REGISTRATION NUMBER

SRINIX COLLEGE OF ENGINEERING

3rd INTERNAL EXAMINATION 2021-22

Sub – Math-III   sem-3rd   Branch - All

Full marks- 100   Time – 2.30hrs

1. **Answer all questions (Part – A)**   (**2 x 10 =20**)
   a) What is Independent event?
   b) Explain the gauss quadrature formula.
   c) Define probability distribution function.
   d) What is Newton's forward interpolation formula.
   e) Define one-tail and two-tail testing.
   f) What is Diagonally dominant matrix?
   g) If A and B are two events such that P(A)=1/4,P(B)=1/2, P(AB)=1/8 find P(not A and not B)
   h) State the Baye's theorem.
   i) Distinguish between binomial and poisson distribution.
   j) What is expectation of a random variable?

2. **Answer any eight questions (Part – B)**   (6×**8=48**)
   a) Solve by Crout's method the system of equation
      x+2y+3z= 14
      2x+ 5y+ 2z = 18
      3x+ 2y+ 3z = 22
   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) A black and red die are rolled.find the conditional probability of obtaining a sum greater than 9, the given that the black die resulted in a 5.

   d) A bag contains 4 red and 4 black balls,another bag contains 2 red and 6 black balls.one of the two bags is selected at random and a ball is drawn from the bag which is found to be red.find the probability that the ball is drawn from the first bag.
   e) Use Newton's Raphson method find a root of the equation xe^x-2=0 correct to three decimal places.
   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(10) from the following data;

x	4	7	9	12
F(x)	-43	83	327	1053

h)Using the Newton's forward interpolation formula calculate the value of f(3) from the following data

x	0	2	4	6	8	10
F(x)	0	4	56	204	496	980

I)Evaluate $\int_0^6 \frac{dx}{1+x^2}$ by using simpson's $\frac{3}{8}$ rule.

3. Answer all 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	6	7
y	2	4	7	6	5	6	5

b) Solve the following system of equations by using Gauss-seidel method
4x+y+2z=4
3x+5y+z=7 ,x+y+3z=3   c)
(i)Two ladies were asked to rank 7 different types of lipsticks.The ranks given by them are given below

Lipstick	A	B	C	D	E	F	G
Anita	2	1	4	3	5	7	6
Sunita	1	3	2	4	5	6	7

Calculate spearman's rank correlation coefficient
    (ii)State and prove Baye's theorem.