

Experiment No 1:- INTRODUCTION OF PYTHON

- Q. What is Python in Mathematical Foundation of Computer Science?
- Q. What are the uses of Python in Mathematical Foundation of Computer Science?
- Q. Write any 5 mathematical operators using python?
- Q. What are mathematical libraries in python?

Experiment No 2:- BASIC COMMANDS IN PYTHON

- Q. Write any 3 mathematical basic commands in python?
- Q. What are python data types?

Experiment No 3:- FUNCTIONS , RELATIONS AND THEIR GRAPHS

- 1) Write a program of the function $y = x$ and draw its graph using python.
- 2) Write a program of the function $y = -x$ and draw its graph using python.
- 3) Write a program of the function $y = x^2$ and draw its graph using python.
- 4) Write a program of the function $y = x^3$ and draw its graph using python.
- 5) Write a program of the function $y = \log(x)$ and draw its graph using python.
- 6) Write a program of the function $y = e^x$ and draw its graph using python.
- 7) Write a program of the function $y = \sin(x)$ and draw its graph using python.
- 8) Write a program of the function $y = \cos(x)$ and draw its graph using python.
- 9) Define the relation $R = \{(1,1), (1,2), (1,3), (2,1), (2,2), (2,3), (3,1), (3,2), (3,3)\}$ create a directed graph relation?

Experiment No 4:- FITTING OF STRAIGHT LINE , PARABOLA & EXPONENTIAL CURVE TO THE DATA

- 1) Fit the straight line $y = ax + b$ to the following data using python.

x	1	2	3	4	6	8
y	2.4	3	3.6	4	5	6

- 2) Fit the straight line $y = ax + b$ to the following data using python.

x	1	2	3	4	5
y	2.1	4.1	6.0	7.9	10.1

3) Fit the second degree parabola $y = ax^2 + bx + c$ to the following data using python.

x	1	2	3	4	5	6
y	2.51	5.82	9.93	14.84	20.55	27.06

4) Fit the exponential curve $y = ae^{bx}$ to the following data using python.

x	1	2	3	4	5	6
y	2.98	4.61	7.93	18.54	51.83	128.92

5) Fit the exponential curve $y = ax^b$ to the following data using python.

x	1	2	3	4	5	6
y	2.98	4.26	5.21	6.10	6.80	7.5

6) Fit the exponential curve $y = ab^x$ to the following data using python.

x	2	3	4	5	6
y	144	172.8	207.4	248.8	298.5

Experiment No 5:- COEFFICIENT OF RELATION:

1) Fit the coefficient of correlation to the following data using python.

x	1	2	3	4	5
y	2	4	5	4	5

2) Fit the coefficient of correlation to the following data using python.

x	6	2	10	4	8
y	9	11	5	8	7

3) Fit the coefficient of correlation to the following data using python.

x	1	2	3	4	5
y	2	5	3	8	7

4) Fit the coefficient of correlation to the following data using python.

x	2	4	5	6	8	11
y	18	12	10	8	7	5

- 5) Fit the coefficient of correlation to the following data using python.

x	5	7	8	10	11	13	16
y	33	30	28	20	18	16	9

- 6) Fit the coefficient of correlation to the following data using python.

x	1	3	4	6	8	9	11	14
y	1	2	4	4	5	7	8	9

- 7) Fit the coefficient of correlation to the following data using python.

x	1	2	3	4	5	6	7	8	9
y	9	8	10	12	11	13	14	16	15

- 8) Fit the coefficient of correlation to the following data using python.

x	10	15	25	20	35	40	50	45	30
y	7	8	3	5	9	7	19	15	17

Experiment No 6:- RECURRENCE RELATION

- 1) Find the closed form of generating function $G(x)$ for $a_n = 3 + n$ using python.
- 2) Find the closed form of generating function $G(x)$ for $a_n = n^2$ using python.
- 3) Find the closed form of generating function $G(x)$ for $a_n = 2 + 3n$ using python.
- 4) Find the first 10 terms for recurrence relation $a_n = 2a_{n-1} + 3$ using python.