Course Code	**:**	**BCSL-058**
Course Title	**:**	**Computer oriented Numerical techniques Lab**
Assignment Number	**:**	**BCA(V)/L-058/Assignment/2024-25**
Maximum Marks	**:**	**50**
Weightage	**:**	**25%**
Last Dates for Submission	**:**	**31st October,2024(For July Session)** **30th April,2025(For January Session)**

This assignment has eight problems of 40 marks, each of 5 marks. All problems are compulsory. 10 marks are for viva voce. Please go through the guidelines regarding assignments given in the programme guide for the format of presentation.

Q1. Write a program in C that accepts a decimal number and displays its floating-point equivalent number. You may make assumptions to simplify theprogram, however, yourrepresentation of floating point number should becloser to IEEE 754 standard 32 bit representation. **(5Marks)**

Q2. Write a program in C to implement Gauss Seidel method for finding the roots oflinear equations. **(5Marks)**

Q3. Write a program in C to implement Bisection method for finding a positive rootof the equation X^2 - 9x + 21 = 0. You have to make suitable choice for thebounds. **(5Marks)**

Q4. Write a program in C for the demonstration of Newton's BackwardInterpolation Formula. **(5Marks)**

Q5. Write program in C for the demonstration of Bessel's Formula. **(5Marks)**

Q6. Write a program in C to demonstrate theNewton's Divided DifferenceMethod. **(5Marks)**

Q7. Write a program in C to find the approximate value of the following definiteintegral usingSimpson's 1/3 rule: **(5Marks)**

$$\int_0^{\frac{\pi}{4}} tan\, x\, dx$$

Q8. Write a C program to implement Euler's rule/method, of approximating solution of the i.v.p.:$y'(x) = \left(\frac{dy}{dx}\right) = f(x, y)\ with\ initial\ condition\ at\ x = a\ as\ y(a) =$ y0$over\ an\ interval\ [a, b]$. **(5Marks)**