INDIAN INSTITUTE OF TECHNOLOGY KHARAGPUR

DEPARTMENT OF MATHEMATICS

MA39110 - Advanced Numerical Techniques Lab

1.Use second order FDM(finite difference scheme) and Newton linearization technique, write a MATLAB Code to solve the following BVP (Boundary Value Problem) with step size h=0.1 .Also compare the solution with exact solution and plot the resulting solutions.

$$yy''+y'=2 \qquad x \in [0,1]$$

$$y(0)=0 \quad , \quad y(1)=2$$

2.Use second order FDM(finite difference scheme) and Quasi linearization technique to solve the following BVP with step size h=0.1 . Also compare the solution with exact solution of the given BVP and plot the resulting solution.

$$(y')^2=2yy'' \qquad x \in [1,2]$$

$$y(1)=1, \qquad y(2)=4$$