Soil 205
Quiz #2
Feb. 15, 2012

NAME _____
(please print)

2-digit lottery number: __ __

1. Consider the following soils, assuming all other factors to be equal:

____ Soil A is a sand, Soil B is a clay loam. Which is a cohesive soil?

____ Rock fragments in Soil C have a diameter of ~8" (203 mm), those in Soil D have a diameter of ~13" (305 mm). Which soil contains cobbles?

____ Soil sample E is from a grassland A horizon, Soil sample F is from a Bt horizon. Which more likely has granular structure?

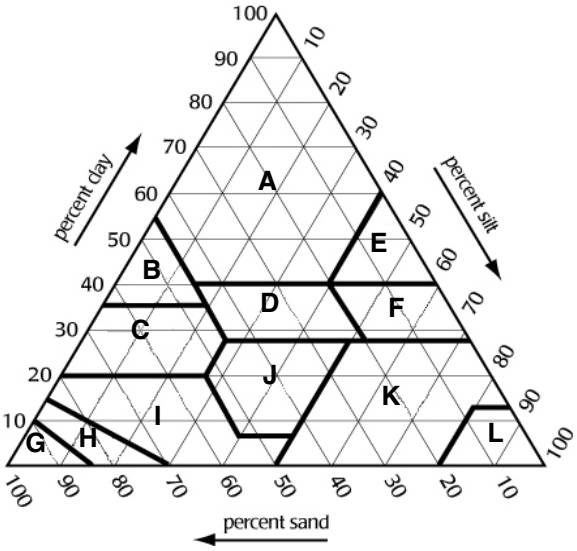
____ Soil G is a loamy sand, Soil H is a clay loam. Which would have the higher bulk density?

2. A soil core is collected from the surface horizon of a grassland soil. The core has a volume of 250 cm^3, and after oven drying, weighs 275 g. What is the bulk density? (2 pts – show work for partial credit and include units!)

Assuming this soil has a particle density of 2.6, what is the approximate % pore space:

[10 ; 31 ; 42 ; 48 ; 50 ; 58 ; 69 ; 90]
(Circle correct answer)

3. Use the USDA textural triangle shown on the right to answer parts a-d below.



_____ a. Which letter represents the CLAY LOAM textural class?

_____ b. Which letter represents the SILT LOAM textural class?

_____ c. Which letter represents the LOAMY SAND textural class?

_____ d. A soil contains 30% clay and 30% silt. Clearly mark this point on the textural triangle

4. When a soil is compacted, indicate whether each of the following increases (I), decreases (D), or is not affected (O):

_____ macropore space _____ soil strength

_____ texture _____ bulk density

5. TRUE (+) or FALSE (-):

_____ As demonstrated in class, there is no such thing as quicksand.

_____ It is always desirable for a soil to have a low bulk density.

_____ Cohesive soils have more strength in a dry rather than moist state.

_____ The Teton Dam failure was due in part to the use of incorrect soil structure.

6. In Soil Taxonomy, the most general level of classification is the _____ .

7. _____ Red, yellow, and medium brown colors in soil are typically due to what specific mineral?

_____ Black or dark brown colors are typically due to what soil constituent?

IMAGES

8. Briefly describe the soil condition discussed in class that is likely responsible for the roots shown in this image.

9. _____ Which of these images illustrates an example of a collapsible soil?

10. _____ Soil A has a Munsell color of 10YR 5/1; Soil B has a Munsell color of 10YR 4/4. Which is likely the more well-drained soil?

EXTRA CREDIT

Draw a line or curve on the following axes to best illustrate the indicated relationship: