

SOILS/LAND USE STATION

Instructions: You have one (1) hour to complete the following questions. Partial credit may be awarded on some questions, so BE THOROUGH! If you need additional space, write on the back of the sheet and number your answers.

<p>1. The OU Biological Station is located in the N ½ of sec. 8, T. 8 S., R. 5 E. along the shores of Lake Texoma (see maps provided). Locate the station in the soil survey and answer the following:</p> <p style="margin-left: 20px;">a. List all the map units located on this property and give the capability subclass and range site name for each. [10 pts]</p> <ul style="list-style-type: none"> • 2 - class IIe, Sandy Savannah range site • 17 - class IIe, Sandy Savannah range site • 18 - class IIIe, Sandy Savannah range site <p style="margin-left: 20px;">b. How many acres of each of these map units are found in Marshall County? [10 pts]</p> <ul style="list-style-type: none"> • 2 - 3910 acres • 17 - 1350 acres • 18 - 6160 acres 	<p style="font-size: small; color: gray;">pts</p> <p style="color: red; font-weight: bold;">10</p> <p style="color: red; font-weight: bold;">10</p>
<p>2. During the construction of the buildings at the Biological Station complex a decision had to be made on how to handle the sewage generated on the site. With that in mind answer the following: [3 pts each for total of 12]</p> <p style="margin-left: 20px;">a. What is the rating for “Septic tank absorption fields” for the map units found on this property?</p> <ul style="list-style-type: none"> • 2 - Moderate • 17 - Slight • 18 - Slight <p style="margin-left: 20px;">b. What is the rating for “Sewage lagoon areas” for the map units found on this property?</p> <ul style="list-style-type: none"> • 2 - Moderate • 17 - Severe • 18 - Severe <p style="margin-left: 20px;">c. Based on these ratings, which option is best suited to this site?</p> <p style="margin-left: 40px; color: red;">Septic tank absorption field</p> <p style="margin-left: 20px;">d. List one (1) potential water quality issue that might be a concern with this type of system on this site.</p> <p style="margin-left: 40px; color: red;">proximity or distance to the lake may lead to sewage reaching the lake</p>	<p style="color: red; font-weight: bold;">12</p> <p style="color: red; font-weight: bold;">32</p>
<div style="border: 1px solid gray; padding: 2px; display: inline-block;">Page 1 Subtotal</div>	<p style="color: red; font-weight: bold;">32</p>

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Page 1 32 + Page 2 44 + Page 3 24 = Point Total for Soils/Land Use 100

Page 4 25 = Point Total for Special Topic 25

3. List the five (5) factors of soil formation that affect the characteristics of every soil. [4 pts each for total of 20]

- the physical and mineralogical composition of the PARENT MATERIAL
- the CLIMATE under which the soil material has accumulated and existed since accumulation
- the plants and animal life on and in the soil - BIOLOGY
- the relief or lay of the land - TOPOGRAPHY
- the length of TIME the factors of soil formation have acted on the soil material

pts

20

4. Examine the profile of the soil pit at this station and answer the following:

a. Does this soil have an O Horizon? (please circle your answer) [4 pts]

NO

4

b. Does this soil show evidence of a water table near the bottom of the profile? (please circle your answer) [4 pts]

YES

4

c. List one (1) form of evidence that supports your answer in 4(b). [4 pts]

the presence of iron mottles or redox features

4

5(a). Soil structure tends to become _____ deeper into the soil profile. (please circle your answer) [4 pts]

COARSER FINER

4

5(b). List two (2) reasons for your answer in 5(a). [4 pts each for total of 8]

- less organic matter
- less biological activity from plants and animals

8

Page 2 Subtotal	44
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6(a). Permeability and aeration tend to _____ deeper into the soil profile.
(please circle your answer) [4 pts]

INCREASE

DECREASE

pts

4

6(b). List two (2) reasons for your answer in 6(a). [4 pts each for total of 8]

- less pore space
- less organic matter
- poor soil structure

8

7(a). Biological Activity is higher deep in the profile than near the surface of the soil.
(please circle your answer) [4 pts]

TRUE

FALSE**4**

7(b). List two (2) reasons for your answer in 7(a). [4 pts each for total of 8]

- more oxygen is present ear the surface
- food supply (organic matter) is more abundant near the surface

8

Page 3 Subtotal

24

8. Water stewardship in a changing climate covers both water quantity and water quality issues. There are many ways soils can be used or managed to help protect the water we use. These practices can be implemented by all land users including individual homeowners, farmers, or large corporations.

pts

25

a. List two (2) soil management practices that protect water quality and briefly describe how each practice works.

1. _____

2. _____

b. List two (2) soil management practices that protect water quantity and briefly describe how each practice works.

1. _____

2. _____

