

Figure 1 shows a system of networked reactors. The concentration of each reactor can be obtained via mass balance of each reactor, knowing that mass flow rate in each channel can be taken as the product of the volumetric flow rate Q (in cubic meters per minute) and the concentration c (in milligrams per cubic meter) for each pipe. The concentration for each pipe can be taken as the concentration of the reactor from which the flow originates. For the flow rate values given in the figure;

- Determine the steady-state concentration of each reactor by employing the conservation of mass.
- Plot the change of the tanks' concentrations with respect to the change of the inlet concentration c_{01} . Increase c_{01} by 5 mg/m^3 up to 50 mg/m^3 .

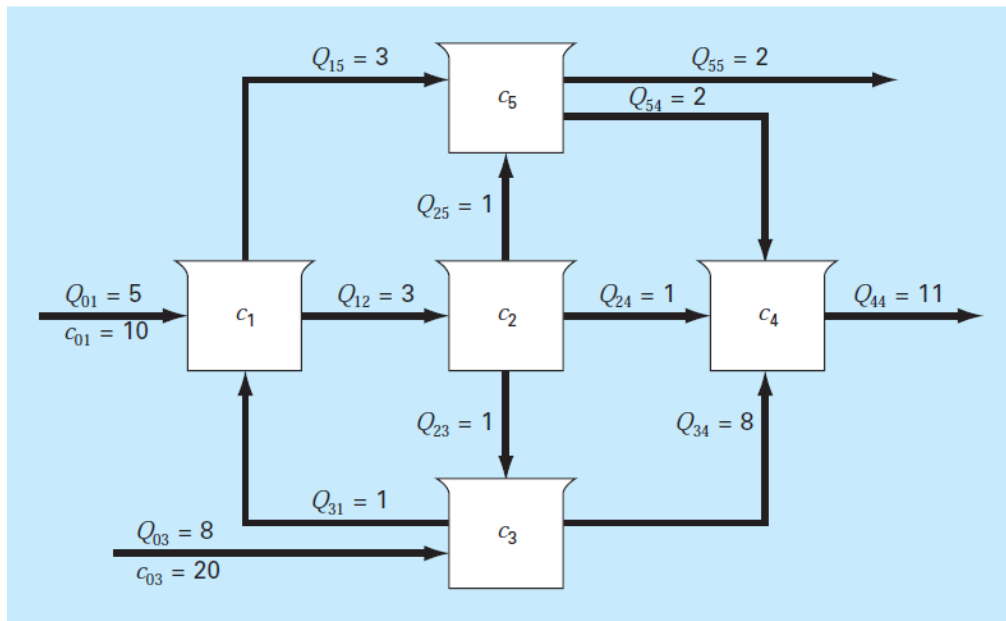


Figure 1 System of networked chemical reactors.

Deliverables

Your report should include the description of the problem, how you set up the problem, assumptions, method of solution, the Matlab/Octave code that you used, the results, all relevant plots, discussion and potential weaknesses in your solution method. Upload your work to the elearning website in a zip file containing all relevant files.