M.Sc.(Ag.) Semester – I Examination, 2014

Soil Science and Agricultural Chemistry

Course : SSC – 503

(Soil Chemistry)

Time: 3 Hours **Full Marks: 50**

Questions are of value as indicated in the margin.

Answer ***any five*** questions.

1. Write in detail the chemical properties of inorganic soil colloids. Differentiate between inorganic and organic soil colloid. 8+2=10
2. Mention the different characteristics of saline and saline alkali soils. How are they reclaimed? 5+5=10
3. Justify the following statements (***any four***): 2.5×4=10
   (a) Calcium causes floculation.
   (b) Schofields ratio law can be used for derivation of lime potential
   (c) Response of phosphatic fertilizer is low in alkali soil
   (d) Akiochi disease is common in submerged soil with low in exchangeable iron
   (e) Fe and Mg content is more in bulk earth as compared to earth crust
4. What are the different consequences following submergence with reference to physicochemical and electrochemical properties. 10
5. Differentiate between the following (***any four***): 2.5×4=10
   (a) AEC and CEC
   (b) Lime requirement and Gypsum requirement
   (c) Permanent charge and temporary charge
   (d) SAR and ESP
   (e) Active acidity and Exchange acidity
6. Write in detail the chemistry of acid soil formation. What are the different effects of soil acidity on soil, plants and microbes? 4+6=10
7. Write down the fractionation scheme of different fractions of organic matter. Differentiate between FA and HA. 8+2=10
8. How charges are developed in soil? What are the factors affecting CEC in soil? Write down the practical implications of CEC. 4+2+4=10
