Simulation Lab(MC503)

Assignment 4

Try to solve all the problems

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1. By using Bisection method, find the roots of the equation $x^3 - x - 4 = 0$ with accuracy up to 3 digits of decimal.

2. Apply Regula-Falsi method to find the roots of $e^{x^2-1} + 10\sin(2x) - 5 = 0$ in the interval [-1,1].

4. By using Fixed point method, find the roots of the equation $x^3 + 4x^2 - 10 = 0$ correct to 3 decimal place.

3. Find the positive root of the equation $e^x - 1 - x - \frac{x^2}{2} - \frac{x^3}{6}e^{0.3x} = 0$ correct to 5 decimal places using Newton Raphsion.

5. solve the following system of linear equation.

$$\begin{aligned} x - 2y + 3z &= 9 \\ -x + 3y - z &= -6 \\ 2x - 5y + 5z &= 17 \end{aligned}$$

6. The equation $2e^{-x} = \frac{1}{x+2} + \frac{1}{x+1}$ has two roots grater than -1. Correct these roots correct to the 5 decimal places by following method and also compare which method coverages fast.
(a) Fixed point method (b) Newton Raphsion method (c) Bisection method.

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