Assignment 7. Fixed point & Newton-Raphson Marks 10

Posted on 04.09.2025 @ 2:30 pm and due on 04.09.2025 @ 6:00 pm

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1. Find the root of the following function in the interval $[-1.5, 1.5]$ to an accuracy of 10^{-6} using Bisection, Regula Falsi and Newton-Raphson methods. Compare their convergence rate. **[2+2+4]**

$$f(x) = 3x + \sin(x) - e^x$$

2. Find the root of the following function using fixed point method **[2]**

$$f(x) = x^2 - 2x - 3$$

Find an appropriate interval bracket in which the root possible is, starting with the interval $[2, 4]$. **[4]**