5)

$$p(t) = c_0 + c_1 t + c_2 t^2 + \cdots + c_n t^n$$

$$p(A) = c_0 I + c_1 A + c_2 A^2 + \cdots + c_n A^n$$

$$p(\lambda) = c_0 + c_1 \lambda + c_2 \lambda^2 + \cdots + c_n \lambda^n$$

$$p(A) - p(\lambda) I = (c_0 - c_0) + c_1 (A - \lambda) + c_2 (A^2 - \lambda^2) + \cdots + c_n (A^n - \lambda^n)$$

$A - \lambda I = 0$ ⟶

$$(c_0 - c_0) + c_1 (A - \lambda) + c_2 (A - \lambda)(A + \lambda I) + \cdots + c_n (A - \lambda I)(A^{n+1} + \cdots)$$

$$\Rightarrow p(A) - p(\lambda) I = 0 \longrightarrow p(A) \text{ مقدار ویژه } p(\lambda)$$

است