

M.Sc. (Ag.) Examination, 2016
Semester-III
Soil Science and Agricultural Chemistry
Course No.: SSC-502
(Soil Fertility and Fertilizer Use)

Time: 3 hours

Full Marks-50

Questions are of values as indicated in the margin

Answer *any five* questions

1. Define 'Soil Fertility' and 'Soil Productivity'. How are they related? Discuss Mitscherlich's equation and Baule unit. 5+5=10
 2. What are the criteria of essentiality of plant nutrients? Discuss the role and deficiency symptoms of P, K, S and Zn in plant nutrition. 2 + 8 = 10
 3. Give the various approaches and list the methods for evaluating the fertility status of soils. Discuss briefly two methods for evaluation of soil fertility. 3+7= 10
 4. Name the most important fertilizer carriers of the following nutrient elements along with their doses of soil and foliar applications: i. Iron ii. Zinc iii. Copper iv. Boron v. Molybdenum 2 x 5 = 10
 5. Briefly describe the biological nitrogen fixation process in legumes. What are the factors affecting nitrification? What is the importance of the dynamic equilibrium of potassium in plant nutrition? 4+3+3 =10
 6. Briefly describe the phosphorus fixation processes in soil? Why sulphur is more susceptible to leaching loss compared to phosphorus? 8+2=10
 7. Write short notes on (*any five*): 5 x 2=10
 - i. Plant analysis and tissue testing
 - ii. Soil Testing
 - iii. Indicator plants
 - iv. Toxicity symptoms of N
 - v. Law of minimum
 - vi. Nitrification inhibitor
 - vii. Nutrient deficiency diseases
 - viii. Chelating agents
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