M.Sc. (Ag.) Examination, 2018
Semester-II
Soil Science and Agricultural Chemistry
Course : SSC-511
(Management of Problem Soils)

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

Questions are of value as indicated in the margin

Answer **any five** questions

1. (a) Write in brief about monitoring soil salinity in field.
   (b) What are the agronomic measures for saline soils? What is leaching requirement? 4+4+2=10
2. (a) Discuss the various factors that result in the formation of acid soils. In this light, explain the extent and distribution of acid soils in India.
   (b) Differentiate between active and potential acidity. What is lime requirement? Discuss the reaction of lime when applied to acid soils. 5+5=10
3. (a) Classify the salt affected soils on the basis of their physical, chemical and biological characteristics.
   (b) Briefly discuss the amelioration techniques for reclamation of alkali soils. 5+5=10
4. (a) Classify calcareous soils based on the calcium carbonate content. What are the problems in crop production in calcareous soils?
   (b) How will you manage calcareous soils for greater nutrient availability and crop productivity? 5+5=10
5. (a) What do you understand by irrigation water quality? Briefly discuss the components of irrigation water quality.
   (b) Discuss the limits of safe irrigation water quality with respect to important parameters. 5+5=10
6. Give reasons why (**any four**): 4×2.5=10
   (a) Saline soils are white in colour and alkali soils are black in colour.
   (b) Brackish water can be used for irrigation but with caution.
   (c) Certain plants can tolerate high concentration of salts.
   (d) Light textured acid soils require less lime for reclamation than heavy textured acid soils.
   (e) Exchangeable Al plays an important role in development of soil acidity.
   (f) Gypsum cannot be used for reclamation of acid soils.
7. Write short notes on (**any five**) 5×2=10
   (a) Acid sulphate soils (b) Gypsum requirement (c)SAR and adjusted SAR
   (d) Salt and water balance relationship (e) Biological soil degradation
   (f) Management of dry land soils (g) ESP and ESR
