Assignment – 4

1) Write a C program to compute y(0.4) for $\frac{dy}{dx} = x - y, \quad y(0) = 1.$ Take h= 0.1 correct up to 5 decimal places (Using RK-method of order 4).

2) Write a C program to solve the initial value problem $\frac{dy}{dx} = \frac{y-x}{y+x}, y(0) = 1$ for x = 0.1 by Euler's method, taking h = 0.02.

3) Write a C program to obtain y(0.2) using Euler's method correct to three decimal places, given that $\frac{dy}{dx} = y - x^2$ with initial condition y(0) = 1.

4) Write a C program to compute $y(0.1)$by fourth order Runge-Kutta method from $\frac{dy}{dx} = x^2 + y^2, y(0) = 1.$ Take step size h=0.1.