(Please write your Enrolment No. immediately) Enrolment No. _____

MID TERM EXAMINATION

B.TECH PROGRAMMES (UNDER THE AEGIS OF USICT)

3rd Semester, November, 2022

Paper Code: ES-201 **Subject: Computational Methods**
Time: 1½Hrs. **Max. Marks: 30**

Note: Attempt Q.No.1 which is compulsory and any two more questions from remaining.

Q.No.	Questions	Max. Marks	CO(s)
1(a)	Find a root of the equation $x^3 - 4x - 9 = 0$ using Bisection method.	2.5	CO1
1(b)	Define the Absolute, Relative and Truncation Errors.	2.5	CO1
1(c)	Evaluate $\Delta^3[(1-6x)(6-x)(5-3x)]$	2.5	CO2
1(d)	Use Trapezoidal rule to estimate the integral $\int_0^1 \frac{dx}{1+x}$.	2.5	CO2
2(a)	Perform four iteration of the Newton's Raphson method to obtain the approximate value of $(17)^{1/3}$ starting with the initial approximation x_0=2.	5.0	CO1
2(b)	Minimize $f(x) = x^2 + \frac{54}{x}$ in interval (0,5). Using Fibonacci search method.	5.0	CO1
3(a)	For the data X :- -2 -1 0 1 2 3 F(x):- 15 5 1 3 11 25 Construct the Newton's forward difference table and find f(-1.5).	5.0	CO2
3(b)	Find the value of f(9) from the given table X: 5 7 11 13 17 F(X) 150 392 1492 2366 5202	5.0	CO2
4(a)	Round off the numbers 86.5250 and 37.46235 to four significant figures and compute Absolute error, Relative Error and Percentage error in each case.	5.0	CO1
4(b)	Find the Polynomial of possible degree which assume the value 3,12,15,-21 when x has the value 3,2,1,-1 respectively.	5.0	CO2