

(B)

$$\frac{dC_A}{dt} = -k C_A \quad \left| \quad \frac{dC_B}{dt} = k C_A \right.$$

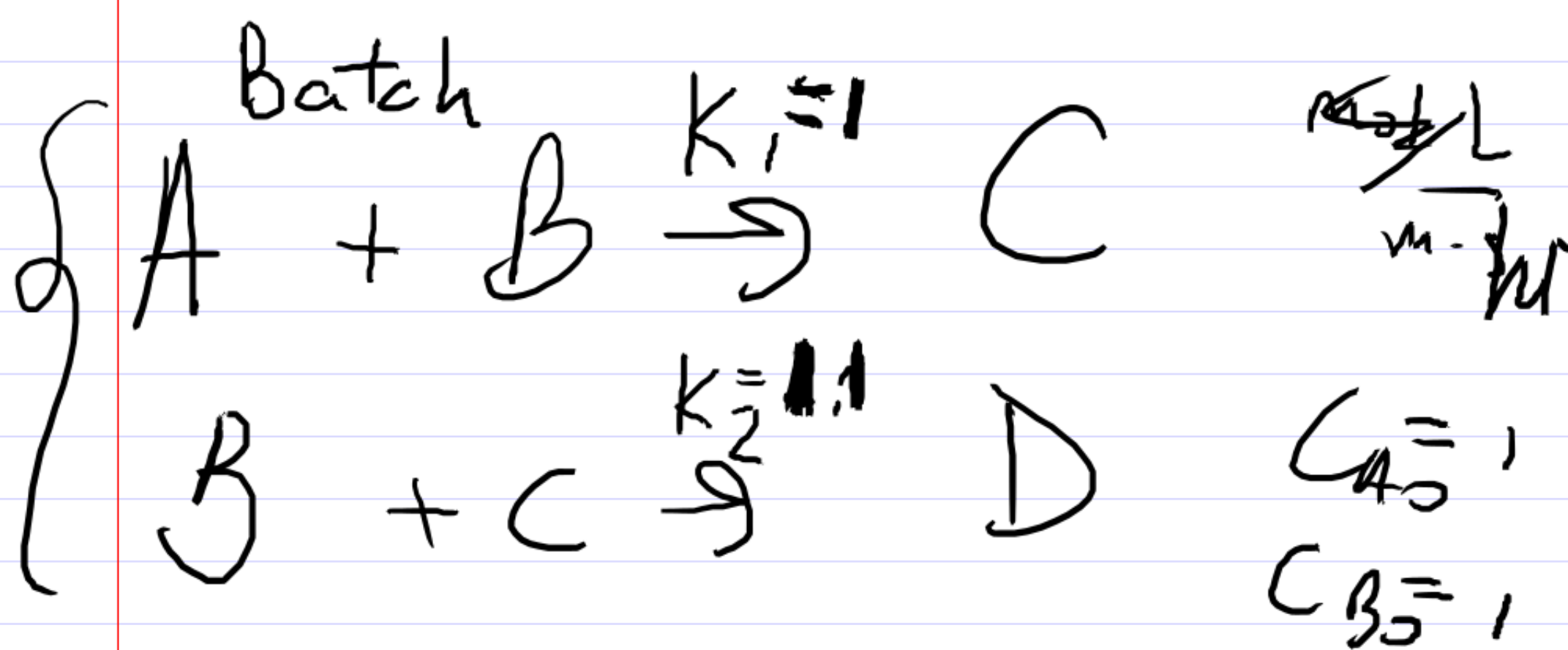
$$C_A[0] = C_{A0} = 10 \frac{\text{mol}}{\text{L}}$$

$$k = 0.001 \frac{\text{L}}{\text{m.s}}$$

$2A \rightarrow B$ \rightarrow ~~if~~ if you
have fin.
P1.

C_list

C_A	C_B



1) $C_i(t)$

2) Selectivity (c)

$$S = \frac{[C]}{[C] + [D]}; S(0) = 1.$$

$$\frac{dC_A}{dt} = -k_1 C_A C_B$$

$$\frac{dC_B}{dt} = -k_1 C_A C_B - k_2 C_B C_C$$

$$\frac{dC_C}{dt} = k_1 C_A C_B - k_2 C_B C_C$$

$$\frac{dC_D}{dt} = k_2 C_B C_C$$

$$dC_A/dt = -r_1$$


$$dC_B/dt = -r_1 - r_2$$

$$dC_C/dt = r_1 - r_2$$

$$dC_D/dt = r_2$$

time_start = 0

finish = 3.


A large, bold, handwritten letter 'Z' is shown on lined paper. The letter is formed with thick black strokes. It starts with a horizontal top bar, followed by a diagonal stroke down to the left, and ends with a horizontal bottom bar. The letter is positioned on the left side of the page, spanning across the first and second lines.
$$L+2$$
$$\sqrt{k_1 k_2}$$

R

2

LSR

A large, hand-drawn circle with a thick black outline. Inside the circle, on the right side, is a stylized, handwritten letter 'R' also drawn with a thick black line. The 'R' has a vertical stem and a curved top that loops back towards the center of the circle. The background is white with faint horizontal blue lines.



S - Living - Susceptible

Z - Zombie

R - removed (dead)

P - population birth rate

d - death prob. $S \rightarrow R$

B \rightarrow chance $S \rightarrow$ infected $\rightarrow Z$

G \rightarrow zombie $R \rightarrow Z$ resurrect.

A \rightarrow $S+Z \rightarrow R+S$ human killing zombie

$$\frac{dS}{dt} = P - d \cdot S - B \cdot S \cdot Z$$

$$\frac{dZ}{dt} = B \cdot S \cdot Z + G \cdot R - A \cdot S \cdot Z$$

$$\frac{dR}{dt} = d \cdot S + A \cdot S \cdot Z - G \cdot R$$

Tank mixer.

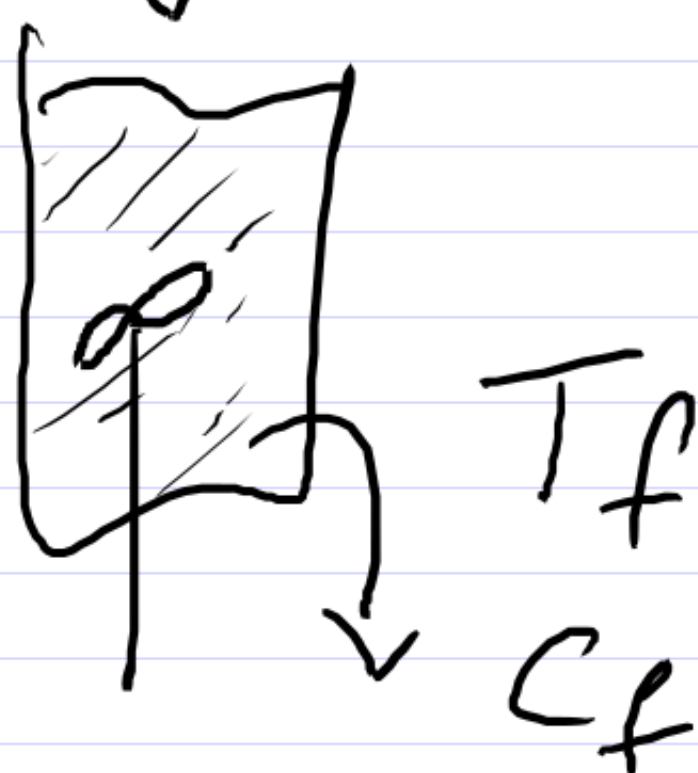
C-Ao

T=0

We want to know

$C(t)$

$T(t)$



Energy balance:

$\dot{Q}=0$

$$\dot{m} (C_p dT) = \dot{m}_{in} C_p (T_{in} - T_{ref}) + \dot{m}_{out} C_p (T_{out} - T_{ref}) + \dot{Q} + \dot{W}$$

$$m = \rho V$$

$$\dot{m} = \dot{V} = q$$

$$\rho V C_p \frac{dT}{dt} = \rho V C_p (T_{out} - T_{in})$$

$$V \frac{dT}{dt} = \underbrace{V}_{q} (T_{out} - T_{in})$$

$$(2) \quad \frac{dT}{dt} = \frac{q}{V} (T_{out} - T_{in})$$

$$\frac{dT}{dt} = \frac{q}{V} (T_f - T(t))$$

mass balance C

$$V \frac{dC}{dt} = q(C_f - C_{in})$$

$$V \frac{dC}{dt} = q(C_f - C(t))$$