SHRIMATHI DEVKUNVAR NANALAL BHATT VAISHNAV COLLEGE FOR WOMEN
(AUTONOMOUS)
(Affiliated to the University of Madras and Re-accredited with 'A+' Grade by NAAC)
Chromepet, Chennai — 600 044.
B.Sc.(Statistics) END SEMESTER EXAMINATIONS APRIL-2023
SEMESTER - IV
20USTAT4004 - Numerical Methods

Total Duration : 2 Hrs 30 Mins. Total Marks : 60

Section B

Answer any **SIX** questions $(6 \times 5 = 30$ Marks)

1. Determine the Solution using Newton's Forward Difference formula for x=1895.

x	1891	1901	1911	1921	1931
f(x)	46	66	81	93	101

2. Explain about Central difference interpolation formula.
3. Examine Gauss Seidel method with an example.
4. Describe about Simpson's three eighth rule.
5. Describe about Newton's Divided Difference Interpolation formula.
6. Describe the steps involved in Everett's central difference formula
7. Explain about Lagrange's method of Inverse Interpolation.
8. Solve $\int_1^2 \frac{\mathbf{d}x}{\mathbf{x}}$ using trapezoidal rule.

Section C

Answer any **THREE** questions $(3 \times 10 = 30$ Marks)

9. Describe about forward and backward differences operators E and delta and their basic properties.
10. Compute the Solution using Lagrange's Interpolation formula for x = 10 from the following table.

x:	5	6	9	11
y:	12	13	14	16

11. Distinguish between Gauss forward and backward differences formulae.
12. Describe about the steps involved in Newton Raphson's method with an example.
13. Evaluate $\int_0^3 \sqrt{4 + x^3}\, dx$ using Simpson's one third rule.

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