

The Open University of Sri Lanka
Faculty of Engineering Technology
Department of Agricultural & Plantation Engineering



Study Programme : Bachelor of Industrial Studies Honours
Name of the Examination : Final Examination
Course code and Title : **AGX4356 Soil Science**
Academic year : 2022/2023
Date : 01st February 2024
Time : 0930 -1230 hrs
Duration : **3 hours**

Registration Number Index Number.....

Instructions

1. Contain SIX (06) essay type questions. You are required to answer **ONLY FOUR (04) questions**. You may spend about **two hours** to answer the questions in this section. Answer for each question should commence from a new page.
2. Read the questions carefully before answering.
3. Please note that you should write your registration number and index number in the space provided above. Do not write your name.

SECTION 2

1. a. Discuss the factors affecting the soil organic matter content. (10 mark)
b. Briefly describe the influence of organic matter on improvement of soil and crop yield (15 mark)
2. Briefly describe the factors that influence on soil formation and development. (25 mark)
3. a. Discuss the main categories of soil organisms that belong to soil flora. (10 mark)
b. Briefly describe the importance of soil organisms in the improvement of soil. (15 mark)
4. a. Describe the role of nitrogen fertilizer on crop growth and yield. (10 mark)
b. Briefly explain the factors affecting the nitrogen cycle. (15 mark)
5. a. By a field test you have found out that you have to apply 70kg of N, 40kg of P₂O₅, and 30kg of K₂O per hectare to get high crop yields. Fertilizers available at your disposal are urea (N-45%), single superphosphate (P₂O₅-18%) and muriate of potash (K₂O-60%). Calculate the amount of urea, single superphosphate and MOP that should be applied to fulfill the above requirements of that soil. (5 mark)
b. Briefly discuss the role of plant nutrients and their deficiency symptoms. (10 mark)
c. Discuss the advantages and disadvantages of organic fertilizers. (10 mark)
6. Write short note on following,
 - a. Soil pH on cation exchange capacity (5 mark)
 - b. Physical weathering (5 mark)
 - c. Carbon nitrogen ratio. (5 mark)