B.Sc. DEGREE EXAMINATION,ODD SEMESTER 2020
III Year V Semester
Numerical Methods

Max.marks :25

Answer any **FIVE** questions $(5 \times 5 = 25)$ Marks

1. Find the Positive root of the equation $x^3 - x = 1$ correct to two decimals using the bisection method.
2. Solve the following set of equations by Gauss elimination method $10x + y + z = 12, 2x + 10y + z = 13, \quad x + y + 5z = 7$
3. Estimate the missing term in the following data.

x:	0	1	2	3	4
y:	1	3	9	-	81

4. Use Newton's divided difference formula to find the value of $f(8)$ from the following data.

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

5. Apply Lagrange's formula inversely to find the value of x when $f(x) = 13.5$, when $f(93.0) = 11.38, \quad f(96.2) = 12.80, \quad f(100) = 14.70, f(104.2) = 17.07.$ $f(108.7) = 19.91.$
6. Find the first derivatives of $y = (x)^{1/3}$ at $x = 50$ from the table given below:

x :	50	51	52	53	54	55	56
y :	3.6840	3.7084	3.7325	3.7563	3.7798	3.8030	3.8259

7. Using Taylor's method, compute y(0.2) correct to 4 decimal places given $\frac{dy}{dx} = 1 - 2xy \quad and \quad y(0) = 0$