

SOILS

Test Total: _____ / 50 points

SOIL FORMATION

- 1) Name the missing soil formation factors known by their acronym **CIORPT**. (2 points)

C limateO rganisms

R _____

P arent material

T _____

- 2) Soil mineral oxidation (like metals weathering to rust) is an example of a/an: (1 point)

- a) addition
- b) loss
- c) translocation
- d) transformation

- 3) Soil macrofauna consists of... (1 point)

- a) humus
- b) microscopic organisms
- c) visible insects and animals
- d) a tiny species of deer

- 4) How do macrofauna affect the soil? (1 point)

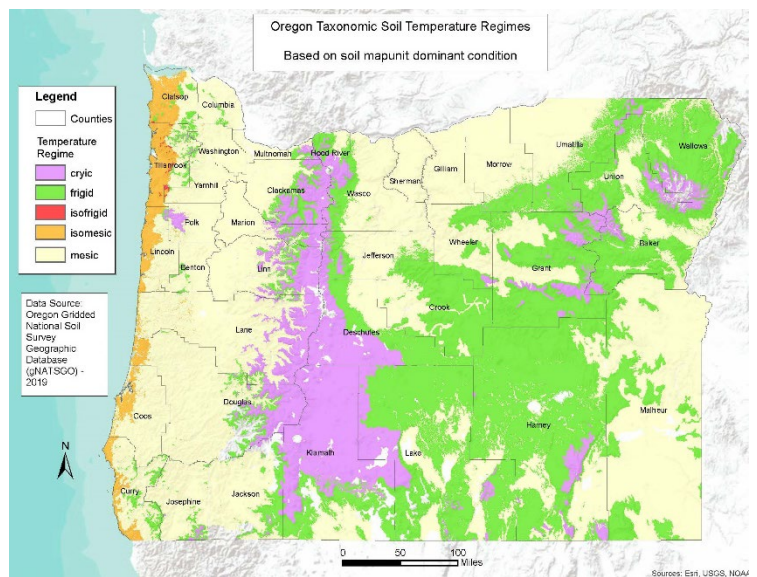
- a) They photosynthesize and release carbon into the soil
- b) They churn the soil and create large channels for water and air movement
- c) They act as a living mulch and prevent erosion
- d) They release glomalin to hold soil structure together

- 5) Which parent material type is formed in place from bedrock? (1 point)

- a) Ash
- b) Residuum
- c) Organic material
- d) Loess

- 6) Using the map to the right, which soil temperature regime dominates the Oregon coast? (1 point)

- a) Mesic
- b) Cryic
- c) Frigid
- d) Isomesic



_____ / 7 points

SOIL CHARACTERISTICS

- 7) What is a seasonal high water table? (1 point)
- a place for tall people to look at hydrology maps
 - how much water a soil holds
 - groundwater
 - the highest level that water reaches in a soil profile during the year
- 8) Which soil layer (horizon) is also known as the substratum and is relatively undeveloped? (1 point)
- O
 - A
 - B
 - C
- 9) Which soil texture group drains water fastest? (1 point)
- sandy
 - loamy and silty
 - clayey
 - gravelly
- 10) Using Munsell color notation, match the correct part to its definition (3 points, one point each)
- | | | | |
|---|--------|--|--------------------------------|
| A | hue | | how dark or light the soil is |
| B | value | | how bright or dull a soil is |
| C | chroma | | the colors present in the soil |
- 11) Circle the color chip to the right that corresponds to 7.5YR 4/6. (1 point) →
- 12) Examine the rock samples. What do you think the white coating on the outside of the sample rocks is called? (1 point)
- calcium carbonate
 - ash
 - organic material
 - fluff
- 13) Determine the texture and color of the soil sample from the Umpqua National Forest. Use **Soil Texture By Feel Flow Chart** and **Munsell Color Book** provided. (6 points)



Texture	Munsell Color Notation (moist)
<u>3 points:</u>	<u>3 points:</u>

____ / 14 points

SOIL CLASSIFICATION AND LAND USE

- 14) Soils are used as a medium for plant growth, for water storage and infiltration, as a habitat for organisms, for cycling nutrients, and for which other main function? (1 point)
- a) an engineering foundation
 - b) a place for wildlife to nap
 - c) an ingredient in mud pies
 - d) a place to store nuclear waste
- 15) Which slope class is the most limited for use by people? (1 point)
- A - $\leq 3\%$ slope
 - B - 4 to 8% slope
 - C - 9 to 15% slope
 - D - 16 to 35% slope
 - E - 36 to 60% slope
 - F - 61 to 80% slope
- 16) Do upland rangeland soils typically have a thick O horizon (layer)? (1 point)
- a) yes
 - b) no
- 17) In which setting would you find the thickest O horizon? (1 point)
- a) O horizons are too rare to reliably find
 - b) rangeland
 - c) wetland
 - d) agricultural field
- 18) What is the name of the soil tool provided? (1 point)
- a) spade
 - b) bucket auger
 - c) bulk density tester
 - d) soil sieve

- 19) Match the soil classification to the soil characteristics? (5 points, 1 point each)

A	Prime farmland		Often contains fill like construction debris or dredged materials
B	Hydric		Wetland soils which may be grey in color or <i>gleyed</i>
C	Rangeland		Plowed A horizon and not too wet or too rocky
D	Subaqueous		Surface layers may have a higher pH and may be covered by biological crusts
E	Urban		Most likely to have anaerobic conditions and support submerged aquatic vegetation

____ / 10 points

SOIL SURVEY

Use the **Soil Map** for a portion of Southern Boardman to answers the following questions:

20) At what scale was this soil survey **mapped**? (1 point)

21) What is the **scale of the printed map**? (1 point)

22) What is the Map Unit Name of map symbol **54B**? (1 point)

23) Two map units do not have a soil series name. One is displayed using soil taxonomy and one is a “miscellaneous area” without any soil data associated with it. Which is which? (2 points, one point each)

Soil taxonomy	
Miscellaneous area	

24) Which map unit is rated as “**not rated**” for **soil-anchored solar arrays**? (1 point)

25) Name two of the five **limitations** (rating reasons) to installing soil-anchored solar arrays in this area. (2 points, one point each)

- _____
- _____

26) Choose one of the above limitations and explain why this limitation would prevent solar array installation. (4 points)

27) Which three map units are not **prime or other important farmland**? (See pages 10-12. (3 *points*)

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-
-

28) Knowing that the rest of the map units (95.9% of the map area of interest or AOI) are some kind of farmland soil, and that Boardman is a very sunny place, would you build a soil-anchored solar array here? Why or why not? (4 *points*)

___ / 7 points