

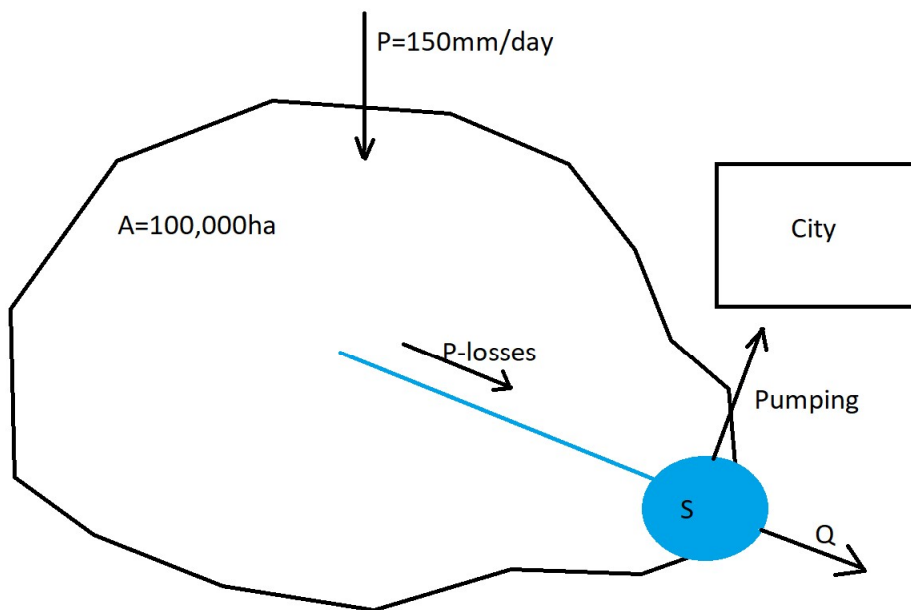
CVG3120 2018 ASSIGNMENT I

Due date: Monday October 8, 2018 at 23:59

Problem 1

A 100,000 hectares watershed receive a precipitation input of 150 mm lasting for a period of 1 day. Interception and infiltration during overland flows is 10% of the precipitation. The remainder of the water goes in a reservoir, in which the equivalent of 15% of the total precipitation is lost. Water is pumped from the reservoir at a rate of 4,000,000 liters per day to supply a nearby city. Water

also leaves the reservoir through a weir, and the outflow Q is given by $Q(m^3 / s) = \frac{S(m^3)}{846000}$



Calculate and plot the storage in the reservoir and the outflow Q as function of time (use 10 min time increments). Assume $S=0$ at $t=0$;

Problem 2

The storage in a river reach at a specified time is 4 hectare-meters. At the same time the inflow to the reach is $12\text{m}^3/\text{s}$ and the outflow from it is $25\text{m}^3/\text{s}$. one hour later the inflow is $20\text{m}^3/\text{s}$ and outflow is $20\text{m}^3/\text{s}$. determine the change in storage that occurred in the reach. Is the storage at the end of the hour greater or less than the initial value?

Problem 3

Figure a below represents the storage in a reservoir as function of elevation; Figure b shows the flow inside the reservoir as function of elevation. Assuming the reservoir is initially at 50 ft, calculate and plot the variation of the elevation as function of time using

- Constant elevation intervals of 2 feet
- Constant time intervals of 24h

Superimpose the two curves on the same graph and comment on their similarities/differences.

