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The Open University of Sri Lanka  
Faculty of Engineering Technology  
Bachelor of Industrial Studies Honours (Agriculture)  
Final Examination- 2019/2020  
AGX5532/AEX5232 Soil Plant Water Relationship

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**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.