K.S.R. COLLEGE OF ENGINEERING - TIRUCHENGODE

(AUTONOMOUS)

DEPARTMENT OF (CSE & IT)

SUBJECT CODE : 18HA343

NAME : NUMERICAL COMPUTATIONAL TECHNIQUES

ASSIGNMENT-1 DATE: 20.8.2020

PART-A (5 X 2 = 10 Marks)

1. What is the criterion for the convergence in Newton's method ?.
2. By Gauss elimination method solve $x+y=2$, $2x+3y=5$
3. Write a sufficient condition for Gauss-Seidel method to converge.
4. Using Gauss Jordan method find the inverse of the matrix $\begin{bmatrix} 1 & 2 \\ 2 & 3 \end{bmatrix}$.
5. Find the dominant eigen value of the matrix $\begin{pmatrix} -4 & -5 \\ 1 & 2 \end{pmatrix}$ by using the power method.

PART-B

6. Using Gauss-Jordon method, find the inverse of

$$A = \begin{bmatrix} 1 & 1 & 3 \\ 1 & 3 & -3 \\ -2 & -4 & -4 \end{bmatrix}.$$

7. Find the numerically largest eigenvalue of

$$A = \begin{bmatrix} 25 & 1 & 2 \\ 1 & 3 & 0 \\ 2 & 0 & -4 \end{bmatrix}$$ and the corresponding eigenvector.

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