



The Open University of Sri Lanka
Faculty of Engineering Technology

Diploma/Degree in Technology

Final Examination- 2008/2009

AEX6233 Hydrology

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

1. (a) Write a brief note on three higher rating recharge estimating methods in terms of applicability, data requirement and reliability.
(b) Briefly discuss the soil moisture balance method for recharge estimation.
2. (a) Explain why large diameter wells are used in large scale in dry zone for agricultural purposes.
(b) Briefly discuss three major limitations for Agro well irrigation in 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 explain three (03) methods for stream gauging including current meter.
(b) Compute the discharge of the stream using the current meter data given below

| | | | | | | | | | | | | |
|--------------------------|---|------|------|------|------|------|------|------|------|------|------|-----|
| Distance (m) | 0 | 0.6 | 1.2 | 1.8 | 2.4 | 3.0 | 3.6 | 4.2 | 4.8 | 5.4 | 6.0 | 6.6 |
| Depth (d) | 0 | 0.3 | 1.29 | 2.16 | 2.55 | 2.22 | 1.68 | 1.41 | 1.05 | 0.63 | 0.42 | 0 |
| Velocity (m/sec) at 0.2d | 0 | 0.42 | 0.57 | 0.78 | 0.87 | 0.81 | 0.75 | 0.69 | 0.63 | 0.54 | 0.45 | 0 |
| Velocity (m/sec) at 0.8d | 0 | 0.21 | 0.36 | 0.54 | 0.60 | 0.30 | 0.51 | 0.45 | 0.39 | 0.33 | 0.30 | 0 |

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) Pumping test of wells
 - (c) Drilling methods of tube well
 - (d) Natural Protection of groundwater