

KERALA AGRICULTURAL UNIVERSITY
B.Sc. (Ag) 2005 Admission VI Semester Final Examination
October 2008

Chem 3204
Conservation and Management of Soil and
Water Resources (2+1)

Max. Marks: 60

Time: 2½ hours

I. Objective type questions

Marks: 20 x 0.5 = 10

Choose the correct answer

1. Soil aggregation can be estimated by using

- a) Yoder's apparatus b) IRGA c) Cone penetrometer d) Atterberg's apparatus

2. Leaching requirement can be estimated by formula

- a) $LR = EC_{iw} / EC_{dw}$ b) $LR = EC_{dw} / EC_{iw} \times 100$ c) $LR = D_{iw} / D_{dw}$ d) None

3. 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

4. Pressure membrane apparatus is used to measure matric potential and moisture content relations at potential values as low as

- a) 1 bar b) 10 bar c) 100 bar d) 1000 bar

5. The soil erodibility factor (K) indicates inherent erodibility of a soil gives an indication of the soil loss from a unit plot ----- m long with a 9% slope under continuous fallow culture

- a) 22 b) 40 c) 62 d) 72

6. Land capability class restricted to recreation, wildlife, water supply, or aesthetic purposes is

- a) I b) VI c) VII d) VIII

7. pF of dry soil is

- a) 0 b) 2.53 c) 4.5 d) 7.0

8. Which one of the following has largest geographical area?

- a) U. P b) Bihar c) Rajasthan d) M. P

9. The value of ESP in alkali soil is always

- a) >15 b) <15 c) any value d) None

10. Crop which is very sensitive to salinity

- a) Sugarcane b) Pulses c) Barley d) Cotton

Fill up the blanks

11. Available soil moisture is the moisture held between ----- and -----

12. Hygroscopic water is ----- to plants

13. The radio active source of Neutron probe is ----- and -----

14. In India Acid sulphate soils are present in ----- and -----

States

15. The author of the book "Soil erosion and its control" is -----

16. Forest area of India occupies ----- % of total geographical area

17. Honey comb like structure is the characteristic feature of ----- soil

18. ----- is an essentially a moisture control mechanism which provides

desirable environment in the crop zone by removing excess salts and water

19. The concept of soil water potential was given by -----

20. Capillary water is held by the force of -----



II Questions for short answer

Marks: 14 x 1 = 14

Definition

1. Sensor
2. Cat clay
3. Biosolid
4. Suction
5. Contour
6. Dispersion ratio
7. Land slide
8. Soil moisture characteristic curve
9. Avalanching

Distinguish between the following

10. Active sensor and Passive sensor
11. Sewage and Sludge
12. Primary and Secondary treatment
13. Contour and Graded bunding

Substantiate the statement

14. Hygroscopic water is available to plants

III. Questions for short notes (Any EIGHT)

Marks: 8 x 2 = 16

1. Objectives of Watershed management
2. Rating chart for saline, saline alkali and alkali soils
3. Causes of soil erosion in India
4. Classify the irrigation water based on SAR value
5. Describe the use of lime in agriculture
6. Explain Land Capability classification

7. Explain the characteristics of alkali soil and its management
8. Explain the biological classification of water
9. What are the technologies adopted for conservation of soil moisture
10. How to control wind erosion

IV. Short Essays (Any FIVE)

Marks: 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. Integrated Watershed Management
6. Explain the components of soil water potential