Prepare lab sheet of Numerical Method for following questions. Write the algorithm and C-Program for each of the problem. The algorithm should be handwritten, code can be printed then attach the screenshot of the output. Include your name, roll number and lab number on each output.

Lab 1

1. Write a program to calculate the root of $4x^3-2x+6$ using bisection method.
2. Write a program to calculate the root of x^2-5x+6 using false position method.
3. Write a program to calculate the root of x^3-3x-2 using Newton-Raphson method.
4. Write a program to calculate the root of x^2-x-1 using fixed point method. Choose appropriate form of g(x) yourself.

Lab 2

5. Write a program to read a set of data points from user and compute interpolation value at specified point using Lagrange interpolation.
6. Write a program to read a set of data points from user and compute interpolation value at specified point using Newton interpolation.
7. Write a program to read a set of data points from user and fit the line $Y = A + BX$ through the points by the method of least squares.

Lab 3

8. Write a program to integrate a given function using trapezoidal rule.
9. Write a program to integrate a given function using Simpsons 1/3 rule.

Lab 4

10. Write a program to solve system of nonlinear equations using Gauss-Elimination method
11. Write a program to solve system of nonlinear equations using Gauss Jordan method.
12. Write programs to factorize matrix using Dolittle method
13. Write programs to factorize matrix using Cholesky method
14. Write programs to solve system of non-linear equations using Jacobi Iteration.
15. Write programs to solve system of non-linear equations using Gauss-Seidel method.
16. Write a program to find eigenvalue and eigenvector using power method.

Lab 5

17. Write programs to implement Euler's method method to solve ordinary differential equations.
18. Write programs to implement Heun's method to solve ordinary differential equations.
19. Write a program to solve boundary value problem using shooting method.

Lab 6

20. Write programs to solve Laplacian Equation.
21. Write programs to solve Poisson's Equation.