## A First Course on Kinetics and Reaction Engineering Problem 11.2

## **Problem Purpose**

This problem will help you determine whether you have mastered the learning objectives for this unit and afford some practice in determining the age function for an ideal reactor.

## **Problem Statement**

Derive an expression for the response of a reactor system that consists of two ideal CSTRs connected in series when an impulse stimulus is applied. Then use that expression to generate an expression for the age function for this reactor system. You may assume that the effluent from the first reactor immediately enters the second reactor without any time lag. You may further assume that the fluid volume in the reactors is constant, the volumetric flow rate is constant and the density of the fluid is constant. The reactor operates at steady state with no tracer in the feed prior to the stimulus which is applied to the inlet of the first reactor at time t = 0.