

The Open University of Sri Lanka
Faculty of Natural Sciences
B.Sc./B.Ed. Degree Programme



Department	: Botany
Level	: 05
Name of the Examination	: Final Examination
Course Code and Title	: BYU5304/BYE5304 Soils and Plant Growth
Academic Year	: 2023/24
Date	: 28.03.2024
Time	: 9.30a.m. – 11.30a.m.
Duration	: 2hrs

1. Read all instructions carefully before answering the questions.
2. This question paper consists of 06 questions in 01 page.
3. Answer any 04 questions only. All questions carry equal marks.
4. Answers for each question should commence from a new page.
5. Draw fully labelled diagrams where necessary.
6. Involvement of any activity that is considered as an exam offence will lead to punishment.
7. Use blue or black ink to answer the questions.
8. Clearly state your index number in your answer script

1.
 - a. What is meant by “mineral weathering”? (5 mins)
 - b. Describe the influence of physical and chemical characteristics on mineral weathering. (10 mins)
 - c. Explain briefly how topography and vegetation influence soil forming process and soil development. (15 mins)
2.
 - a. What is the relationship between the bulk density and the particle density? (5 mins)
 - b. Give reasons why sandy soils have lower Cation Exchange Capacity (CEC) than clay soils (5 mins)
 - c. Write a brief note on “buffering of soil”. (10 mins)
 - d. Briefly discuss the adverse impacts of poor aeration on soil biota. (10 mins)
3. Write an account on the “contribution of microorganisms in cycling of nutrients in soil”.
(30 mins)
4. Explain the following. (6 mins each)
 - a. B horizon is seen only in mature soils.
 - b. In agriculture, it is advised to apply an additional amount of inorganic Nitrogen (N) source when organic matter with high C:N ratio is incorporated into soil.
 - c. Nitrate (NO_3^-) concentration is low in clay rich soils under water logged conditions.
 - d. Areas that receive heavy rains result acidic soils.
 - e. Agricultural potential of a soil depends on the fertility characteristics of that soil and the nature of the climate especially the rainfall.
5.
 - a. Briefly describe the factors that affect the retention of Phosphorus in soil. (15 mins each)
 - b. “It is said that the most of the soil Nitrogen (N) is in organic forms and resistant for microbial decomposition”. Justify this statement (15 mins each)
6. Write short notes on **any two (02)** of the following. (15 mins each)
 - a. Effects of farmyard manure on the soil
 - b. Agroforestry practices for erosion control
 - c. Structure of clay minerals in soil