CONNECTICUT ENVIROTHON 2011
MOCK EXAM
(questions from *real* Envirothon exams!)
(Except question 4, which we included today so students could try to determine soil color)

Please select the best response to the following questions.

Section 1. Judging the soil pit *(questions 1- 4)*

1. **What is the soil texture of the A horizon of <u>tray soil 1</u>?**

    a) **Sand**
    b) **Loamy sand or sandy loam (the texture was fine sandy loam)**
    c) **Silty clay loam or clay loam**
    d) **Clay**

2. **How thick is the A horizon in <u>tray soil 1</u>?**

    a) **0 inches**
    b) **1 to 5 inches**
    c) **5 to 10 inches**
    d) **Thicker than 10 inches**

3. **What is the structure of the B horizon in <u>tray soil 1</u>?**

    a) **Granular**
    b) **Blocky (and typically the structure of B horizons in CT is blocky)**
    c) **Platy**
    d) **Single grain**
    e) **Impossible to tell without a chemical soil test**

4. **What is the Munsell color notation for the soil on <u>plate "X"</u>?**

    10YR 4/6 (dark yellowish brown)
    NOTE: students will NOT have to determine soil color during the actual competition this year

Section 2. Assessing the soil and site characteristics *(questions 5 – 7)*

5. **Which of the following events most affected the present day landforms and soils of Connecticut?**

    a) **Alpine glaciation**
    b) **Continental glaciation**
    c) **Plate tectonics**
    d) **Hurricane of 1938**

6. **Which of the following is a limitation for a house (with basement) in the woods north of the main building at the DEP Marine Headquarters? (circle ALL correct answers)**

    a) **The site floods regularly**
    b) **The site is too steep**
    c) **The site has too many rocks**
    d) **None of the above limitations**

7. **Which of the following is the <u>best</u> source to find out what kind of soil is at the specific location of 20 feet south/20 feet west of the gazebo?**

    a) **Town wetland commission**
    b) **Soil map from the Web Soil Survey**
    c) **It will be the same as any other soil on the property**
    d) **Dig another soil pit at the new location**
    e) **All of the above**

Section 3. Using the Web Soil Survey *(questions 8 -- 11)*

8. **Circle the correct answers to the following statements about the Web Soil Survey:**

    A. **Users can make soil maps for locations in all 50 states** **True or False**

    B. **The soil maps never show features such as wet spots and rock outcrops** **True or False**

    C. **Users can make a map showing the drainage class of the soils on their site** **True or False**

Use the information from the *Old Lyme Custom Soil Resource Report* *(questions 9 – 12)*

9. **What is the symbol and complete name of the soil map unit located in the tidal marsh near the end of the boardwalk?**

    98 Westbrook mucky peat

    NOTE: the complete name MUST be answered to receive credit on this question. Some map units have a slope or stony/rocky as part of their name. Example: the name for the 74C map unit is Narragansett-Hollis complex, 3 to 15 percent slopes, very rocky.

10. **Four part question: (answers for part A and B found in the Old Lyme Soil Report, pp. 13-14)**

    A. **How much of map unit 29A is composed of Agawam soils? 80% is Agawam and similar soils**

    B. **What is the drainage class of Agawam soils? Well drained**

    C. **Is the Agawam soil more similar to the soil in <u>tray 1 or the soil in tray 2</u>. Why?**

    We ended up not labelling the tray soil samples, which were both actual Agawam soils. Sorry for any confusion this may have caused.

11. **Two part question:**

    A. **According to the interpretive tables in *Old Lyme Custom Soil Resource Report*, what is the rating class and what are the limiting features for picnic areas for both the 75E map unit and the 34B map unit? Fill in the table below. (the interpretive table is on pages 51-54 of the soil report)**

Map Unit Symbol	Rating Class	Limiting Features
75E	Very limited for the Hollis and Chatfield components, not rated for the rock outcrop	Too steep, large stones, depth to bedrock
34B	Not limited	None listed in the table

    B. **Which of these two map units would you select for the picnic area? Why?**

    The 34B map unit. It is not limited for picnic areas.

12. **According to the map legend, what is the map symbol for the following features? Draw the map symbol next to the name of the feature.**

    a) **Rock outcrop ,**

    b) **Wet spot 5**

    c) **Gravel spot)**

Section 5. Soil properties and characteristics *(questions 13 – 20)*

13. **Two part question:**

    A. **Soils with dense substrata are common in Connecticut. How does the dense substratum affect the movement of water and available water in the soil? (any one of the answers is acceptable)**

    Dense substrata impede the movement of water (lower permeability rate), can lead to poor drainage (perched water), there may be more water available (or too much water) to plant roots above the dense substrata, but the substrata impedes roots and thus limits water to deep rooted plants. Water moves laterally downslope on top of the dense substratum and may seep out to the surface in places where the substratum is near the surface.

    B. **What kind of field test could you perform to determine if compaction is a problem?**

    Any one of the following answers is acceptable:

    Use a wire flag, perc test, bulk density test, pocket penetrometer.

14. **Two of the five soil forming factors are time and topography. Name two of the other three soil forming factors.**

    A. Biota (includes plants, animals, humans, and other organisms)

    B. Parent material

    C. NOTE: The third other factor is CLIMATE.

15. **Which of the following may be nonpoint source pollutants in a suburban neighborhood?**

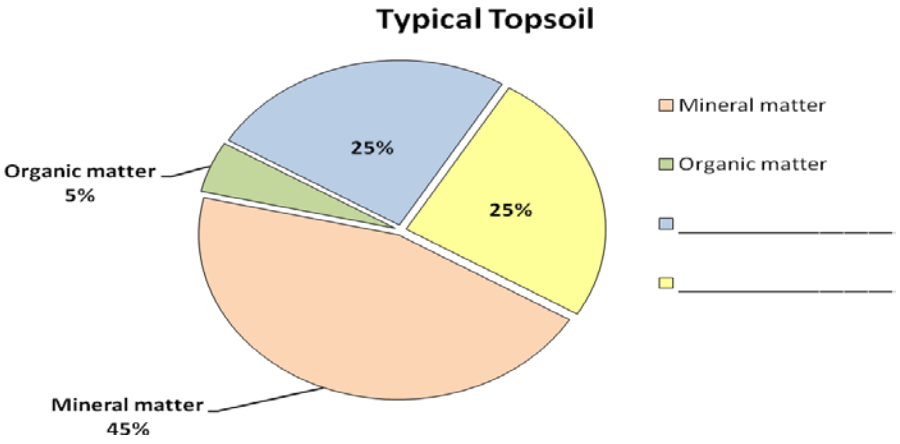
    a) Nitrogen
    b) Soil
    c) Pesticides
    d) Phosphorus
    e) All of the above

16. **You recently had a soil sample analyzed from your garden. The soil lab report indicates that the pH of the soil was 5.4.**

    What is the best way to increase the pH?

    a. Add sulfur
    b. Add water
    c. Add nitrogen
    d. Add ground limestone

17. **Label the missing components of typical topsoil in the pie chart below.**



The missing components are air and water.

18. **Name two ways earthworms improve the agricultural ecosystem.**

Improve soil structure, help decompose organic matter, stimulate microbial activity, mix soil, provide channels for root growth, increase infiltration, increase water holding capacity of soil.