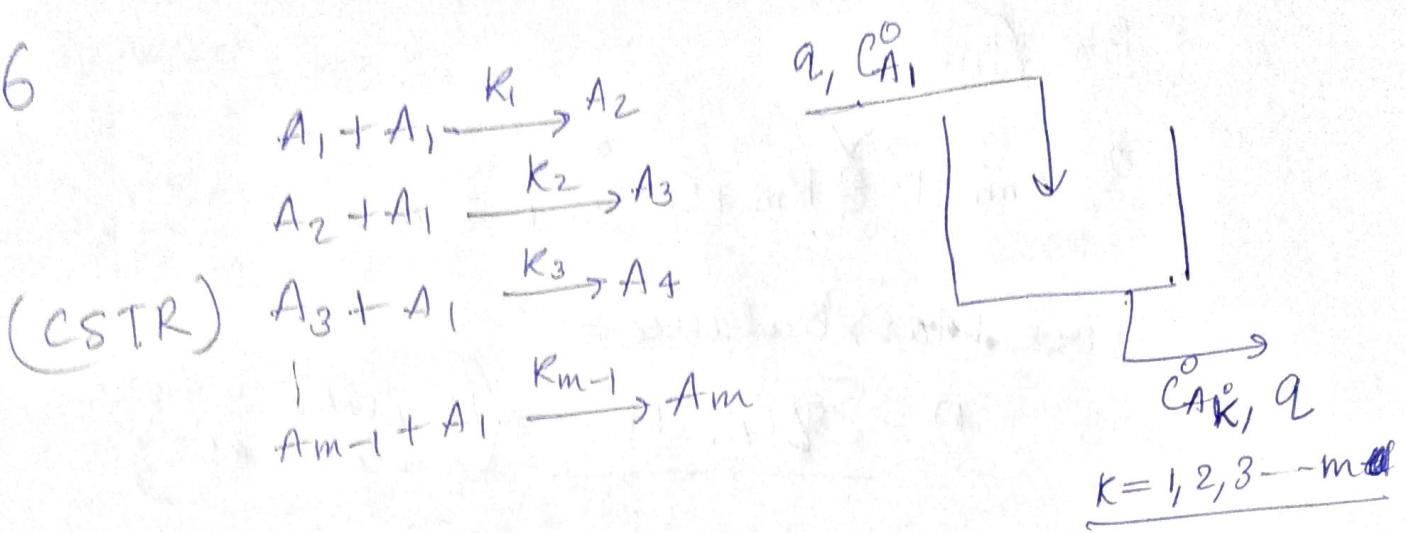


(Q)6



given

$$R_i = \frac{K}{i} \quad (i = 1 \text{ to } m-1)$$

Mass balance on  $A_1$

$$q C_{A_1} - q C_{A_1} \times (-K_1 C_{A_1}^2) - q C_{A_1} (-K_2 C_{A_2} A_1) - q C_{A_1} (-K_3 C_{A_3} A_1) - \dots = 0$$

$$q C_{A_1} + q C_{A_1} (K_1 C_{A_1}^2 + K_2 C_{A_2} A_1 + K_3 C_{A_3} A_1 + \dots) = 0$$

for  $A_2$

$$q (K_1 C_{A_1}^2 - K_2 C_{A_1} C_{A_2}) = 0$$

for  $A_3$

$$q (K_2 C_{A_2} C_{A_1} - K_3 C_{A_3} A_1) = 0$$

so Generalise equation for  $m = 2 \text{ to } m-1$

$$q (K_{m-1} C_{m-1} C_{A_1} - K_m C_m C_{A_1}) = 0$$

for  $m = 1 \quad - q C_{A_m}$