Reaction Engineering

Class Test-3, Marks-10, Time: 30 minutes

1. (a) An aqueous feed of A and B(400L/min) with C_{A0} =100 mmol/L and C_{B0} = 200 mmol/L is to be converted to product in a plug flow reactor. The reaction kinetic and the stoichiometry are given below.
   A + B → R , $-r_A = 150\ C_A C_B$ mol/(L. min). Estimate the volume of plug flow reactor for 95% conversion of A. [5]

   (b) Explain the procedure for the test of kinetic equation of an elementary gas-phase reaction A ⇆ R using a plug flow reactor. [5]