TSM 352 HOMEWORK ASSIGNMENT 07

**Due Monday, March 30th at 11:59 pm**

**Textbook Page 49-51**

Problems 5, 6, 7, 8, 9, 10, 11, 12.

**Textbook Page 51**

Problem 13 for Urbana, Illinois.

Problem 14 for Chicago, Illinois.

Problem 15 for Quincy, Illinois.

**Runoff**

Use the Rational Method to determine the design peak flow rate for a watershed where the land characteristics are:

|  |  |  |  |
| --- | --- | --- | --- |
| 134 ac | 7 % slope | Soil group C | Forested |
| 86 ac | 1.5 % slope | Soil group D | Improved pasture |
| 12 ac | 5 % slope | Soil group B | Roads |

The maximum length of flow is 3000 ft and the difference in elevation along this path is 15 ft. The rainfall intensity-duration-frequency curve for the 10-year event is given by

I = 2.68T-0.73

where I is rainfall intensity (iph) and T is rainfall duration (h).

**Flow Routing**

Route the inflow hydrograph from Question 3 through a channel for which t = 12 minutes, C0 = -0.045 and C1 = 0.377. Plot the outflow hydrograph if the travel time through the channel were doubled.