

K.S.R. COLLEGE OF ENGINEERING

(AUTONOMOUS)

DEPARTMENT OF CSE & IT

(8MA343 - NUMERICAL COMPUTATIONAL
TECHNIQUES

ASSIGNMENT-II

PART - A [5x2 = 10 Marks]

- ① State the Newton's forward and backward interpolation formula.
- ② Write the Lagrange's Interpolation formula.
- ③ Using Lagrange's interpolation formula, fit a polynomial of degree 3 for the following data:

$x :$	-1	0	2	3
$y :$	-2	-1	1	4

- ④ What are the properties of divided difference method?

- ⑤ If $f(x) = \frac{1}{x}$, find the divided difference $f(a, b, c, d)$ (or) $\Delta_{bcd}^3 \left(\frac{1}{a} \right)$

PART - B [15 MARKS]

- ⑥ Using Newton's Interpolation formula, find $y(1.02)$ and $y(1.35)$ from the following table

x :	1.0	1.1	1.2	1.3	1.4
y :	0.841	0.891	0.932	0.964	0.985

- ⑦ Use Newton's divided difference formula, to fit a polynomial to the data.

x :	-1	0	2	3
y :	-8	3	1	12