JAYPEE UNIVERSITY OF INFORMATION TECHNOLOGY, WAKNAGHAT

TEST -2 EXAMINATION- 2024

M.Tech-II Semester (CSE)

COURSE CODE (CREDITS): 22M1WCI231 (3) MAX. MARKS: 25

COURSE NAME: Advanced Computational Techniques

COURSE INSTRUCTORS: Dr. Anita MAX. TIME: 1 Hour 30 Minutes

Note: *(a) all questions are compulsory. Calculators are allowed*

(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 Using the method of least squares, find the straight line y=ax+b, that fits the following data: (5) CO5

x	0.5	1.0	1.5	2.0	2.5	3.0
y	15	17	19	14	10	7

Q2 Find the eigenvalue of largest modulus, and the associated eigenvector of the matrix by power method (5) CO4

$$[A]= \begin{bmatrix} 2 & 3 & 2 \\ 4 & 3 & 5 \\ 3 & 2 & 9 \end{bmatrix}$$

Q3 Solve the following systems of equations by Gaussian elimination method (5) CO7

$4x1+x2+x3=4$

$x1+4x2-2x3=4$

$3x1+2x2-4x3=6$

Q4 Solve the following systems of equations by Crout's reduction method (5) CO7

$5x1-2x2+x3=4$

$7x1+x2-5x3=8$

$3x1+7x2+4x3=10$

Q5 Solve $x^3-9x+1=0$ for the root between x=2 and x=4 by the bisection method (5) CO6

ALL THE BEST