



**KERALA AGRICULTURAL UNIVERSITY**  
**B.Tech.(Agrl. Engg.) 2023 Admission**  
**I Semester Final Examination - February 2024**

Sacs.1104

**Principles of Soil Science (2+0)**

**Marks: 50**  
**Time: 2 hours**

- I Fill in the blanks (10x1=10)**
1. The A and B horizons together are designated as soil.....
  2. The relative proportion of sand, silt and clay is called as.....
  3. Climate and vegetation are called as ..... soil forming factors.
  4. Soil bulk density is always ..... than particle density.
  5. Kaolinite belongs to ..... type of clay minerals.
- State True or False**
6. pH of saline soil is always >8.5.
  7. Lime is used for reclamation of alkaline soils.
  8. Mineralization is the conversion of nutrients from organic to inorganic.
  9. As per Moh's scale of hardness, talc is the softest mineral.
  10. Soil phosphorous is more available under acidic or alkaline condition
- II Write short notes on ANY FIVE of the following (5x2=10)**
1. How temperature facilitates mechanical breakdown of rocks?
  2. Define soil structure. What is the importance of soil structure for plant growth?
  3. Provide the systems of classification of soil particles according to their sizes based on ISSS and USDA.
  4. How does clay develop charge through isomorphous substitution?
  5. Why do soil of temperate region have much higher organic matter compared to that in the tropics?
  6. What are the characteristics of a saline soil?
  7. What is active acidity? How is it measured?
- III Answer ANY FIVE of the following (5x4=20)**
1. What does diagnostic horizon indicate?
  2. Explain briefly how does soil organic matter influences soil fertility.
  3. Enumerate the effect of soil pH on plant growth and nutrient availability?
  4. What are the criteria's for evaluation of irrigation water?
  5. Write briefly on the sources and causes of salt accumulation in soil.
  6. What are the different soil forming processes? Mention the fundamental and specific pedogenic processes involved?
  7. Briefly explain the major factors for development of soil acidity.
- IV Write an essay on ANY ONE of the following (1x10=10)**
1. Explain the chemical weathering process of rocks and minerals in soil formation.
  2. What is soil pH? Discuss the different forms of acidity?

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