

19. Observing the distinct differences between the soil horizons what assumption can we make about the soil at the soil pit site.
    A) It was recently farmed
    B) It has had layers of soil fill material added on top of the natural (in situ) soil
    C) It was formerly the site where a barn stood
    D) It is a natural soil that would be observed in any natural setting

20. There is a distinct clay pick up within the soil profile in the soil pit. Choose the approximate depth it begins.
    A) 10 inches
    B) 15 inches
    C) 20 inches
    D) 25 inches

21. Observing soil internal drainage and soil textural class how well would the soil at this site be for homes with full basements?
    A) Very good because of good drainage and sandy textures
    B) Good because of good drainage and loamy textures
    C) Somewhat good because of moderate drainage and silty textures
    D) Limited because of internal drainage and clayey textures

22. Topography, which is the variability of the landscape, affects forest ecosystems. Which statement best describes the effects of topography on the forest environment at this site?
    A) It results in the diversity of tree species
    B) It aggravates grape vine growth
    C) It affects wildlife mortality rates
    D) It is responsible for the rate of forest fire occurrence

23. Logging equipment traffic will destroy the natural infiltration and permeability of woodland soils. Under what circumstance is damage most likely to occur at this site?

    A) When the ground is snow covered and/or frozen
    B) When the ground is wet
    C) When the ground is dry
    D) when the ground has a large amount of rock fragments

24. Vegetation cover in riparian setbacks is vital to stream health. What effect would result if the plant life at this site was destroyed?
    A) There would be fewer insects as a food source for aquatic life
    B) The dormant plant seeds in the soil would no longer be able to vegetate
    C) Ground hogs and other burrowing animals would heavily repopulate the area
    D) Water erosion would increase sediment load

25. Many wildlife areas have well established paths and trails for hikers to use. Choose the soil characteristic that has been altered resulting in wetness in these areas.
    A) Soil organic matter has increases
    B) Soil texture has decreased
    C) Soil structure has decreased
    D) Soil micronutrients have increased the biological activity