BITI 1223 – CALCULUS AND NUMERICAL METHODS

TUTORIAL 8 : TAYLOR POLYNOMIAL

ANSWER ALL QUESTIONS.

1. Find the Taylor Polynomials of degrees one and two for $f(x) = e^x$, centered at x = 0.

2. Find the Taylor Polynomial of degree n for $f(x) = \frac{1}{1-x}$, centered at x = 0.

3. Find the fifth Taylor Polynomial for $f(x) = \ln x$ around 1.

4. Expand $f(x) = \frac{1}{1-x} - 1$ around $a = 0$, to get linear, quadratic and cubic approximations.

5. By using the cubic approximation of $f(x) = \frac{1}{1-x} - 1$ around $a = 0$ in question 4, estimate the error if for x between 0 and ½.