



The Open University of Sri Lanka
Faculty of Engineering Technology
Technology and Industrial Studies Program
Final Examination- 2009

AEX5232 Soil Plant Water Relationship

Date : 10/03/2010
Time : 9.30-12.30

SECTION II -Answer any four (04) questions

- (1)
 - (a) Briefly explain the major pore types in soil and their role in holding the water in Sandy Loam and Silty Clay textural classes of soil.
 - (b) Discuss the factors influencing the rate of infiltration in an agricultural land.
- (2)
 - a) Sketch and Derive the equation for water flux for downward flow of water in a vertical soil column.
 - (b) Consider a case of steady downward percolation through a single layered soil profile, the top of which is submerged under a 1m head of water and the bottom of which is defined by a water table. The thickness of the soil layer is 150 cm and the conductivity is 10^{-6} cm/sec. Calculate the flux and comment on the suitability of this soil for agricultural purposes.
- (3) Briefly explain the factors affecting the absorption of ions.
- (4) Write an essay on the effect of water deficit on plant growth and physiological processes of the plant.
- (5)
 - a) State the effects of soil salinity on crop growth and crop production.
 - b) Explain how soil salinity can be reduced to have good plant growth.
- (6) "Water pollution due to the losses of nutrients from agricultural land has been considered as a major threat to the environment." Justify this statement.