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MAT4001, **ASSIGNMENT-2** **Emp.ID. 100448**

Answer ALL the Questions

Q. No.	Question Description	Marks
1	Find the real root of the equation $\boldsymbol{x^3 + x^2 - 1 = 0}$, accurate to three decimal places by method of iteration.	5
2	Find the real root of the equation $\boldsymbol{2x = \cos x + 3}$, accurate to three decimal places by method of iteration.	5
3	Derive the mathematical expression for **Secant method** and **Newton Raphson method**.	6
4	Find the real root of the equation $\boldsymbol{x^3 + x - 3 = 0}$, correct to four decimal places by (a) Secant method (b) Newton Raphson method	6
5	Find the real root of the equation $\boldsymbol{x^3 + x - 1 = 0}$, correct to four decimal places by (a) Secant method (b) Newton Raphson method	6
6	Find the real root of the equation $\boldsymbol{\cos x - xe^x = 0}$, correct to four decimal places by (a) Secant method if root lies in the interval (0, 1). (b) Newton Raphson method.	6
7	Find the Newton Raphson formula for finding the square root of a positive number N.	5
8	Obtain the cube root of 12 using Newton Raphson method.	5
9	Show that the following sequence have convergence of the second order $x_{n+1} = x_n - \frac{f(x_n)}{f'(x_n)}, \quad f'(x_n) \neq 0, n = 0,1,2 \ldots\ldots$	6