EN 3143

MATLAB Exercise

① $\dfrac{N(s)}{D(s)} = \dfrac{2s^3 + 5s^2 + 3s + 6}{s^3 + 6s^2 + 11s + 6}$

From MATLAB Implementation,

$$r = \begin{bmatrix} -6 \\ -4 \\ 3 \end{bmatrix} \quad , \quad p = \begin{bmatrix} -3 \\ -2 \\ -1 \end{bmatrix} \quad , \quad k = 2$$

∴ $\dfrac{N(s)}{D(s)} = \dfrac{(-6)}{s+3} + \dfrac{(-4)}{(s+4)} + \dfrac{3}{(s+1)} + 2$ //

② $\dfrac{B(s)}{A(s)} = \dfrac{s^2 + 2s + 3}{s^3 + 3s^2 + 3s + 1}$

From MATLAB Implementation,

$$r = \begin{bmatrix} 1 \\ 0 \\ 2 \end{bmatrix} \quad , \quad p = \begin{bmatrix} -1 \\ -1 \\ -1 \end{bmatrix} \quad , \quad k = [\ ]$$

∴ $\dfrac{B(s)}{A(s)} = \dfrac{1}{s+1} + \dfrac{0}{(s+1)^2} + \dfrac{2}{(s+1)^3}$

$= \dfrac{1}{s+1} + \dfrac{2}{(s+1)^3}$ //