



EASTERN UNIVERSITY, SRI LANKA
FINAL YEAR EXAMINATION IN AGRICULTURE (500 SERIES) – 2001
AEN 433 : Advanced Hydrology and Watershed Management

Answer all questions
Time allowed: 3 hours

1. Explain the important cause-effect and upstream-downstream linkages at a watershed scale in Sri Lanka.
2. a. Estimate the peak rate of runoff (in m^3/sec) from a 50 ha watershed in Badulla district. Use the following information for the calculation.

Runoff coefficient = 0.6

Time of concentration = 20 min.

Return Period = 10 years

- b. Design a parabolic shaped channel for maximum safe velocity by considering the following situations.

Sandy soil with very good grass cover

Manning's roughness coefficient $n = 0.03$

Outlet bottom slope = 0.01 m/m

(The relevant tables and nomographs are attached)

3. a. Discuss the impact of intensive cultivation on water quality of water resources in Sri Lanka.
- b. What are the strategies that you could propose to maintain water quality?

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4. Discuss the soil conservation measures suitable for vegetable cultivation on slopy areas.

5. Write notes on:

- a. Groundwater aquifers of Sri Lanka
- b. Aquifer pump test