UNIT 2-PART B

1.Find the 6th term of the sequence 8, 12, 19, 29, 42.

2.Find the nth term of the sequence 1,4,10,20,35,56,…

3.Given that $y_5 = 4, y_6 = 3, y_7 = 4, y_8 = 10$ *and* $y_9 = 24$ find the value of $\Delta^4 y_5$.
i) by using the difference table
ii) without using the difference table

4.Given that $u_0 = 2, u_1 = 11, u_2 = 80, u_3 = 200, u_4 = 100$ and $u_5 = 8$, find the value of $\nabla^5 u_5$.
i)by using the difference table
ii) without using the difference table

5.Compute the third difference of f(32) by a formula from the following table.

x	:	32	33	34	35
f(x):		539	8568	8765	24364

Verify the result by means of the difference table.

6.Find the missing value in the following table i) by using the difference table

ii). without using the difference table

X:	2	4	6	8	10
Y:	5.6	8.6	13.9	-	35.6

7. The following table gives the population of a town during the last six censuses. Estimate the population increase during the period 1946 to 1976.

Year	1941	1951	1961	1971	1981	1991
Population (in Lakhs)	20	24	29	36	46	51

8.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

9.From the following data, find θ at x=43 and x=84

X:	40	50	60	70	80	90
Y:	184	204	226	250	276	304

10.Use Lagrange's interpolation, calculate the profit in the year 2000 from the following data

Year	:	1997	1999	2001	2002

Profit in lakhs of RS : 43 65 159 248

11.Find the third degree polynomial of f(x) satisfying the following data

X :	1	3	5	7
Y :	24	120	336	720

12.Find the polynomial f(x) by using Lagrange's formula and hence find f(3) for

X :	0	1	2	5
f(x) :	2	3	12	147

13.Using Lagrange's interpolation formula find y(10) given that y(5)=12,y(6)=13,y(9)=14,y(11)=16

14.Obtain the root of f(x) =0 by Lagrange's inverse interpolation given that f(30) = -30,

f(34) = -3, f(38) = 3, f(42) = 18.

15.Find the missing term in the following table using Lagrange's interpolation

X :	0	1	2	3	4
Y:	1	3	9	-	81

16.Using Newton's divided difference formula, find u(3)given u(1) = - 26, u(2) = 12, u(4) = 256, u(6) = 844.

17.Find f(x) as a polynomial in x for the following data by newton's divided difference formula:

X :	-4	-1	0	2	5
f(x):	1245	33	5	9	1335

18.Find f(8) by newton's divided difference formulae for the data:

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