IMSC. (MATHS & COMPUTING) - VI Sem. (SP/20)
LAB. ASSIGNMENT 3

COMPUTING LAB – MATLAB (**IMM6004**)

Date of Allotment: **18/02/2020** Date of Completion: **25/02/2020**

---

1. Evaluate the working of the following inbuilt functions with examples:
   (a) feval
   (b) polyval
   (c) roots
   (d) solve, vpasolve
   (e) coeffs
   (f) syms
   (g) fzero

   Write a program on the following and display the output:

2. Find all the roots of the equation $6x^6 - 25x^5 + 31x^4 - 31x^2 + 25x - 6 = 0$ using inbuilt functions of MATLAB.

3. Taking initial approximations as input from the user, find the negative root of the equation $f(x) = x^3 - 3x + 4 = 0$, correct to four decimal places, using Bisection method, with the following termination criterion
   (a) Value of the function
   (b) Difference between consecutive roots

   Compare the results obtained from both of these cases with actual value.

4. Find the positive root of the equation $f(x) = x^3 - x - 11 = 0$ using Bisection and Regula Falsi method upto 10 iterations. Compare the values obtained through these methods with actual value of root

5. Searching initial approximations through loop structures, find the real root of following transcendental equation $f(x) = xe^x - 3$ correct to three decimal places using
   (a) Bisection method
   (b) Regula Falsi method

   Compare the results obtained. Also, discuss, out of these two, which one is better and why.