BAB I

PENUTUP

Solusi sistem persamaan diferensial *fractional*

$$D^{\alpha}\mathbf{x}(t) = A\mathbf{x}(t) + B\mathbf{u}(t), \qquad \mathbf{x}(0) = \mathbf{x}_0$$

dimana $A \in \mathbb{R}^{n\times n}$, $B \in \mathbb{R}^{n\times m}$, $\mathbf{x}(t) \in \mathbb{R}^n$, $\mathbf{u}(t) \in \mathbb{R}^m$ dan $D\mathbf{x}(t)$ menyatakan turunan pertama dari $\mathbf{x}$ terhadap t, dengan $j-1 < \alpha < j$, $j \in \mathbb{N}$ adalah

$$\mathbf{x}(t) = \sum_{l=1}^{j} \Phi_l(t)\mathbf{x}^{(\alpha-l)}(0) + \int_0^t \Phi(t-\tau)B\mathbf{u}(\tau)d\tau$$

dimana

$$\Phi_l(t) = \sum_{k=0}^{\infty} A^k \mathcal{L}^{-1}\left[s^{-(k+1)\alpha+l-1}\right] = \sum_{k=0}^{\infty} \frac{A^k t^{(k+1)\alpha-l}}{\Gamma\left[(k+l)\alpha-l+1\right]},$$