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 - 2024
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. Bring out the relations between the various operators.
2. Construct difference table for the following:

x:	0	1	2	3	4	5	6	7
Y:	25	21	18	18	27	45	76	123

3. From the following table, find f(6) using Newtons divided difference formula:

x:	1	2	7	8
Y:	1	5	5	4

4. List down the properties of divided differences.
5. When to use central difference interpolation formula?
6. Bring out the relation between Bessel's and Everett's formulae.
7. Find x corresponding to y = 85 , Apply using Lagrange's Inverse Interpolation.

x:	2	5	8	14
Y:	94.8	87.9	81.3	68.7

8. Evaluate $\int_{-3}^{3} x^4$ dx by using Trapezoidal rule.

Section C

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

9. Find the values of y at x=21 and x=28 from the following data:

x:	20	23	26	29
Y:	0.3420	0.3907	0.4384	0.4848

10. Using Newton's divided difference formula, find the values of f(2) and f(8) from the following table:

x:	4	5	7	10	11	13
F(x):	48	100	294	900	1210	2028

Contd...

11. Apply Gauss forward formula to obtain f(x) at x=3.5 from the table given below:

x:	2	3	4	5
Y:	2.626	3.454	4.784	6.986

12. Find the positive root of x=cos x using Newton Raphson's method.

13. Evaluate the integral I= $\int_{4}^{5.2}$ Log_e x dx using Trapezoidal, Simpson one third and three eighth rule.

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