1. **Write a Python Program to Display Fibonacci Sequence Using Recursion?**

**ANS:-**

***# Recursive function to print the Fibonacci series***

**def fib(n, prev1, prev2):**

**if n < 3:**

**return**

**fn = prev1 + prev2**

**prev2 = prev1**

**prev1 = fn**

**print(fn, end=" ")**

**fib(n - 1, prev1, prev2)**

**def print\_fib(n):**

***# When the number of terms is less than 1***

**if n < 1:**

**print("Invalid number of terms")**

**elif n == 1:**

**print(0)**

**elif n == 2:**

**print("0 1")**

**else:**

**print("0 1", end=" ")**

**fib(n, 1, 0)**

***# Driver code***

**if \_\_name\_\_ == "\_\_main\_\_":**

**n = 9**

***# Function call***

**print\_fib(n)**

**Output**

0 1 1 2 3 5 8 13 21

1. **Write a Python Program to Find Factorial of Number Using Recursion?**

**ANS:-**

**# Python 3 program to find**

**# factorial of given number**

**def factorial(n):**

**# Checking the number**

**# is 1 or 0 then**

**# return 1**

**# other wise return**

**# factorial**

**if (n==1 or n==0):**

**return 1**

**else:**

**return (n \* factorial(n - 1))**

**# Driver Code**

**num = 5;**

**print("number : ",num)**

**print("Factorial : ",factorial(num))**

**Output**

number : 5

Factorial : 120

1. **Write a Python Program to calculate your Body Mass Index?**

**ANS:-**

**#Python program to illustrate**

**# how to calculate BMI**

**def BMI(height, weight):**

**bmi = weight/(height\*\*2)**

**return bmi**

**# Driver code**

**height = 1.79832**

**weight = 70**

**# calling the BMI function**

**bmi = BMI(height, weight)**

**print("The BMI is", format(bmi), "so ", end='')**

**# Conditions to find out BMI category**

**if (bmi < 18.5):**

**print("underweight")**

**elif ( bmi >= 18.5 and bmi < 24.9):**

**print("Healthy")**

**elif ( bmi >= 24.9 and bmi < 30):**

**print("overweight")**

**elif ( bmi >=30):**

**print("Suffering from Obesity")**

Output:

The BMI is 21.64532402096181 so Healthy

1. **Write a Python Program to calculate the natural logarithm of any number?**

**ANS:-**

**# Python code to demonstrate the working of**

**# log1p(a)**

**import math**

**# Printing the log(1+a) of 14**

**print ("Logarithm(1+a) value of 14 is : ", end="")**

**print (math.log1p(14))**

**Output :**

Natural logarithm of 14 is : 2.6390573296152584

Logarithm base 5 of 14 is : 1.6397385131955606

**# Python code to demonstrate the Exception of**

**# log(a)**

**import math**

**# Printing the log(a) of -14**

**# Throws Exception**

**print ("log(a) value of -14 is : ", end="")**

**print (math.log(-14))**

**Output :**

Logarithm base 2 of 14 is : 3.807354922057604

**# Python code to demonstrate the Application of**

**# log10(a)**

**import math**

**# Printing no. of  digits in 73293**

**print ("The number of digits in 73293 are : ", end="")**

**print (int(math.log10(73293) + 1))**

**Output :**

Logarithm base 10 of 14 is : 1.146128035678238

1. **Write a Python Program for cube sum of first n natural numbers?**

**ANS:-**

**# Simple Python program to find sum of series**

**# with cubes of first n natural numbers**

**# Returns the sum of series**

**def sumOfSeries(n):**

**sum = 0**

**for i in range(1, n + 1):**

**sum += i \* i\*i**

**return sum**

**# Driver Function**

**n = 5**

**print(sumOfSeries(n))**