WORK SHEET 5

Q1/ WRITE PYTHON PROGRAM TO PRINT NUMBERS FROM 5000 TO 1 AND THEN PRINTS TOTAL SUM OF THEM.

```
numbers = range (5000, 0, -1)
sum = 0

for number in numbers:
    print(number)
    sum += number

print ("The sum of all numbers from 5000 to 1 is:", sum)
```

Q2/ WRITE PYTHON PROGRAM TO PRINT NUMBERS BETWEEN 10 AND 10000 AND THEN PRINTS TOTAL MULTIPLICATION OF THEM.

```
numbers = range (10, 10001)
x = 1
for x in numbers:
    print(x)
    x += x
print("The product of all numbers between 10 and 10000 is:", x)
```


Q3/ WRITE PYTHON PROGRAM TO PRINT THE SQUARE OF ALL NUMBERS FROM 1 TO 10.

```
numbers = range(1, 11)

for number in numbers:
    print("The square of", number, "is", number**2)
```

Q4/

Q5/ WRITE PYTHON PROGRAM TO READ NUMBER. AND CHECK IF IT'S PRIME OR NOT PRIME.

```
def is prime(number):
    if number < 2:
        return False
    for i in range(2, int(number**0.5) + 1):
        if number % i == 0:
            return False
    return True
num = int (input("Enter a number: "))
if is prime(num):
    print(f"{num} is a prime number.")
else:
    print(f"{num} is not a prime number.")
```

Q6/ WRITE AN ALGORITHM TO FIND XY I.E., POWER (X, Y).


```
def power(X, Y):
    result = 1
    for _ in range(Y):
        result *= X
    return result
base = int(input("Enter the base (X): "))
exponent = int(input("Enter the exponent (Y): "))

result = power(base, exponent)
print(f"{base}^{exponent} is: {result}")
```

Q7/ WRITE PYTHON PROGRAM TO READ N OF NUMBER AND PRINT HOW MANY EVEN AND ODD NUMBER IN N.

```
def is_even(num):
    return num % 2 == 0
n = int(input("Enter the value of n: "))
even_count = 0
odd_count = 0
for i in range(n):
    num = int(input(f"Enter number {i+1}: "))
    if is_even(num):
        even_count += 1
    else:
        odd_count += 1
print(f"\nNumber of even numbers: {even_count}")
print(f"Number of odd numbers: {odd_count}")
```


Q8/ WRITE PYTHON PROGRAM WHICH GENERATES FIRST 50 ITEMS OF THE FIBONACCI SERIES: 1, 1, 2, 3, 5, 8, 13, 21…?

```
def generate_fibonacci(n):
    fibonacci_series = [1, 1]
    for i in range(2, n):
        next_number = fibonacci_series[-1] + fibonacci_series[-2]
        fibonacci_series.append(next_number)
    return fibonacci_series
n = 50
fibonacci_series = generate_fibonacci(n)
print(f"The first 50 items of the Fibonacci series are:\n{fibonacci_series}")
```

Q9/ Write Python Program for finding the sum of the numbers 3, 9, 27, 81, 243 …, n

```
def geometric_sum(a, r, n):
    if r == 1:
        return a * n
    sum_result = a * (pow(r, n) - 1) // (r - 1)
    return sum_result
first_term = 3
common_ratio = 3
number_of_terms = int(input("Enter the value of n: "))
series_sum = geometric_sum(first_term, common_ratio, number_of_terms)
print(f"The sum of the series is: {series_sum}")
```

Q10/ Find the output of range function for following:

- `range(-5, 5)`
- `range(1, 2)`
- `range(1, 1)`
- `range(1, -1)`
- `range(1, -1, -1)`
- `range(0)`

ANS:

- (-5,-4,-3,-2,-1,0,1,2,3,4)
- (1)
- (NOTHING)
- (NOTHING)
- (1,0)
- (NOTHING)