REGISTRATION NUMBER | | | | | | | | | | |

SRINIX COLLEGE OF ENGINEERING

2nd INTERNAL EXAMINATION 2021-22

Sub – Math-III Branch - All

Full marks- 100 Time – 2.30hrs

1. Answer any all questions (Part – A) **(2 x 10 =20)**

a) What is the standard Deviation of Random variable ?
b) Explain the order of convergence of an fixed iteration process.
c) Define type-I and type-II error in hypothesis testing.
d) What is multistep method?
e) What do you mean by one-tail and two-tail testing?
f) What is Newton's backward interpolation formula ?
g) What is the idea of maximum likelihood method in estimating a parameter ?
h) State the Baye'stheorem.
i) Distinguish between binomial and normal distribution.
j) Explain the gauss quadrature formula.

2. Answer any eight questions (Part – B) **(6×8=48)**

a) Solve by Doolittle's method the system of equation
$x_1 + x_2 + x_3 = 5$
$x_1 + 2x_2 + 2x_3 = 6$
$x_1 + 2x_2 + 3x_3 = 8$

b) Solve Numerically dy/dx = y-x , where y(0) = 2; h = 0.1 ; Find y(0.1) by Runge – kutta method of order 4.

c) Solve by cholesky's method the system of equation
$4x_1 + 10x_2 + 8x_3 = 44$
$10x_1 + 26x_2 + 26x_3 = 128$
$8x_1 + 26x_2 + 3x_3 = 214$

d) Suppose a large high school has 1100 female students and 900 male students.A random sample of 10 students is drawn with outreplacement.What is the probability exactly 7 of the selected students are female ?

e) Bag A contains 3red and 4green balls.Bag B contains 4red and 5green balls.One ball is drawn at random from one of the bags and found to be red.What is the probability that it was drawn from bag A ?

f) Fit a straight line y=a+bx to the following data by the method of least square;

x	1	2	3	4	5
y	14	27	40	55	68

g)Using the Newton's divided difference formula calculate the value of f(2) from the following data;

x	1	3	4	6
F(x)	-3	9	30	132

h)Describe thelagrange interpolation technique and find the value of f(10) for the given data.

x	5	6	9	11
F(x)	12	13	14	16

I)Find the real root of the equation cosx-xe^x=0 correct up to three decimal place by using Newton Raphson method.

3. Answer any two questions (Part – C) (16 x 2 = 32)

a) Find the correlation coefficient and the equation of the lines of regression for the following values of x and y

x	1	2	3	4	5
y	2	5	3	8	7

b) Solve the following system of equations by using Gauss-jacobi method

10x+y+z=12

x+10y+z=12 ,x+y+10z=12

c)Determine y for x=0.1,0.2,0.3,0.4,0.5 where y is the solution of the differential equation dy/dx =2(y+1);y(0)=0 by using euler'method with h=0.1.find theexact solution and comape your numerical result with the exact solution.