



REGISTRATION NUMBER

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# SRINIX COLLEGE OF ENGINEERING

## 1<sup>ST</sup> INTERNAL EXAMINATION-2021-22

Sub-Math-III

Branch - All

Full marks- 60

Time -2.00 hrs

### 1. Answer all questions (Part – A)

(2 x 10 =20 )

- What is the Interpolation ?
- What is the rate of convergence of secant method ?
- What is Diagonally Dominant matrix ?
- What is the fixed iteration formula ?
- Find third approximate value of root of equation  $x^3 - 3x + 1 = 0$  by bisection method ?
- What is the trapezoidal formula ?
- What is the Newton's forward interpolation formula ?
- Determine the root of the equation  $\cos x - xe^x = 0$  using the secant method correct up to one decimal places
- What is the expected value?
- What is Euler's formula?

### 2. Answer any four questions (Part – B )

(5x4 = 20)

- a) Solve by Doolittle's method the system of equation

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

$$x_1 + 2x_2 + 3x_3 = 6$$

$$3x_1 + x_2 + 2x_3 = 8$$

- b) Solve by Crout's method the system of equation

$$x_1 + 2x_2 + 3x_3 = 14$$

$$2x_1 + 5x_2 + 2x_3 = 18$$

$$3x_1 + 2x_2 + 5x_3 = 22$$

- c) Solve by Cholesky's method

$$4x_1 + 10x_2 + 8x_3 = 44$$

$$10x_1 + 26x_2 + 26x_3 = 128$$

$$8x_1 + 26x_2 + 61x_3 = 214$$

- d) Finding the square root of 5 using fixed point iteration method ( correct up to two decimal places )
- e) Construct Newton Forward Interpolation formula from given table to evaluate  $f(5)$

x	0	2	4	6	8
y	5	9	61	209	501

f) A fair die is thrown once. find the probability distribution of the random variable “ getting an even number”

**3. Answer any Two questions (Part-C)**

**(10x2=20)**

a) Evaluate approximately the integral  $I(f) = \int_0^1 (1/1+x) dx$  by 1-point , 2-point and 3-point Gauss-Legendre rules.

b) Using Euler's method find out  $y(0.4)$  given that  $dy/dx = x + y$  ;  $y(0) = 1$  ,  $h = 0.1$

c) State and prove Baye's Theorem