













[20] Cox, E. (2005). Fuzzy Modelling and Genetic Algorithms for Data Mining and Exploration. Morgan Kaufmann Publishers, Elsevier, 209-219.

**NOMENCLATURE**

$V_1, V_2, V_3$  volumes of the vessels in which the agitators are running,  $m^3$   
 $C_1, C_2, C_3$  final concentrations at the end of vessels,  $kmol/m^3$   
 $Y_0, Y_1, Y_2, Y_3$  variable throughputs,  $m^3/min$   
 $F_A, F_B$  flow meters A and B,  $m^3/ hour$   
 $k_A, k_B$  reaction rates of component A and B ( $min^{-1}$ )  
 $k$  gain (a constant) for equation (5), (6) and (7)  
 $\tau$  residence time  
 $X$  conversion factor

$\frac{dC_{a_3}}{dt}$  time rate of change of concentration inside the tank,  $kmol/m^3/sec$   
 $T =$  Absolute temperature, which is expressed in degree Kelvin  
 $R=F$  Perfect gas constant = 1.99 Cal / g. mol K  
 $C_A, C_B$  Concentrations of the reactants ( $kmol/m^3$ )  
 $C_{O_A}, C_{O_B}$  Initial concentrations of the reactants ( $kmol/m^3$ )  
 $n=1, 2, 3, \dots,$  indicates the stage number, as denoted by etc. equations (8)  
 $k$  specific-reaction-rate for equation (8)  
 $\alpha$  pre-exponential-factor for equation (8)  
 $E =$  activation energy that signifies the temperature dependence of the specific-reaction-rate