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.Computer Science - END SEMESTER EXAMINATIONS - NOV'2024
SEMESTER - II

20UCSAT2002 - Allied Mathematics - II

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

Section B

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

1. Solve the equation $x^3 + x^2 - 1 = 0$ for the positive root by iteration method.
2. From the following table, find the missing value

x:	2	3	4	5	6
f(x):	45.0	49.2	54.1	...	67.4

3. Find a polynomial of degree four which takes the values

x:	2	4	6	8	10
y:	0	0	1	0	0

4. Using Lagrange's formula of interpolation, find y(9.5) given

x:	7	8	9	10
y:	3	1	1	9

5. Evaluate $\int_0^1 \frac{dx}{1+x^2}$ using Trapezoidal rule with h=0.2. Hence, obtain an approximate value of π
6. Obtain the second derivative of y at $x = 0.96$ from the data

x:	0.96	0.98	1.00	1.02	1.04
y:	0.7825	0.7739	0.7651	0.7563	0.7473

7. Express $x^3 + x^2 + x + 1$ in a factorial polynomial and get their successive forward differences by taking $h = 1$
8. Find the positive root of $f(x) = 2x^3 - 3x - 6 = 0$ by Newton Raphson method correct to five decimal places.

Section C

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

9. Find the positive root of $x^3 = 2x + 5$ by False Position place

Contd...

10. Find the 7^{th} term of the sequence 2,9,28,65,126,217 and also find the general term.

11. 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

12. The population of a certain town is given below. Find the rate of growth of the population in 1931 and 1971

Year of Population x:	1931	1941	1951	1961	1971
In thousands y:	40.62	60.80	79.95	103.56	132.65

13. Evaluate $I = \int_0^6 \frac{1}{1+x} dx$ Using

    (i) Trapezoidal rule (ii) Simpson's $1/3^{rd}$ rule

    (iii) Simpson 3/8 rule. Also check up by direct integration,

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