Name of the Student:————————— **ID. No.** ————————-

Questions: (3+4+3)

(1) Find the absolute error and error bound for the second approximation of the cube root of 14 lying in the interval $[2, 2.5]$ using bisection method. Use 4 d.p. accuracy.

(2) Show that the Newton's formula for the approximate roots of the quadratic equation $x^2 + kx - l = 0$ is

$$x_{N+1} = \frac{x_N^2 + l}{2x_N + k}, \ \ N \geq 0.$$

Use this formula to find the second approximation of the positive root of the equation $x^2 - 5x = 6$. Use initial guess $x_0 = 4.5$ and work with 4 d.p. accuracy.

(3) Find the first approximation of the multiple root of the nonlinear equation $x^3 = 2\sqrt{2}x^2 - 2x$ using **the best** iterative method, starting with $x_0 = 1.25$. Find the relative error. Work with 5 d.p. accuracy.

—- Good Luck —-

Start your solutions from here ....