SRM Institute of Science and Technology

Department of Mathematics

21MAB206T- Numerical Methods and Analysis

UNIT –II Tutorial Sheet-1

Part-A

1. Prove that $E\nabla = \Delta = \nabla E$.
2. Express $y = x^4 - 5x^3 + 3x + 4$ in terms of factorial polynomial and obtain their differences. (**Ans:** $\boldsymbol{x^{(4)} + x^{(3)} - 8x^{(2)} - x^{(1)} + 4}$**)**
3. Find the missing term in the following: (**Ans : 16**)

x	1	2	3	4	5	6	7
y	2	4	8	-	32	64	128

4. Find the forward difference for the following table:

x	0	1	2	3	4	5	6
y	-1	3	19	53	111	199	323

Part - B

5. The population (in lakhs) of a town is as follows: (**Ans : 19 lakhs**)

Year x	1941	1951	1961	1971	1981	1991
Population y	20	24	29	36	46	51

Estimate the population increase during the period 1946 to 1976.

6. Find the value of f (x) at x = 9 given the following table: (**Ans : 79.2**)

x	2	5	8	11
y	94.8	87.9	81.3	75.1

7. From the data find the number of students whose weight is between 60 and 70. (**Ans : 424 students)**

Weight	0-40	40-60	60-80	80-100	100-120
No. of students	250	120	100	70	50

8. Estimate $e^{-1.9}$ from the given data: (**Ans : 0.1496**)

x	1	1.25	1.5	1.75	2
e^{-x}	0.3679	0.2865	0.2231	0.1738	0.1353