Jadavpur University
Session 2024-25, Odd Semester
Computer Programming and Numerical Methods

Assignment – VI

1. Write a menu-driven C program for finding roots of a nonlinear equation using Bisection, Regula Falsi and Newton-Raphson method.

2. Write a C program for solving a system of linear equations using Naive Gaussian Elimination method. Read the set of linear equations from a file.

3. Write a C program for solving a system of linear equations using Gauss-Jordon Elimination method. Read the set of linear equations from a file.

4. Write a C program for solving a system of linear equations using Jacobi's method and Gauss-Seidel method. Read the set of linear equations from a file. Compare the number of iterations required for convergence for both the methods.

5. Write a C program for implementing Interpolation using Newton's divided difference formula. Read the set of data points from a file. The user provides the point where the unknown function has to be interpolated.

6. Write a C program for implementing Interpolation using Lagrange's formula. Read the set of data points from a file. The user provides the point where the unknown function has to be interpolated.

7. Write a C program for implementing Interpolation using Newton's forward difference formula, and Newton's backward difference formula. Read the set of data points from a file. Based on the user provided point where the unknown function has to be interpolated invoke appropriate form of the difference formula.