

JAYPEE UNIVERSITY OF INFORMATION TECHNOLOGY, WAKNAGHAT

TEST -1 EXAMINATION- 2024

B.Tech-III Semester (CE)

COURSE CODE (CREDITS):18B11MA311(3)

MAX. MARKS: 15

COURSE NAME: Numerical Methods

COURSE INSTRUCTOR: Dr.Neel Kanth

MAX. TIME: 1 Hour

Note: (a) All questions are compulsory.

(b) Marks are indicated against each question in square brackets.

(c) The candidate is allowed to make Suitable numeric assumptions wherever required for solving problems

Q1.The number $x = 0.458529$ is round off to three decimal places. Find absolute, relative and percentage error. [3][CO1]

Q2.Find the positive root of equation $x^3 - 5x + 3 = 0$ correct to three decimal places using Bisection method. The root of the equation lies between 0 and 1. [3][CO1]

Q3. Find the positive root of equation $x^3 - x - 4 = 0$ correct to four decimal places using Regula-Falsi method. The root of the equation lies between 1 and 2. [3][CO1]

Q4.Find the positive square root of 13 using Newton Raphson method correct to 4 decimal places. [3][CO1]

Q5.Solve the system of linear equations using Gauss elimination method. [3][CO2]

$$\begin{bmatrix} 2 & -3 & 1 \\ 1 & -1 & 2 \\ 2 & 1 & -3 \end{bmatrix} \begin{bmatrix} x \\ y \\ z \end{bmatrix} = \begin{bmatrix} -2 \\ 3 \\ -2 \end{bmatrix}$$