

MANE 4240 & CIVL 4240 – Introduction to Finite Elements

Rensselaer Polytechnic Institute

Instructor: Prof. S. De

Problem Set # 4

Total points : 40

Answer all questions

1. (10 points) Derive the mathematical expressions of the shape functions for a 1D element having 4 nodes (at x_1 , x_2 , x_3 and x_4).
Plot these shape functions clearly as a function of x .
2. (20 points) Problem 3.56
3. (10 points) Problem 3.58