**Mid Term Fall 2015 ECE 5590 NM**

You will be graded on *how* you obtain your answer, not the answer itself. Check your answers to see if they are correct, once you have found a solution.

Max Marks : 100

Q1. Consider the function between [0,1] (30)

1. Perform three iterations of bisection method to approximate smallest positive solution of the equation
2. Find Error estimate?

Q2. Use the numbers to find the second Lagrange interpolating polynomial for . (30)

(b) Use this polynomial to approximate   
 (c) Find relative approximate error?

Q3. Compute the integral (40)

1. Compute the trapezoidal approximation for partition {0,2,4}
2. Compute true error
3. Computer error estimate

Formula Sheet

Error Estimate (Bisection)

Formula for Lagrange interpolation

Trapezoidal Rule

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Composite Trapezoidal rule ****

Error Term for Trapezoidal rule

