

# Comilla University

## Faculty of Engineering

Dept. of Computer Science & Engineering

2<sup>nd</sup> Year 1<sup>st</sup> Semester B.Sc.(Engg.) Final Examination-2015

Course Title: Numerical Methods Lab

Course Code: CSE-217

Session: 2013-2014

Total Marks: 40

Time: 3 hours

Answer the selected two (2) questions of the following 2 sections : ( 20+20)

### Section 1:

1. Write a program that will calculate the root correct to three decimal places of the equation  $x^3 + 3x^2 - 7x - 32 = 0$  using Bisection method. Your program also should be capable to change the equation at run time.
2. Write a program that will calculate the root correct to three decimal places of the equation  $x^3 + 5x^2 - 4 = 0$  using False Position method. Your program also should be capable to change the equation at run time.
3. Write a program that will calculate the root correct to three decimal places of the equation  $x^4 + 5x^2 - 35 = 0$  using Newton Raphson method. Your program also should be capable to change the equation at run time.
4. Write a program that will calculate the root correct to three decimal places of the equation  $x^3 + 3x^2 - 6x + 3 = 0$  using Secant Method. Your program also should be capable to change the equation at run time.
5. Write a program that will calculate the root correct to three decimal places of the equation  $x^3 + 3x^2 - 6x + 3 = 0$  using Iteration Method. Your program also should be capable to change the equation at run time.

### Section 2:

1. Write a program that will calculate the multiplication of two 3x3 matrix.
2. Write a program that will calculate the value for Newton's formula of forward interpolation.
3. Write a program that will calculate the value for Newton's formula of backward interpolation.
4. Write a program that will calculate the transpose of a 3x3 matrix.
5. Write a program to find the solutions of any given equations using Gauss-Jordan method.