**Assignment (Ordinary Differential Equation)**

Q1: Which is better Taylor’s method or R.K. method?

Q2: Write down Euler method to the differential equation dx/dy = f (x, y).

Q3: State modified Euler method to solve y ’ = f(x,y), y(x0)=y0 at x = x0 + h.

Q4: Using Modified Euler’s method, find y(0,1) if , dx/dy = x2 y2, y(0)=1.

Q5: What are the limitations of Euler’s method?

Q6: What is the Error in modified Euler’s method?

Q7: Write down the Runge-Kutta formula of fourth order to solve dy/dx = f(x,y) with y(x0) = y0.

Q8: Write Milne’s predictor corrector formula.

Q9: How many prior values are required to predict the next value in Milne’s method & Adam’s method?

Q10: Consider the initial value problem dx/dy=y-x2+1, y(0)=0.5.

Q11: Determine the mid span defection of propped cantilever beam carrying uniformly distributed load (q) of span (L), if the governing differential equation for the defection is given by

(EI) d4y/dx4 =q

Q11: Find the critical load of a simply supported beam by considering Euler buckling, acted upon by compressive axial force (P). The defections of the beam are governed by the following equation

y4 + (P/EI) y2 =0

Q12: Find the deflection of the discrete points of beam fixed at both ends subjected to uniformly distributed load w using finite difference method.