SET: A

SYLHET ENGINEERING COLLEGE

EEE 305

Term Test: 1

Date: __/__/____

1 Numerical method is largely about finding solution to mathematical problems with a desired level or precision. This means that there will be errors in the solution of the mathematical model and will not be 100% accurate.

a) What is the difference between accuracy and precision? 2

b) What is the difference between round off error and truncation error? Explain with proper example. 2

c) Explain why it is not always possible to use true error for error estimates in numerical analysis. How can we overcome the problem? 2

2 $4x^4 - 3x^3 + 2x^2 - x + 1$. Use Taylor series and show values with corresponding errors for each step until error is zero at $x_{i+1} = 2$ given that the function value at $x_i = 1$ 4

3 Determine the real root of $f(x) = 3x^3 - 7x^2 + 7x - 2$ with xl=0 and xu=1 using False Position method. Iterate until the approximate error falls below 10%. 4

4 Find the roots of $f(x) = x^5 - x + 2$ with Bisection method up to 4 iterations. Draw graph to assume proper bracket and show percentage relative error in each step. 4

5 Find the 4^{th} order approximation of the value of e^5 Using Maclaurin series. 2

Total Mark: 20 Marks Total Time: 40 Minutes

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