SISTEMA DE IDO(1) LCC $\underline{NH}$

$$\frac{dx_1}{dt} = x_2 + 3e^{2t} \qquad x_1(0) = 2$$

$$\frac{dx_2}{dt} = -x_1 + 4\cos(t) \qquad x_2(0) = -3$$

$$\frac{d}{dt}\begin{bmatrix} x_1 \\ x_2 \end{bmatrix} = \begin{bmatrix} 0 & 1 \\ -1 & 0 \end{bmatrix}\begin{bmatrix} x_1 \\ x_2 \end{bmatrix} + \begin{bmatrix} 3e^{2t} \\ 4\cos(t) \end{bmatrix}$$

$$\frac{d}{dt}\bar{x} = A\bar{x} + \bar{b}(t) \qquad \bar{x}(0)$$

$$\bar{x} = e^{At}\bar{x}(0) + \int_0^t e^{A(t-\tau)}\bar{b}(\tau)\,d\tau$$

$$\frac{dx}{dt} = 3x - 2y + t^2 + 4t \qquad X(10) = 10$$

$$\frac{dy}{dt} = -5x + 4y + 2e^{-t} + 5\cos(3t) \qquad y(10) = -12$$

$$\frac{d}{dt}\bar{x} = A\bar{x} + \bar{b}(t)$$

$$\bar{x} = e^{A(t-10)}\bar{X}(10) + \int_{10}^{t} e^{A(t-\tau)} \bar{b}(\tau)\, d\tau$$