ST. THERESA'S ARTS AND SCIENCE COLLEGE FOR WOMEN THARAGAMBADI

HOME TEST

SEMESTER II

SUBJECT: NUMERICAL METHODS with STATISTICS (16SACMA2) **CLASS: I B.C.A**

Answer All the questions

1. Write the aim of Newton Raphson Method
2. State the Newton's backward formula.
3. Write the Trapezoidal rule
4. State the Simpson $3/8$ rule.
5. Define Tailor series
6. What is the aim of Euler method.
7. Define Standard Deviation
8. Write the relation between mean, median, mode, G,M, H.M
9. State any two properties of correlation coefficient.
10. What is regression.

Section B- $(5 \times 5 = 25)$

Answer All the questions

11. (a). Find the positive root of $x^4 - x^3 - 2x^2 - 6x - 4 = 0$ by bisection method.(or)

12. (a). Evaluate $I = \int_0^6 \frac{1}{1+x} dx$ using Simpson's 1/3 rule .(or)

    (b). Solve the system of equation by Gauss Elimination Method.

    $x + 2y + z = 3,\ 2x + 3y + 3z = 10,\ 3x - y + 2z = 13$

13. (a). Using Taylors series method find the value of $y(0.1)$ for $\frac{dy}{dx} = x^2 + y^2$ and $y(0)=1$ **(or)**

    (b). Compute y at x=0.25 by Euler method for $y' = 2xy, y(0) = 1$.

14. (a). Calculate AM

x	75	100	120	150	200
f	5	12	20	1	9

(or)

(b). Find Q.D

x	100	200	300	400	500
f	5	8	21	12	6

15. (a). Explain Scatter diagram (or)

(b). From the following data find the two regression equation

	X	Y
$Mean$	36	85
SD	11	8

$r = 0.66$

Section C- $(3 \times 10 = 30)$

Answer All the questions

16. Find the root of $f(x) = 2x^3 - 3x - 6 = 0$ by Newton Raphson Method.

17. Solve by Gauss Seidel Method $28x + 4y - z = 32,\ x + 3y + 10z = 24,\ 2x + 17y + z = 35$

18. Using Range Kutta Method of fourth order , solve

$$\frac{dy}{dx} = \frac{y^2 - x^2}{y^2 + x^2} \ given\ y(0) = 1\ at\ x = 0.2$$

19. Find mean median mode

Marks	0-10	10-20	20-30	30-40	40-50	50-60
No.of students	5	10	25	30	20	10

20. Find karl pearson coefficient of correlation from the following data

x : 65 66 67 67 68 69 70 72

f : 67 68 65 68 72 72 69 71