1) Find the approximate values of all roots of $f(x) = \sin 7x + \cos 5x$ in the interval [0,2] by graphical method. You can use Matlab or Excel to plot the function.

2) Find the same roots in Problem 1 by using Bisection Method with an accuracy of $\varepsilon_a = 10^{-4}$

3) Find the root of $f(x) = -0.9\, x^2 + 1.70\, x + 2.5$ in the interval [2.8,3.0] by
    a)Graphical Method
    b)Bisection Method
    c)False Position Method
    Compute the errors ε_a and ε_t in each iteration.

4) Find the real root of $f(x) = x^3 - 98$ by

    a) Analytical method,
    b) Secant Method,
    c) Newton-Raphson Method,
    d) Muller's Method

    with an accuracy of $\varepsilon_s = 0.1\%$

5) Find the roots of $f(x) = \tan x - 0.5x$ in the interval [-8,8] by Newton-Raphson Method with an accuracy of $\varepsilon_s = 0.01\%$. Plot the function in that interval.

6) Determine the roots of simultaneous nonlinear equations
         $y = -x^2 + x + 0.5$
         $x^2 = 5 - y^2$
    Employ initial guesses of x=y=1.2. Use Newton-Raphson Method or Fixed Point Iteration to find them.

7) Find the complex roots of $f(x) = x^4 + 3x^2 + 4$ by Newton-Raphson Method.

Show all your work. Use Microsoft Word to write your report. In order to include in your report, plot the function by using softwares like Matlab or Excel etc. Use A4 white paper to submit your report. You will get extra credit if you submit your report in word as hard copy or e-mail.

Deadline is October 15, 2007

SN.