

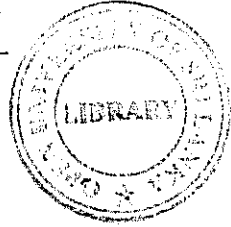
THE OPEN UNIVERSITY OF SRI LANKA
B.Sc./B.Ed. DEGREE PROGRAMME – LEVEL 05
FINAL EXAMINATION - 2008/2009
BOTANY
BTU 3105/BTE 5105 – SOILS AND PLANT GROWTH
DURATION – TWO AND A HALF (2 1/2) HOURS



DATE: 21st July 2009

TIME: 10.00 a.m.-12.30 p.m.

Answer any four (04) questions.



01.
 - a. Distinguish between primary and secondary minerals.
 - b. Why are clay minerals considered as important in agriculture?
 - c. "Montmorillonite clays always show higher cation exchange capacity than Kaolinite clays". Justify this statement.

02. Explain the following.
 - 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 same soil under trees.
 - d. Development of acid soils is more in areas receiving high rainfall.
 - e. In a soil profile, B layer is formed after the development of A and C layers.

03.
 - a. What is humus?
 - b. List the basic characteristics of humus.
 - c. Explain briefly how organic matter is accumulated and depleted in soil.
 - d. How is the amount of organic matter in soil regulated in agriculture?

04. Discuss in detail the effects of cycling of Carbon, Nitrogen and Sulphur on the environment and agricultural practices. (Basic Illustrations on cycling of the above elements are also required).

05.
 - a. Write concisely on the beneficial and harmful effects of trees on soil.
 - b. Using examples explain how trees can be used for the improvement of soil.

06. Write short notes on **any three(03)** of the following.
 - a. Classification of parent material
 - b. Activity of plant roots and soil animals on the granulation and structure formation in soil
 - c. Effects of poor aeration on soil flora
 - d. Fertility characters of red yellow podzolic soils in Sri Lanka