Exam #3 Name:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

SOIL 4463

Soil and Water Conservation Management

1. Provide one example of a human activity that when combined with drought could cause the desertification of a rangeland system: (3)
2. Pasture lands are seldom natural systems because of which of the following human activities: (4)
   1. Cultivation
   2. Excessive Grazing
   3. Road construction
   4. All of the above
3. Provide two examples of evidence that a pasture in Oklahoma was once cultivated: (4)
4. Approximately what percentage of the land historically used for crop production in Oklahoma is currently under crop production? (4)
   1. 100%
   2. 10%
   3. 50%
   4. 90%
5. Which of the following is a detrimental impact of overgrazing on soil quality: (4)
   1. Compaction
   2. Crusting due to residue removal
   3. Increased aggregate stability
   4. Both a and b
6. Class V land should be cultivated for row crop production? True or False. (3)
7. In a native grass system the stocking rate is dependent on rainfall and species composition both of which influence the amount of forage available for consumption by the grazing animal (AKA carrying capacity). Which of the following stocking rates should be used to prevent overgrazing? (4)
   1. 75% of the average carry capacity
   2. 10 % of the average carry capacity
   3. 20% of the average carry capacity
   4. 120% of the average carry capacity
8. Provide one benefit that moderate grazing has on a rangeland ecosystem. (3)
9. Provide two examples of improvements in soil quality that occur in Conservation Reserve Program (CRP) lands. (4)
10. Provide one reason that soils in forests remaining in the U.S. today are generally highly susceptible to erosion. (3)
11. Can fire be a good management tool for the restoration of some forested systems? Yes or no (3)
12. Provide two examples of negative off-site impacts of improper urban soil management? (4)
13. Can the application of slow release fertilizers in excess of plant requirement result in off-site nutrient pollution and water quality degradation? Yes or no. (3)
14. Will long-term applications of blended fertilizers without regard to soil test recommendations result in excess concentrations of immobile nutrients such as phosphorus and potassium in the soil? Yes or no. (3)
15. Which of the following soil textures will require a smaller leaching field for a waste water treatment system? Circle one (Each are appropriate for use given sufficient depth to restrictive layer) (3)

Clay loam

Sandy loam

1. Provide two factors that should be considered when selecting a species for revegetation of a construction site for erosion control. (4)
2. Give two actions that should be taken to reclaim a saline soil: (4)
3. What additional action should be taken if the soil is sodic? (4)
4. Is the water in the water table below a saline seep always of poor quality with respect to salinity? (3)
5. In general the water table below a saline seep must be closer to the soil surface in a sandy loam soil profile than in a clay loam. True or False (3)
6. Which of the following Sodium Adsorption Ratio (SAR) values are a threshold above which a soil is considered sodic? (4)
   1. 13
   2. 40
   3. 100
   4. 3
7. Is there a threshold for the concentration of soil organic matter above which no additional benefits are observed? Yes or no. (3)
8. Provide 2 examples of soil quality indicators that do have thresholds. (4)
9. Which of the following types of soil properties are most often of interest when evaluating soil quality and its improvement through soil management? circle one (2)

Inherent

Dynamic

1. Does the clay content of a soil influence its organic matter concentration? yes or no (3)
2. Briefly describe how the concept of soil quality has changed soil management compared to historic soil management. (6)
3. Briefly describe how soil quality is defined. (4)
4. Provide two examples of inherent soil properties that influence soil quality. (4)

\*Bonus on last page\*

Bonus: Recall the pictures of a grass land and a no-till cropland field shown in class during our discussion of soil quality. Provide two possible reasons why the inherent quality of the soil in the grassland may be lower than that in the cropland. Also provide two dynamic soil properties that may suggest that the quality of the soil in the grassland is greater than that in the cropland. (4)