

Programming Assignment-6

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

```
import math

def fibonacci(n):
    if n <= 1:
        return n
    else:
        return fibonacci(n-1) + fibonacci(n-2)

def print_fibonacci_sequence(terms):
    fib_seq = [fibonacci(i) for i in range(terms)]
    return fib_seq

n_terms = 10

print(f"The first {n_terms} numbers in the Fibonacci sequence are:
{print_fibonacci_sequence(n_terms)}\n")
```

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

```
import math

def factorial_recursive(n):
    if n == 0 or n == 1:
        return 1
    else:
        return n * factorial_recursive(n-1)

num = 5

print(f"The factorial of {num} is {factorial_recursive(num)}\n")
```

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

```
import math

def calculate_bmi(weight, height):
    bmi = weight / (height ** 2)
    return round(bmi, 2)

weight = 63 # in kilograms
height = 1.71 # in meters
print(f"Your BMI is {calculate_bmi(weight, height)}\n")
```

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

```
import math

def natural_log(num):
    return math.log(num)

num = 20
print(f"The natural logarithm of {num} is {natural_log(num)}\n")
```

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

```
import math

def cube_sum(n):
    return sum(i**3 for i in range(1, n+1))

n = 4
print(f"The cube sum of the first {n} natural numbers is {cube_sum(n)}")
```