



The Open University of Sri Lanka
Faculty of Engineering Technology
Technology Program
Final Examination- 2007/2008
AEX6233 Hydrology

Date : ~~10~~-05-2008
Time : 0930-1230

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

1. (a) Briefly discuss the importance of forecasting in the statistical concepts of hydrology.
(b) Use the following data and calculate the Pearson's correlation coefficient and discuss the results.

x	y
1.3	151.6
0.9	105.6
1.8	200.0
2.1	221.3
1.5	170.0
7.6	842.2

2. (a) Write a brief note on Unit Hydrograph.
(b) Briefly discuss the factors affecting the shape of the hydrograph.
3. (a) Briefly discuss the significance of groundwater for domestic use
(b) Write a brief description on the bacteriological safety of groundwater
4. (a) Write a brief note on the operation and maintenance of sprinkler systems
(b) Explain the importance of moisture distribution patterns and uniformity of coverage in sprinkler irrigation system.
5. Write a brief note on any three (03) of the following
 - (a) Regional Flow model for Groundwater modelling
 - (b) Drilling methods of tube well
 - (c) Components of Drip irrigation system
 - (d) Natural Protection of groundwater

6. Annual precipitation at rain gauge X and the average annual precipitation at 20 surrounding rain gauges are listed in the following table.

- (a) Examine the consistency of station X data.
- (b) When did a change in regime occur? Discuss possible causes.
- (c) Assuming the earlier data is correct, adjust the data and determine what difference this makes to the 36-year annual average precipitation at station X.

Annual precipitation mm			Annual precipitation mm		
Year	Gauge X	20 station average	Year	Gauge X	20 station average
1972	188	264	1954	223	360
1971	185	228	1953	173	234
1970	310	386	1952	282	333
1969	295	297	1951	218	236
1968	208	284	1950	246	251
1967	287	350	1949	284	284
1966	183	236	1948	493	361
1965	304	371	1947	320	282
1964	228	234	1946	274	252
1963	216	290	1945	322	274
1962	224	282	1944	437	302
1961	203	246	1943	389	350
1960	284	264	1942	305	228
1959	295	332	1941	320	312
1958	206	231	1940	328	284
1957	269	234	1939	308	315
1956	241	231	1938	302	280
1955	284	312	1937	414	343