KERALA AGRICULTURAL UNIVERSITY

B.Sc. (Ag) 2006 Admission VI Semester Final Examination

July / August 2009

Chem 3204 Max. Marks: 60

Conservation and management of soil and

Water resources (2+1) Time: 2½ hours

I. Objective type questions **Marks: 20 x 0.5 = 10**

Choose the correct answer

1. In remote sensing which type of radiation is utilized for photography

   a) Violet b) Far red light c) Infra red d) green light

2. Which one of the following water potential in soil is always positive

   a) Osmotic potential b) Matric potential c) gravitational potential

   d) None of these

3. The value of ESP in alkali soil is always

   a) More than 15 b) Less than 15 c) any value d) None

4. Who has given the concept of pF

   a) Silen b) Sorenson c) Shoemaker d) Schofield

5. Crops that can tolerate soil salinity is

   a) Millets b) Pulses c) Beans d) Sugarcane

6. A soil which has pH less than 8.5, ESP less than 15 and EC greater than 4 dSm^{-1} at 25^0 C is called

   a) Saline soil b) Alkaline soil c) Saline alkaline soil d) None of the above

Fill up the blanks

7. ---------- may be defined as the water that is retained in the soil between the water potential of -1/3 bar to -31 bar
8. ---------- is the physical condition of the soil
9. The total degraded area in India is ---------- million hectare
10. Expand CSWCR & TI ----------
11. ---------- is an advanced stage of rill erosion
12. ---------- is an essential moisture control mechanism which provides desirable environment in the crop zone by removing excess salts and water
13. The concept of soil water potential was given by ----------
14. Honey comb like structure is the characteristic feature of ---------- soil
15. White alkali soils are ---------- soil
16. Expand NRSA ----------

True or False

17. Laterization is the process of accumulation of Iron and Aluminium oxides
18. Accelerated erosion takes place as a result of the action of water, wind, gravity and glaciers
19. Kari soil is the local name for acid sulphate soil
20. Universal Soil Loss Equation was given by Yoder and Smith

II. Questions for short answer **(14 x 1 = 14)**

Definition

1. Threshold velocity.
2. Shifting cultivation
3. Field capacity
4. Remote sensing
5. Soil water potential
6. Leaching requirement.
7. Saltation
8. pF.
9. Problem soils

Distinguish between the following

10. Erodibility and Erosivity.
11. Laterite and Lateritic soil
12. Saline and alkaline soil.
13. Accelerated and geological erosion.

Substantiate the statement

14. All capillary water is available to plants.

III. Questions for short notes (any eight) **(8 x 2 = 16)**

1. Describe USLE.
2. How to control wind erosion?
3. List out the reasons for occurrence of problem soils.
4. Explain the characteristic of alkali soil and its management.
5. Describe the use of lime in agriculture.
6. What are the technologies adopted for conservation of soil moisture?
7. Give the formula for following parameter with units
   a) Permeability index.
   b) Salt index
   c) Potential salinity.
8. Classify the irrigation water based on SAR value.
9. Explain the biological classification soil water.
10. Explain land suitability classification.

IV. Short essays (any FIVE) **(5 x 4 = 20)**

1. What are the factors affecting wind and water erosion and explain it?
2. Explain the factors responsible for land degradation.
3. Describe the various criteria considered in evaluating the quality of irrigation water.
4. Explain the impact of water quality on soil and plants.
5. Elaborate on Integrated Watershed Management.
6. Explain the components of soil water potential.

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