SNS COLLEGE OF TECHNOLOGY

(An Autonomous Institution)

19MAT202 – STATISTICS AND NUMERICAL METHODS

16 mark Questions and Answers

1. Using Newton's iterative method find the root between 0 and 1 of $x^3 = 6x - 4$ **correct to two decimal places.**

2.. Find the real positive root of **3x –cosx – 1 = 0** by Newton's method correct to6 decimal places

3. Find a root of $x \log_{10} x - 1.2 = 0$ by Newton's method correct to 3 decimal places

4. Find a root of $x \log_{10} x - 12.34 = 0$ start with $x_0 = 10$ by Newton's method correct to 3 decimal places

5. Obtain Newton's Iterative formula for finding $\sqrt{N}$ **where N is a** positive real number. Hence evaluate $\sqrt{142}$

6. Find the iterative formula for finding the value of $\frac{1}{N}$ where N is a real number, using Newton –Raphson method .

   Hence evaluate $\frac{1}{26}$ correct to 4 decimal places.

7. Solve the system of equations by (i) Gauss elimination method (ii) Gauss- Jordan method

   10x + y + z = 12

   2x + 10y + z = 13

   x + y + z = 7

8. Solve the system of equations by (i) Gauss- Jacobi method (ii) Gauss- Seidal method

   27x +6 y - z = 85

   x + y + 54z = 110

   6x + 15 y +2 z = 72

9. Using Gauss- Jordan method, Find the Inverse of the matrix $\begin{bmatrix} 2 & 2 & 3 \\ 2 & 1 & 1 \\ 1 & 3 & 5 \end{bmatrix}$

10. Determine the Largest eigen value and the corresponding eigen vector of the matrix $\begin{bmatrix} 2 & 2 & 3 \\ 2 & 1 & 1 \\ 1 & 3 & 5 \end{bmatrix}$