EXAM III NOV 17, 1982

Solution

I.

$$r = k C_A - \frac{k}{K} C_B C_C$$

$$K = \frac{C_{Be} C_{Ce}}{C_{Ae}} \qquad C_B = C_C \text{ since } C_{B0} = C_{C0} = 0$$

$$r = k C_A - k \frac{C_B^2 C_{Ae}}{C_{Be}^2}$$

$$C_A = C_{A0}(1 - f_A)$$
$$C_B = C_{A0} f_A$$
$$C_{Be} = C_{A0} f_{Ae}$$

$$r = k C_{A0}(1 - f_A) - \frac{k C_{A0}^2 f_A^2 C_{A0}(1 - f_{Ae})}{C_{A0}^2 f_{Ae}^2}$$

$$r = k C_{A0}\left[1 - f_A - \frac{f_A^2(1 - f_{Ae})}{f_{Ae}^2}\right]$$

$$r = k C_{A0}\left[\frac{f_{Ae}^2 - f_A f_{Ae}^2 - f_A^2 + f_A^2 f_{Ae}}{f_{Ae}^2}\right]$$

$C_{A0} = 2$

$$-\frac{1}{r_A} = \frac{1}{2k}\left[\frac{f_{Ae}^2}{f_{Ae}^2 - f_A f_{Ae}^2 - f_A^2 + f_A^2 f_{Ae}}\right]$$

① f_A	② T	f_{Ae}	③ k	$\frac{1}{r_A}$	$\frac{C_{A0}\Delta f_A}{(-r_A)_{AVG}}$	Σ
0	150	.805	.5006	.999	.198	
.1	153	.760	.5675	.983	.204	
.2	154.5	.740	.6039	1.060	.232	
.3	154.7	.730	.6089	1.255	.289	
.4	153.5	.750	.5794	1.632	.394	
.5	151	.790	.5221	2.303	.585	
.6	147.1	.840	.4426	3.548	.943	
.7	142	.900	.3549	5.882	1.685	4.53
stop .8	135.4	.960	.2646	10.972		4.063
.9	127.5	.990	.1838	29.654		