

**Five Year Integrated M.Sc. Examinations 2023**

**Sem-V**

**Course: EES-3-5-5 (2016)**

**(Principle of Soil Science)**

**Time: 3 hours**

**Full Marks: 40**

Questions are of value as indicated in the margin.

Answer **Question No.1** and **any four** from the rest.

1. Write short notes on **any four** of the following.
  - (a) Munsell color system
  - (b) Sandy and clay soils
  - (c) Particle density and bulk density
  - (d) Mollic and Ochric epipedons
  - (e) Spodosols
  - (f) Isomorphic substitution

2 x 4 = 8
2. Give a note on:
  - (a) Inorganic and organic components of soil
  - (b) Soil porosity and its environmental significance
  - (c) Soil temperature and its diurnal and annual variation

3+3+2 = 8
3.
  - (a) What are the major primary minerals present in soil?
  - (b) Discuss the characteristics features of them.

2+6 = 8
4. Give a note on:
  - (a) Soil water and its environmental significance
  - (b) Describe water-soluble ions in soil solution
  - (c) USDA and ISSS classification of soil particles

3+3+2 = 8
5. Discuss the following:
  - (a) Types of clay with suitable examples.
  - (b) Swelling clay.
  - (c) Comparison of colloidal properties of clay with humus

2+4+2=8
6. Give short notes on:
  - (a) Classification of humus and its formation theory.
  - (b) Acid mine drainage

(2.5+2.5)+3=8
7. Describe cation exchange capacity (CEC), the factors affecting it, and its environmental significance.

2+3+3 = 8