6199-4-3P AID:97222 | 09/02/2020

Given Data:

Area of Watershed(A) = 4000 km2 = 4000 x 106 m2

Total precipitation during year(P) = 102 cm/year = 1.02 m/year

Run off or average outflow from watershed(R) = 34.2 m3/s

Average evaporation during year(E) = 40 cm = 0.4 m/year

Average infiltration rate = 5.5 x 10-7 cm/s

We need to find 1. Change in storage

2. Runoff coefficient

Conversions**:**

Runoff (or) average outflow from catchment = 34.2 m3/s

Runoff (or) average outflow from catchment per year = 34.2 x 365 x 24 x 60 x 60

= 34.2 x 31536000

= 1078531200 m3/year

∴ Volume of water in the form of Runoff per year = 1078531200 m3

Area of watershed = 4000 km2

Depth of Runoff or Depth of outflow = volume/area

= 0.2696 m

Average infiltration rate = 5.5 x 10-7 cm/s

Total infiltration per year = 5.5 x 10-7 x 365 x 24 x 60 x 60

= 5.5 x 10-7 x 31536000

Depth of water that infiltered = 0.173448 m/year

Total precipitation depth during year = 1.02 m/year

Total evaporation during year = 40 cm/year

= 0.4 m/year

Referring to the equation (4-3) of the chapter

S = P + Qin + Iin - Qou t- Iout - R - E - T

S = 1.2 + 0 + 0 - 0 - 0.173448 - 0.2696 - 0.40 - 0

= 0.176952 m

Runoff coefficient is defined as the ratio of Runoff to precipitation.

= 0.26431372