

12.46

EE25BTECH11032 - Kartik Lahoti

Question:

The eigenvalues of the matrix

$$\mathbf{P} = \begin{pmatrix} 4 & -5 \\ 2 & -5 \end{pmatrix} \quad (0.1)$$

are

- 1) -7 and 8
- 2) -6 and 5

- 3) 3 and 4
- 4) 1 and 2

Solution:

$$|\mathbf{P} - \lambda \mathbf{I}| = 0 \quad (4.1)$$

$$\left| \begin{pmatrix} 4 - \lambda & -5 \\ 2 & -5 - \lambda \end{pmatrix} \right| = 0 \quad (4.2)$$

$$\lambda^2 + \lambda - 10 = 0 \quad (4.3)$$

$$\lambda_1 = \frac{-1 + \sqrt{41}}{2}, \quad \lambda_2 = \frac{-1 - \sqrt{41}}{2} \quad (4.4)$$

Hence, Answer : NO CORRECT OPTION