**Problem Statement:** Determine the steady state concentration of the chemical in the four tanks.

**Solution:**

Four mixing tanks are connected by pipes.

Applying overall mass balance to the system, we get

Where is volume of the tank i, Q is volumetric flow rate and C is concentration.

Applying this equation to each tank, we get

At steady state ; thus, we get

We can solve these four linear equations using Gauss Elimination method.