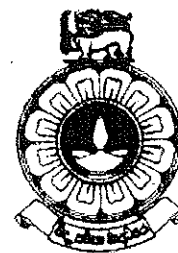


The Open University of Sri Lanka
Faculty of Natural Sciences
B.Sc/ B.Ed Degree Programme



Department	: Botany
Level	: 05
Name of the Examination	: Final Examination
Course Code and Title	: BYU5304/BYE5304/BOU5304/BOE5304 Soils and Plant Growth
Academic Year	: 2020/21
Date	: 26.03.2022
Time	: 1.30 p.m. – 3.30p.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

Answer **any four (04)** questions.

1.
 - a. What is weathering? (3 mins)
 - b. Briefly explain how rocks are classified. (5 mins)
 - c. What is the importance of secondary minerals? (7 mins)
 - d. Discuss the structure and mineralogical organization of clay minerals. (15 mins)

2. Explain the following. (6 mins each)
 - a. Steeply sloping areas have less developed soil profiles.
 - b. Percentage base saturation is related to the cation exchange capacity of that soil.
 - c. Grassland soils have more organic matter than the soil under trees.
 - d. Development of acidic soil is more in areas receiving high rainfall.
 - e. In a soil profile, B layer is formed after the development of A and C layers.

3. "Soil organic matter performs many functions to keep the soil productive and to act as a better nutritional source for plants". Elaborate on this statement. (30 mins)

4.
 - a. Briefly explain how acidic and saline soils are developed. (10 min)
 - b. What do you mean by "sustainable land use"? (5 mins)
 - c. Briefly explain the contribution of agroforestry practices in maintaining sustainable land use. (15 mins)

5. Write an essay on "role of microorganisms in cycling of bio elements giving special emphasis on Carbon (C), Nitrogen (N) and Sulphur (S) cycles". (30 mins)

6. Write short notes on **any two (02)** of the following. (15 min each)
 - a. Effects of inorganic fertilizers on the chemical and physical properties of soil
 - b. Phosphorus retention in soil
 - c. Methods by which soil microorganisms resist unfavorable conditions in soil