

Part I: SOIL FORMATION

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

Cl _____

O _____

Relief

Parent material

Time

- 2) Erosion is an example of a/an: [1 point]

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

- 3) Topsoil is usually darker than deeper soil layers due to the presence of... [1 point]

- a) lime
- b) rain
- c) organic matter
- d) pH

- 4) Which soil forming factor relates closest to geology? [1 point]

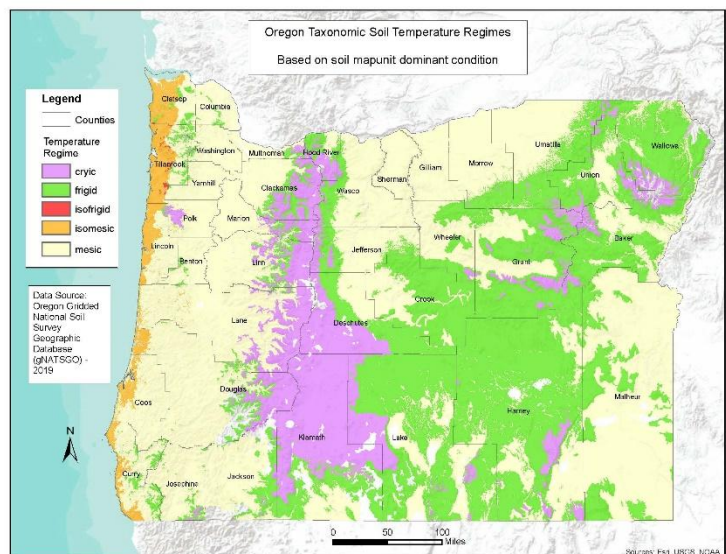
- a) Critters
- b) Relief
- c) Parent material
- d) Time

- 5) What is cryoturbation? [1 point]

- a) Mixing of soil layers due to frost heave
- b) Residuum
- c) Frozen worms
- d) Glacial till

- 6) Based on the map to the right, where is cryoturbation most likely to occur? [1 point]

- a) Willamette Valley, Columbia River Basin, and Snake River basin (pale yellow)
- b) High lava plains, Cascade Range, and other high peaks (purple)
- c) Between a and b (green)
- d) On the coast (orange and red)



____ / 7 points

Part II: SOIL CHARACTERISTICS

7) What is the mineral soil layer below the A horizon called? [1 point]

- a) topsoil
- b) B horizon
- c) bedrock
- d) O horizon

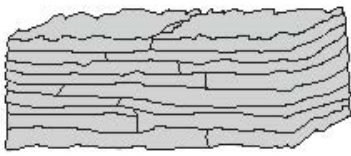
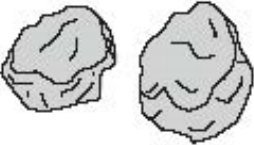
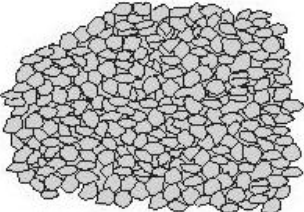
8) What are the three main soil particle size classes? [1 point]

- a) Clay, organic, gravel
- b) Sand, silt, gravel
- c) Cobbles, loam, mulch
- d) Sand, silt, clay

9) Which soil characteristic does soil texture influence? [1 point]

- a) color
- b) flavor
- c) erosion potential
- d) depth to bedrock

10) Match each soil structure to the correct images [3 points, 1 point each]

A. blocky	_____		
B. granular	_____		
C. platy	_____		

11) K_{sat} , or saturated hydraulic conductivity is a measure of... [1 point]

- a) How easily liquids can move through a layer of soil
- b) Bulk density
- c) The inverse logarithm of the concentration of hydronium ions
- d) Soil moisture

____ / 7 points

12) pH influences which soil characteristic? [1 point]

- a) depth to bedrock
- b) color
- c) nutrient availability
- d) texture

13) Determine the texture and color of the soil sample. Use **Soil Texture By Feel Flow Chart** and **Munsell Color Book** provided. [6 points total]

Texture [3 points]	Munsell Color Notation (moist) [3 points]		

____/ 7 points

Part III: SOIL CLASSIFICATION AND LAND USE

- 14) Which of the following is not true about forest soils? [1 point]
- a) They are usually too steep or rocky for growing crops
 - b) They periodically burn in forest fires
 - c) They are too dry to support trees
 - d) They provide wildlife habitat, filter water, and sequester carbon
- 15) What clue do wildfires leave behind in Oregon forest soils? [1 point]
- a) an A-horizon
 - b) moss
 - c) sand
 - d) charcoal
- 16) Landslides or mass movement occurs in Western Oregon forest soils due mostly to which soil forming factor? [1 point]
- a) Organic matter
 - b) Organisms
 - c) Relief (topography)
 - d) Time
- 17) Which is the coldest soil temperature regime (see map on page 1)? [1 point]
- a) mesic
 - b) cryic
 - c) frigid
 - d) isomesic
- 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. Shallow depth to root restricting layer		Characterized by an O horizon made of decomposed leaf and/or needle litter
B. F slopes (61-80% slopes)		May have hydric soils which may include gleyed colors, redoximorphic features, and/or O horizon
C. Excessively drained soil drainage class		Presence of an R horizon
D. Forest soils		Sandy soil textures which rapidly percolate water
E. Wetlands		High likelihood of runoff and erosion; too steep to build on or farm

____ / 10 points

Part IV: SOIL SURVEY

Use the **Soil Map and interpretations** for a portion of Clatsop County to answer 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 **59F**? [1 point]

23) Name the two soil map units with the highest Forest Productivity for Douglas-fir. [2 points, 1 point each]

Map unit symbol	Map unit name

24) More than half of the soil map units in this part of Clatsop County do not have a rating for Forest Productivity for Douglas-fir. Notice their slope range. Why do you think these soil map units do not have a rating? [2 points]

25) Name two of the three **limitations** (rating reasons) to Fire Damage Susceptibility rating in this area. [2 points, 1 point each]

- _____
- _____

____/ 9 points

- 26) Choose one of the above limitations and explain why this limitation would make the soil more susceptible to fire damage. [3 points]

- 27) Compare the Forest Productivity for Douglas-fir with the Fire Damage Susceptibility ratings for map unit 59F Svensen loam 60 to 90 percent slopes. [3 points]

- 28) This area is next to the city of Astoria, at the mouth of the Columbia River. What do you think would happen if a forest fire ignited here? Would you expect erosion or landslides? Why or why not? Use the soil map in your answer. [4 points]

____ / 10 points