

Assignment

Course - Generic Elective B.Sc. (HONS) Physics

II Year IV semester

Section - B₂.

Paper - Numerical Methods

Que ①: Define the following terms

- (I) Floating point representation
- (II) Roundoff error.
- (III) Local and global truncation Error.

Que ② By using Newton-Raphson-Method, find a real root, correct to 3 decimal places of the equation $\sin x = \frac{x}{2}$, given that the root lies between $\frac{\pi}{2}$ and π

Que ③ find a real root of the equation $x^3 - 2x - 5 = 0$ using secant method. and initial approximation are 2 and 3.

Ques (4). Solve the system of linear equations

$$6x + y + z = 20$$

$$x + 4y - z = 6$$

$$x - y + 5z = 7$$

by using Gauss-Seidel method.

Ques (5) Use Gauss Elimination with pivoting to solve the system

$$2x_1 + x_2 - x_3 = -1$$

$$x_1 - 2x_2 + 3x_3 = 9$$

$$3x_1 - x_2 + 5x_3 = 14$$

Check your answer by substitution into the original equations.

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