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

Soil Science and Agricultural Chemistry

Course : SSC – 502

(Soil Fertility and Fertilizer Use)

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

Questions are of value as indicated in the margin.

Answer ***any five*** questions.

1. Discuss various factors affecting soil fertility. What are meant by Nutrients and Nutrition? Discuss criteria of essentiality of nutrients for the growth of plants. 5+2+3=10

2. What is meant by growth? Discuss in short various factors affecting plant growth. State Mitscherlich law of growth with mathematical equation. What is Baule unit? 1+5+3+1=10

3. What are various forms of P in soils? Discuss behavior of P in soils. Discuss various roles of P in plant nutrition. 3+5+2=10

4. Discuss in short various mechanisms involved for the movement of ions from bulk soil to the plant root surfaces. 10

5. State and explain various forms of B in soils. How does B behave in soils? Discuss important functions of B in plant nutrition. 3+5+2=10

6. Discuss various chemical pools of Zn in soils. Briefly discuss important roles of Zn in plant nutrition. How Zn deficiency in plants can be corrected? 3+3+4=10

7. Discuss in short various techniques employed for the evaluation of soil fertility. 10

8. Write short notes (***any five***): 2×5=10

   i) Site Specific Nutrient Management

   ii) Balanced nutrition and Integrated nutrient management system

   iii) Blanket fertilizer recommendations-merits and demerits

   iv) Quantity – Intensity relationships for nutrient availability

   v) Phosphate potential

   vi) Diagnosis and Recommendation Integrated System (DRIS)

   vii) Critical nutrient concentration and Critical nutrient range

   viii) Active and passive uptake of ions
