

Pers. Keadaan

$$\left. \begin{aligned} \frac{di_a(t)}{dt} &= -\frac{R_a}{L_a} i_a(t) - \frac{K_b}{L_a} \omega(t) + \frac{1}{L_a} e_a(t) = 0 \\ \frac{d\omega(t)}{dt} &= \frac{K_m}{J} i_a(t) - \frac{B}{J} \omega(t) = 0 \\ \frac{dt(t)}{dt} &= \omega(t) \end{aligned} \right\} \begin{array}{l} \text{Ketika} \\ \omega(t) \\ i_a(t) \\ \text{KONSTAN} \end{array}$$

State-assignment : $u \triangleq e_a(t)$ $x_1 \triangleq i_a(t)$ $y_1 \triangleq \omega(t)$
 $x_2 \triangleq \omega(t)$ $y_2 \triangleq t(t)$
 $x_3 \triangleq t(t)$

Model Ruang Keadaan:

$$\begin{aligned} \dot{x} &= Ax + Bu \\ y &= Cx + Du \end{aligned}$$

$$\begin{aligned} A [3 \times 3] & \quad B [3 \times 1] \\ C [2 \times 3] & \quad D [2 \times 1] = \begin{bmatrix} 0 \\ 1 \end{bmatrix} \end{aligned}$$

$\Rightarrow$ Lapdran