

Jawab: $m=1, n=2, k=1$

$$A [2 \times 2], B [2 \times 1], C [1 \times 2], D [1 \times 1]$$

* Perbandingan Keadaan:

$$L \frac{di(t)}{dt} = v_s(t) - v_L(t) \rightarrow \frac{di(t)}{dt} = -\frac{1}{L} v_L(t) + \frac{1}{L} v_s(t)$$

$$\dot{x}_1 = -\frac{1}{L} x_2 + \frac{1}{L} u$$

$$i(t) = C \frac{dv_L(t)}{dt}$$

$$\rightarrow \frac{dv_L(t)}{dt} = \frac{1}{C} i(t)$$

$$\dot{x}_2 = \frac{1}{C} x_1$$

$$\dot{x} = \underbrace{\begin{bmatrix} 0 & -\frac{1}{L} \\ \frac{1}{C} & 0 \end{bmatrix}}_A x + \underbrace{\begin{bmatrix} \frac{1}{L} \\ 0 \end{bmatrix}}_B u$$

$$\rightarrow y = v_L(t) = x_2$$

$$y = \underbrace{[0 \ 1]}_C x + \underbrace{[0]}_D u$$

* Persamaan Keluaran