# Assignment 5

Q-1 Write a Python function to find out the maximum of three numbers.

Code and Output:

```
def maximum(a,b,c):

    print(maximum(a,b,c))

print("maximum number among the three is:")
max(76,107,65)
```

```
maximum number among the three is:

107
```

Q-2 Write a Python recursive/non-recursive function to calculate the factorial of a number (a non-negative integer). The function accepts the number as an argument.

Code and Output:

```
n=int(input("enter a number ="))
def fact(n):
    if n==1:
        return 1
    else:
        return ( n*fact(n-1))

print(fact(n))
```

```
enter a number =5
120
```

Q-3 Write a Python function to check whether a number falls in a given range.

Code and Output:

```
def number(n):
    a=int(input("enter starting range="))
    b=int(input("enter ending range="))
    for i in range(a,b+1):
        if n==i:
            print("within the range")
            break
    else:
        print("Out of range")

num=int(input("enter a number to check whether it is in or out of range="))
number(num)
```

```
enter a number to check whether it is in or out of range=54
enter starting range=20
enter ending range=60
within the range
```

Q-4 Write a Python function that accepts a string and find out how many characters are in upper case letters and lower case.

Code and Output:

```
def str(s):
    upper=0
    lower=0
    for i in s:
        if i.isupper():
            upper+=1
        elif i.islower():
            lower+=1
    print("upper case letters are ",upper)
    print("lower case letters are ",lower)

s=input("enter a string=")
str(s)
```

```
enter a string=PRANJALtiwari
upper case letters are  7
lower case letters are  6
```

Q-5 Write a Python function that takes a number as a parameter and checks the number is prime or not.

Code and Output:

```
def prime(a):
    for i in range(2,a):
        if a%i==0:
            print("it is not a prime number")
            break
    else:
        print("it is a prime number")

a=int(input("enter a number:"))
prime(a)
```

```
enter a number:076
it is not a prime number
```

Q-6 Write a Python function that takes a number as an argument and displays all prime numbers up to nth number.

Code and Output:

```
def prime(a):
    for i in range(2,a):
        if num>1:
            for j in range(2,i):
                if(i%j==0):
                    break
            else:
                print(i)
a=int(input("enter a number="))
prime(a)
```

```
enter a number=29
2
3
5
7
11
13
17
19
23
```

Q-7 . Write a Python function to generate the Fibonacci series up to nth number.

Code and Output:

```
def fib(n):
    a=0
    b=1
    print(a,b)
    for i in range(2,n):
        c=a+b
        a=b
        b=c
        print(c)


n=int(input("enter a number"))
fib(n)
```

```
enter a number7
0 1
1
2
3
5
8
```

Q-8 Write a Python function sum(start, end) that adds all the integers between the start and end value (inclusive) and returns the total sum

Code and Output:

```
def sum(a,b):
    s=0
    for i in range(a,b):
        s+=i
    print(s)
a=int(input("enter 1st number="))
b=int(input("enter 2nd number="))
sum(a,b)
```

```
enter 1st number=2
enter 2nd number=6
14
```

Q-9 Write a Python program that uses a user defined function that accepts name and gender (as M for Male, F for Female) and prefixes Mr. /Ms. on the basis of the gender.

Code and Output:

```
def gen(gender,fname,lname):
    if  gender=='M':
        print("Mr",fname,lname)
    elif  gender=='F':
        print("Mrs",fname,lname)
    else:
        print("enter gender again")

gender=input("enter gender M or F=")
fname=input("enter first name=")
lname=input("enter last name=")
gen(gender,fname,lname)
```

```
enter gender M or F=M
enter first name=pranjal
enter last name=tiwari
Mr pranjal tiwari
```

Q-10 ABC School has allotted unique token IDs from (1 to 600) to all the parents for facilitating a lucky draw on the day of their annual day function. The winner would receive a special prize. Write a program using Python that helps to automate the task. (Hint: use random module)

Code and Output:

```
import random
a=random.randint(1,601)
print("id no.",a,"won the prize")
```

```
id no. 166 won the prize
```

Q-11.Write a Python program to calculate sum of first ‘n’ natural numbers using recursion.

Code and Output:

```
def sum(n):
    if n ==  1:
        return 1
    else:
        return n+sum(n-1)
n=int(input("enter a number = "))
print(sum(n))
```

```
enter a number = 8
36
```

Q-12. Write a Python program to input two numbers from user variable x and y and performed recursive function to find out the value of xy.

Code and Output:

```
def pow(a,b):
    if b==0:
        return 1
    elif b==1:
        return a
    else:
        return a*pow(a,b-1)
a=int(input("enter a"))
b=int(input("enter b"))
pow(a,b)
```

```
enter a5
enter b2

25
```