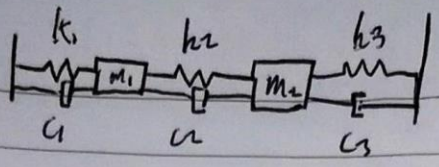

$\dot{x}_1(0) = 0 \quad \dot{x}_2 = 0$

$$m_1 \dot{x}_1 = k_2(x_2 - x_1) + c_2(\dot{x}_2 - \dot{x}_1) - c_1\dot{x}_1 - k_1 x_1$$

① $m_1\ddot{x}_1 + (c_1+c_2)\dot{x}_1 - c_2\dot{x}_2 + (k_1+k_2)x_1 - k_2 x_2 = 0$

② $m_2\ddot{x}_2 - c_2\dot{x}_1 + (c_2+c_3)\dot{x}_2 - k_2 x_1 + (k_2+k_3)x_2 = 0$

① $m_1 \mathcal{L}\{\ddot{x}\} + (c_1+c_2)(s\mathcal{L}\{x_1\} - x_1(0)) - c_2(s\mathcal{L}\{x_2\} - x_2(0))$
$+ (k_1+k_2)\mathcal{L}\{x_1\} - k_2\mathcal{L}\{x_2\} = 0$

② $m_2(s\mathcal{L}\{\dot{x}_2\} - \dot{x}_2(0)) - c_2(s\mathcal{L}\{x_1\} - x_1(0)) + (c_2+c_3)(s\mathcal{L}\{x_2\} - x_2(0))$
$- k_2(\mathcal{L}\{x_1\}) + (k_2+k_3)\mathcal{L}\{x_2\} = 0$

① $m_1[s^2 X_1(s) - s x_1(0) - \dot{x}(0)] + (c_1+c_2)[s X_1(s) - x_1(0)]$
$- c_2(s X_2(s) - x_2(0)) + (k_1+k_2)X_1(s) - k_2(X_2(s)) = 0$

② $m_2(s^2 X_2(s) - \dot{x}_2(0) - s x_2(0)) - c_2(s X_1(s) - x_1(0))$
$+ (c_2+c_3)(s X_2(s) - x_2(0)) - k_2 X_1(s) + (k_2+k_3)X_2(s)$
$= 0$

As $\dot{x}_1(0) = 0 \qquad \dot{x}_2(0) = 0$

① $m_1[s^2X_1(s) - sx_1(0)] + (c_1+c_2)[sX_1(s) - x_1(0)]$

$- c_2(sX_2(s) - x_2(0)] + (k_1+k_2)X_1(s) - k_2(X_2(s)) = 0$

② $m_2(s^2X_2(s) - sx_2(0)) - c_2(sX_1(s) - x_1(0)) + (c_2+c_3)(sX_2(s) - x_2(0))$

$-k_2X_1(s) + (k_2+k_3)X_2(s) = 0$