# NUMERICAL METHODS LABORATORY( MA29202)
## *Assignment-1 based on the Newton's and Lagrange Interpolating Polynomial* [1]

1. Determine the polynomial of degree $\leq 5$, using Newton's divided-differences that interpolates the table

| x    | 1.0  | 2.0  | 3.0  | 4.0  | 5.0  | 6.0   |
|------|------|------|------|------|------|-------|
| f(x) | 14.5 | 19.5 | 30.5 | 53.5 | 94.5 | 159.5 |

   Use the resulting polynomial to estimate the value of $f(4.5)$, and compare this with the exact value, which is $f(4.5) = 71.375$.

2. Determine the Lagrange polynomial that interpolates the data in the following table.

| x    | 0 | 2  | 4 | 6 |
|------|---|----|---|---|
| f(x) | 1 | -1 | 3 | 4 |

---

[1]Sent on: `January 10, 2024.`