Agriculture and Forestry University
Office of the Controller of Examinations
Rampur, Chitwan
2079, Bhadra

Faculty	Agriculture		
Exam	Regular		
Level	Bachelor	Full Marks	40
Program	B. Sc. Ag.	Pass Marks	16
Year and Semester	1st Year 2nd Semester	Time	2:00 hrs.

Subject : SSC 102, 3(2+1) Soil Fertility, Fertilizers and Integrated Nutrient Management

Candidates are required to give their answers in their own words as far as practicable. All questions carry equal marks. Answer any 10 questions.

1. State humus theory. Discuss the experiment conducted by Von Helmont and his contribution in the field of soil fertility and plant nutrition. (2+2=4)
2. Classify mineral nutrients on the basis of mobility in plant. Nitrogen is considered as the most limiting nutrient in soil. Why? (2+2=4)
3. Potassium is known as chemical policeman. Justify. Describe the problem of potassium fertility in soil. (2+2=4)
4. List the function of boron in plant. Describe the factors affecting zinc availability in soil. (2+2=4)
5. How does soil pH affect the soil solution P? SSP is considered better for seedlings as compared to DAP. Why? (2+2=4)
6. Describe the behavior of Urea and Ammonium Sulphate with reactions involved after application in soil. In which more volatilization loss occurs and why? (2.5+1.5=4)
7. Differentiate between
   a. Denitrification and Anammox
   b. Essential and beneficial nutrients
   c. In situ and Ex situ green manuring
   d. Ectomycorrhiza and Endomycorrhiza
   (1 × 4=4)
8. Give reason
   a. Wetland soil have larger accumulation of organic matter compared to well aerated soil.
   b. Purpling is seen due to Phosphorous deficiency.
   c. Leaching loss is more in coarse textured soil compared to fine textured soil.
   d. Lower leaves turn chlorosis due to deficiency of Nitrogen.
   (1+3=3)

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9. Define partial factor productivity and how is it calculated? List the cause of:
   a. Whiptail of cauliflower
   b. Cracking of fruits
   c. Crinkle leaf of cotton
   d. Pig and tailing of wheat (2+2=4)
10. Define biofertilizers and list their roles in plant nutrition. How does mycorrhiza helps in availability of phosphorous in plant? (2+2=4)
11. What are the different methods of soil fertility evaluation? In what ways, correlation and calibration are carried out in the soil test method of soil fertility evaluation? (2+2=4)

GOOD LUCK