

EASTERN UNIVERSITY, SRI LANKA

FACULTY OF AGRICULTURE

FIRST YEAR SECOND SEMESTER EXAMINATION IN AGRICULTURE-2016/2017

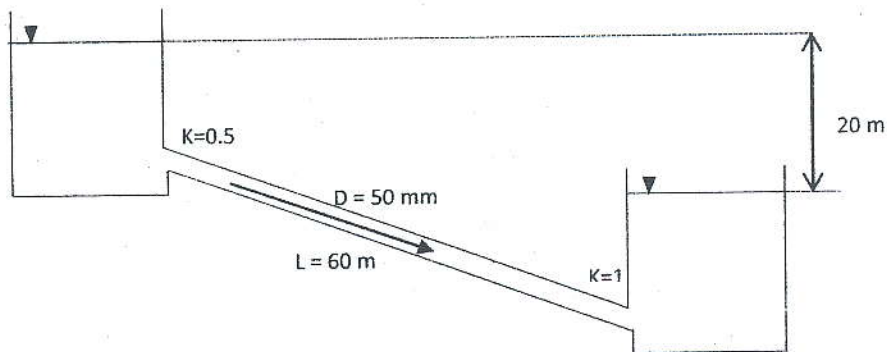
(Apr/May-2019)

AE 1201: ENGINEERING HYDROLOGY AND HYDRAULICS (2:30/00/60)

Answer **all** questions

Time: Two hours

1. a. Discuss the physiographic factors which influence on the shape of flood hydrograph with suitable diagrams.
- b. The diagram shows a tank draining water into another lower tank through a 50 mm diameter pipe. If the length of the pipe is 60 m, calculate the quantity of flow through the pipe. Assume friction factor, f is 0.028.



2. a. Define the term “unit hydrograph (UH)”.
- b. What are the assumptions made in the use of unit hydrograph?
- c. The following are the ordinates for a flood hydrograph resulting from an isolated storm of 6 hr duration. Determine the 6-hr UH if the area of the catchment is 450 km^2 . Assume base flow is $5\text{ m}^3/\text{s}$.

Time from the start of rainfall (hr)	0	12	24	36	48	60	72	84	96
Ordinates of flood hydrograph (m^3/s)	5	15	40	80	60	40	25	15	5

3. a. Define the term “infiltration capacity”.
- b. Briefly explain the factors affecting infiltration capacity of a soil.

c. A rectangular open channel has a width of 3.5 m and a slope 1 vertical to 80 horizontal. Find the mean velocity of flow and discharge, when the depth of water is 1.2 m. Assume Chezy's constant, C is 49.

4. Write short notes on the followings:

- a. Stream flow measurement using velocity area method
- b. Aquifers
- c. Components of flood hydrograph
