



The Open University of Sri Lanka  
Faculty of Engineering Technology

Diploma/Degree in Technology

Final Examination- 2012/2013

**AEX6233 Hydrology**

**SECTION 2: Answer any four (04) questions. All questions carry equal marks.**

1. Briefly explain **one (01)** new water resources project implemented in the dry zone of Sri Lanka recently by the Irrigation Department for irrigation purposes and the advantages and disadvantages of that project.
2. (a) Explain why large diameter wells are used in large scale in dry zone for agricultural purposes and the pollution problems.  
(b) Briefly discuss the groundwater quality and health hazards in the Dry zone of Sri Lanka.
3. (a) Briefly explain the four processes that create acidity in unsaturated zone of soil.  
(b) Discuss the fluoride contamination in Sri Lanka with suitable examples and suggest the possible mitigation and adaptation measures.
4. (a) Briefly discuss the advantages and disadvantages of the drip irrigation method over the conventional irrigation methods.  
(b) Describe the moisture distribution and uniformity of coverage in sprinkler irrigation system.  
(c) Determine the system capacity for a sprinkler irrigation system to irrigate 15 hectares of Brinjal crop. Design moisture use rate is 5mm per day, moisture replaced in soil at each irrigation is 5cm. Irrigation efficiency is 75 per cent. Irrigation period is 10 days in a 2-day interval. The system is to be operated for 20 hours per day.
5. Briefly explain and compare the aquifer yields in unconsolidated materials, sedimentary rocks and crystalline rocks.
6. Write a brief note on any three (03) of the following
  - (a) Aquifer particle size analysis
  - (b)  $K_{oc}$  in Groundwater studies
  - (c) Drilling methods of tube well
  - (d) Natural Protection of groundwater