GUJARAT TECHNOLOGICAL UNIVERSITY

3rd Semester Civil Engineering – PDDC

Subject Code & Name : X30601 - Hydrology and Water Resources Engineering

Assignment – 2

Theory :

1. Define the term 'runoff'. Describe the various factors affecting runoff.
2. What is hydrograph? Draw neat sketch of a storm hydrograph and explain its components.
3. What is Unit Hydrograph? What are its Applications?
4. Define: a. Time of Concentration (Tc)

   b. Recession time (Tr)

   c. Basing Lag. (Tp)
5. Write Assumptions and limitations of unit hydrograph theory.
6. What is S-hydrograph? How it is constructed? What are its uses?

Examples :

1. The ordinates of 3 hour unit hydrograph are given below:

Time in (hr)	0	3	6	9	12	15	18	21	24	27	30
Ordinates in (m³/s)	0	10	25	20	16	12	9	7	5	3	0

Find the ordinates of 6hour unit hydrograph for same basin.

Sketch unit hydrograph.

2. A 6 hour UH for a basin has the following ordinates:

Time in (hr)	0	6	12	18	24	30	36	42	48	54	60	66
Ordinates in (m³/s)	0	20	60	150	120	90	66	50	32	22	10	0

Determine the ordinates of 12-hr UH for same basin.

   i.   Sketch unit hydrograph.
   ii.   Also solve this Example using S-Curve method.