## CE 601 NUMERICAL METHODS

## TUTORIAL - 4

Marks - 40
Date: 24-August-2012

The responses to the tutorial questions are to be submitted by 28-August-2012 (Tuesday).

1. Develop an algorithm and computational code for power method to identify the dominant Eigen value and the corresponding Eigen vector using Matlab or any other programming software for the non-singular matrix $A$. You start with any initial guess for the vector $x$. (This question carries 20 marks)
$A=\left[\begin{array}{cccc}4 & 2 & -2 & 2 \\ 1 & 3 & 1 & -1 \\ 0 & 0 & 2 & 0 \\ 1 & 1 & -3 & 5\end{array}\right]$
2. Using inverse power method find the smallest Eigen value of the matrix
$A=\left[\begin{array}{ccc}1 & 4 & 5 \\ 4 & -3 & 0 \\ 5 & 0 & 7\end{array}\right]$
3. Use shifted power method to find the eigen value nearest to $s=3$ for the given matrix

$$
A=\left[\begin{array}{ccc}
16 & 7 & -7 \\
-1 & 2 & 1 \\
11 & 7 & -5
\end{array}\right]
$$

