MECH 6300-HW 3

1)

a) $$\begin{bmatrix} 1 & 0 & 0 \\ 10 & 2 & 0 \\ 0 & 5 & 4 \end{bmatrix}$$

$$\Delta(s) = |sI - A| = \begin{vmatrix} s-1 & 0 & 0 \\ -10 & s-2 & 0 \\ 0 & -5 & s-4 \end{vmatrix}$$

$$\Delta(s) = (s-1)(s-2)(s-4)$$

$$\lambda_1 = 1$$
$$\lambda_2 = 2$$
$$\lambda_3 = 4$$

$$J = \begin{bmatrix} 1 & 0 & 0 \\ 0 & 2 & 0 \\ 0 & 0 & 4 \end{bmatrix}$$