

ST. PAUL'S CATHEDRAL MISSION COLLEGE
DEPARTMENT OF MATHEMATICS

Subject-SEC-2.1

(Python Programming and Introduction to LaTeX)

Second Semester

Instruction: Answer all the questions with clear handwriting and submit to the respective teacher within 20 days from the date provided below

Assignment-1

Date: 24.04.2025

1. Write a Python program to print the multiplication table of 9.
2. Write a Python function to find factorial of a number, and then evaluate $61!/60!$
3. Write a Python program using function call to compute

$$S = \sum_{n=1}^{30} \frac{x_n + 11}{x_n^2 + x_n + 11}$$

where $x_1 = 1$, $x_2 = 1$ and $x_{n+1} = x_n + x_{n-1}$, $n \geq 2$.

4. Write a Python program to compute the two matrices of same orders.
5. Write a Python program to find the second minimum of the elements of an array of numbers without arranging ascending/descending order.
6. Write a Python program to compute the transpose of a given matrix.
7. Write a Python program to make two separate list of even and odd integers from given first 100 positive integers.
8. Write a Python program to compute

$$x - \frac{x^3}{3!} + \frac{x^5}{5!} \dots$$

for a given x upto the term that has a magnitude greater than 10^{-6} .

9. Write a Python program to make a list of primes between 10 to 100.
10. Write a Python program to make a list of Fibonacci numbers 100 to 1000. Hence find the number of Fibonacci numbers between 100 to 1000.
11. Write a python program using recursion to compute sum of first n natural numbers.
12. Write a Python program to make a list of leap years between 1900 to 2025.