CE 601 NUMERICAL METHODS

TUTORIAL - 4

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)
 - $A = \begin{bmatrix} 4 & 2 & -2 & 2 \\ 1 & 3 & 1 & -1 \\ 0 & 0 & 2 & 0 \\ 1 & 1 & -3 & 5 \end{bmatrix}$
- 2. Using inverse power method find the smallest Eigen value of the matrix

$$A = \begin{bmatrix} 1 & 4 & 5 \\ 4 & -3 & 0 \\ 5 & 0 & 7 \end{bmatrix}$$

3. Use shifted power method to find the eigen value nearest to s = 3 for the given matrix

$$A = \begin{bmatrix} 16 & 7 & -7 \\ -1 & 2 & 1 \\ 11 & 7 & -5 \end{bmatrix}$$

Marks – 40