Instructor: Dr. Ahmed Abdelreheem

Assignment	Announcement	Due
One	**Tuesday,** March **22** , 2022 at 12:00 am	**Thursday,** March **24** , 2022 at **11:59** pm

Answer the following questions:

(1) Using Bisection method find the root of $\cos(x) - x e^x = 0$ **with** a = 0 and b =1 , ε = 0.01.

(2) Find a solution of $f(x) = e^x - 1.5 - \tan^{-1} x = 0$ **by Newton Method for** $x_0 = -10 \; and \; \epsilon = 10^{-5} z$

(3) Using the fixed-point iterative method find a root of $f(x) = 4x^2 + 2x - 1$, $\varepsilon = 0.005 \;\; with \; interval \; [0, 1]$

(4) Find a solution of $x^3+1=0$ **by Newton Method for** $x_0 = -3 \; and \; \epsilon < 5\%$

(5) The equation $f(x)= e^{-x}-x = 0$ **Find the root of the function by using Fixed point iteration method with** $x_0 = 0.5 \; and \; \epsilon = 5\%$

(6) Consider finding the root of $f(x) = x^2-3$ **and start with the interval [1, 2] with N=3 iterations**

(7) Use Newton's Method to find the root of $x^4-5x^3+9x+3=0$ **accurate to six decimal places in the interval [4,6].**

(8) a. **Put** $(11100101.1101)_2$ ***in single percision IEEE*** **754 standard.**

b. **Find the IEEE 754 Single precision is of** 85.125

(9) Suppose we would like to determine the minimum number of iterations needed in the Bisection Algorithm, given to $a_0 = 3\,, b_0 = 4.5, and\ \epsilon = 10^{-5}$.

(10) a. Determine the absolute and relative errors when approximating p by when

$p = 1.32 \times 10^2 \quad , p^* = 1.35 \times 10^2$

b. What decimal number is represented by this word?

1 10000001 010000000000 ... 0000 = 32 bits