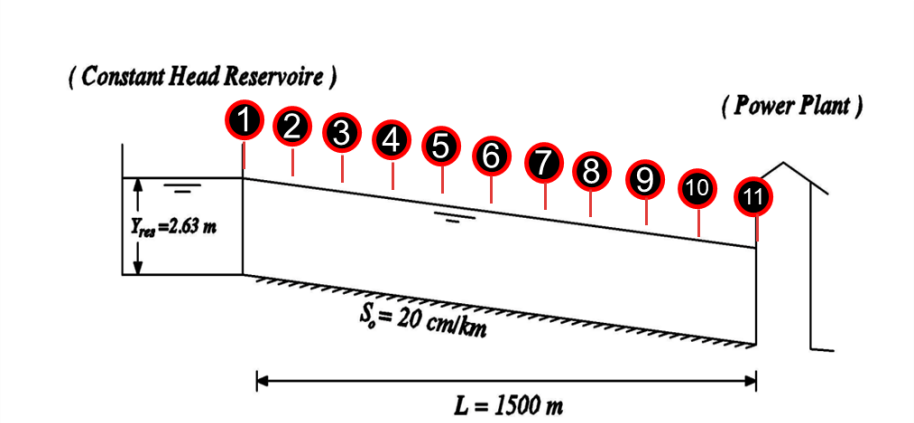
Assignment 4

- For the given channel, unsteady flow conditions are created by a rapid startup of a hydroelectric power plant located at the *D/S*. A series of upsurge and down-surge waves are created which travel back and forth in the channel.
- The channel is trapezoidal prismatic channel having a length of 1500 m, bed width of 10 m, side slopes of 0.5 horizontal to 1 vertical, Manning's coefficient of 0.016, and bed slope of 20 cm/km.
- The channel is fed from a constant head reservoir having a water depth, Y_{res}, of 2.63 m.
- The channel is divided into 10 reaches having equal lengths.



- Using Lax diffusive scheme, If the water depths and velocities at a specific time are as follows:

No.	1	2	3	4	5	6	7	8	9	10	11
Y(m)	2.63	2.63	2.63	2.63	2.63	2.63	2.63	2.57	2.46	2.19	0.97
V(m/s)	1.34	1.34	1.34	1.34	1.34	1.34	1.34	1.48	1.70	2.09	3.94

  - How much should the next time step be?
  - What are the new water depths at sections No. 7, 8 and 9 at the next time step?