

**COMPUTATIONAL PHYSICS (PH 3304)**  
**AUTUMN SEMESTER (2020-21)**  
**DEPARTMENT OF PHYSICS**  
**NATIONAL INSTITUTE OF TECHNOLOGY, JAMSHEDPUR**

**ASSIGNMENT-1**

**(To be submitted by: 21/09/2020)**

**Q.1:** Compute to four decimal places, the root between 1 and 2 of the equation  $x^3-2x^2+3x-5=0$  by regula-falsi and newton-raphson method. Compare your results.

**Q.2:** Find a root of the equation  $x^2+x-\cos x=0$  correct to three decimal places using bisection method.

**Q.3:** Use the method of iteration to find a real root of the equation  $x-\sin x=1/2$ , correct to four significant figures.

**Q.4:** Find the real root of the equation  $x=e^x$  using secant method.

**Q.5:** Derive a formula for finding the  $k^{\text{th}}$  root of a positive number N using newton-raphson method and hence compute the value of  $(25)^{1/4}$ .

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