Uva Wellassa University, Sri Lanka
End Semester Examination –September/ October 2012

Uva Wellassa University

MRT 351-1 Hydrology
-Repeat-

Duration: One (01) hour

Total four (04) Questions
Answer all questions
Draw schematic diagrams where necessary

01) Discuss the advantages and limitations of equipment used for measuring the following components of the hydrologic cycle.

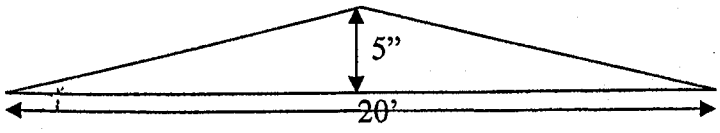
(a) Rainfall
(b) Evaporation
(c) Evapotranspiration (lysimeter)
(d) Runoff (measuring weirs) (20 marks)

02) (i) Write a short note on "Overland flow". (10 marks)

(ii) List the factors that affect global air circulation. (10 marks)

03) (i) What are the factors that determine Darcian flow in a channel? (10 marks)

(ii) Roads are normally constructed in such a way that sides are lower than the central part in order to maintain a proper drainage of storm water. An asphalt-lined road, which is 20 feet wide, is bounded by pavements of which walls are 3 inches high on both sides of the road. The central part is 5 inches high illustrating a triangular cross-section (only the basic measurements of the road are sketched here for your convenience).



Slope of the road is 0.015. Manning's roughness coefficient of asphalt is 0.016. During a particular rainfall, water fills up to a height of 2 inches on both sides of the road. Calculate the total discharge along the road after the rainfall. (Assume that the pavement walls also have the same Manning's roughness coefficient as asphalt) (20 marks)

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04) Following data reveal the ordinates of 1 cm unit hydrograph for a storm of 2-hour duration over a catchment of 25 km^2. Derive the hydrograph of 2 cm for a storm of 6-hour duration through S-Curve method.

Time (h)	0	1	2	3	4	5	6	7	8	9	10	11	12	13
Q (m^3/s)	0	10.1	25.0	46.7	70.0	83.0	73.0	56.0	40.0	28.2	18.4	9.9	3.1	0

(30 marks)

(Total 100 marks)

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