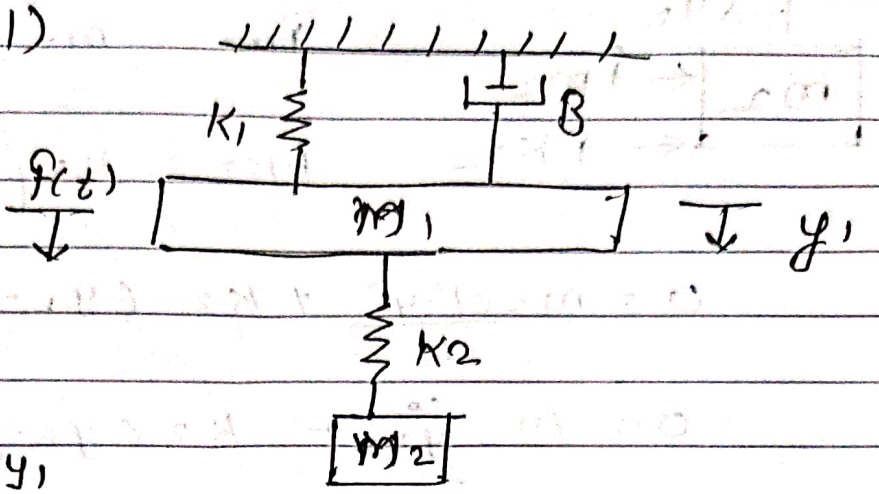
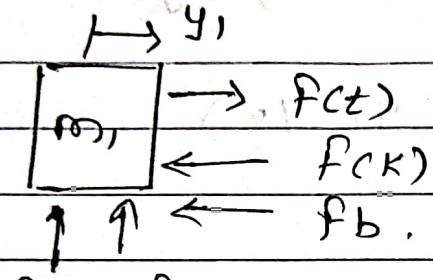
Week - 1

Problem - 1)





$$f_{m_1} = \frac{m_1 d^2 y_1}{dt^2} = m_1 \ddot{y}_1$$

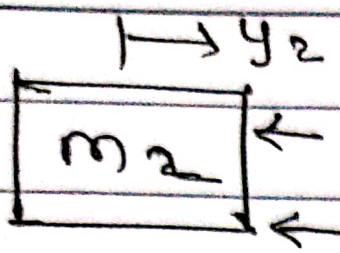
$$f_b = \frac{b\, dy_1}{dt} = b\dot{y}$$

$$f(k_1) = K_1 y_1 = K_1 y_1$$

$$f(k_2) = K_{12}(y_1 - y_2)$$

$$f(t) = M_1 \frac{d^2 y_1}{dt^2} + b\frac{dy_1}{dt} + K_1 y_1 + K_{12}(y_1 - y_2)$$

$$f(t) = m_1 \ddot{y}_1 + b\dot{y}_1 + K_1 y_1 + K_{12}(y_1 - y_2)$$



$$f_{m_2} = m_2 \frac{d^2 y_2}{dt^2}$$

$$f_{K_2} = K_2 (y_2 - y_1)$$

$$0 = m_2 \frac{d^2 y_2}{dt^2} + K_2 (y_2 - y_1)$$

$$0 = m_2 \ddot{y}_2 + K_2 (y_2 - y_1)$$

$$m_2 \ddot{y}_2 = K_2 (y_1 - y_2)$$