

DR SNS RAJALAKSHMI COLLEGE OF ARTS AND SCIENCE

(AUTONOMOUS)

COIMBATORE – 641049

21UMA503: LINEAR ALGEBRA

III B.SC. MATHEMATICS

Unit V Questions

Section A

1. Define Minimal Polynomial of a matrix. COV (L- I).
2. Define the following terms (i) Jordan Block of a matrix (ii) Jordan Canonical Form of a matrix. COV (L- I).
3. When do we say an Operator T is said to be diagnosable? COV (L- II).
4. When do we say a matrix A is said to be diagnosable? COV (L- II).
5. When do we say a matrix A is said to be orthogonally diagnosable? COV (L- II).

Section B

1. Find the minimal polynomial of the matrix $\begin{pmatrix} 2 & 1 & 0 & 0 \\ 0 & 2 & 0 & 0 \\ 0 & 0 & 1 & 1 \\ 0 & 0 & -2 & 4 \end{pmatrix}$ CO V (L – III).
2. Diagonalize the matrix $A = \begin{pmatrix} 1 & 4 \\ 2 & -1 \end{pmatrix}$ CO V (L – III).

Section C

1. Find the Characteristic Polynomial and the Minimal Polynomial of the matrix $\begin{pmatrix} 2 & 1 & 0 \\ 0 & 1 & -1 \\ 0 & 2 & 4 \end{pmatrix}$. COV (L – IV)