Practical No.1A: Python Program for Pascal Triangle:

```
rows = int(input("Enter number of rows: "))
for i in range(rows):
    for j in range(i+1):
        print(j+1,end=" ")
    print()
```

O/P:

```
Enter number of rows: 5
1
1 2
1 2 3
1 2 3 4
1 2 3 4 5
```

Practical No.1B: Python Program for Pascal Triangle:

```
rows = int(input("Enter number of rows: "))
for i in range(rows):
    for j in range(i+1):
        print(“* ”,end=" ")
    print()
```

O/P:

```
Enter number of rows: 5
*
* *
* * *
* * * *
* * * * *
```

Practical No.1C: Python Program for Pascal Triangle:

```
rows = int(input("Enter number of rows: "))
for i in range(rows,0,-1):
    for j in range(0,i):
        print(“* ”,end=" ")
    print()
```

O/P:

```
Enter number of rows: 5
* * * * *
* * * *
* * *
* *
*
```

Practical No.1D: Python Program for Pascal Triangle:

```
from math import factorial
n = int(input("Enter number: "))
for i in range(n):
    for j in range(n-i+1):
        print(end=" ")
    for j in range(i+1):
        print(factorial(i)//(factorial(j)*factorial(i-j)),end=" ")
    print()
```

O/P:

```
Enter number: 6
      1
     1 1
    1 2 1
   1 3 3 1
  1 4 6 4 1
1 5 10 10 5 1
```

Practical No.2: Find out Roots of Quadratic Equations

```
from math import sqrt
print("Quadratic function : (a * x^2) + b*x + c")
a = float(input("a: "))
b = float(input("b: "))
c = float(input("c: "))
r = b**2 - 4*a*c
if r > 0:
    num_roots = 2
    x1 = (((-b) + sqrt(r))/(2*a))
    x2 = (((-b) - sqrt(r))/(2*a))
    print("There are 2 roots: %f and %f" % (x1, x2))
elif r == 0:
    num_roots = 1
    x = (-b) / 2*a
    print("There is one root: ", x)
else:
    num_roots = 0
    print("No roots, discriminant < 0.")
exit()
```

O/P:

Quadratic function : (a * x^2) + b*x + c

a: 5

b: 20

c: 10

There are 2 roots: -0.585786 and -3.414214

Practical No.3. Write a program to display the Fibonacci series using generators.

```
def fib(n):
    a=0
    b=1
    if n==1:
        print(a)
    else:
        print(a)
        print(b)
        for i in range(2,n):
            c=a+b
            a=b
            b=c
            print(c)
X = int(input("enter the number: "))
fib(X)
```

O/P:

enter the number: 5

0

1

1

2

3

Practical No. 4. Write a program to check the given number is palindrome or not.

```
t=n=int(input("Enter a number:"))
rev=0
while n!=0:
    r=n%10
    rev=rev*10+r
    n=n//10
if rev==t:
    print(t,"is palindrome no")
else:
     print(t,"is not palindrome no")
```

O/P:

```
Enter a number:121
121 is palindrome no
```

Practical No. 5. Write a program to find the sum of digits of a given number.

```
def summ(no):
    rem=0
    while(no>9):
        sum=0
        while(no>0):
            rem=no%10
            sum=sum+rem
            no=no//10
        no=sum
        print(sum)
no=int(input("Enter no: "))
summ(no)
```

O/P:

```
Enter no: 43
7
```

Practical No. 6. Write a Python program to remove the punctuations from a string.

```
punctuations='''!()[]{};:'"\,<>./?@#$%^&*_~'''
my_str ="Hello World! It's a beautiful day."
no_punct =" "
for char in my_str:
    if char not in punctuations:
        no_punct = no_punct+char
print(no_punct)
```

O/P:

Hello World Its a beautiful day

Practical No. 7. Write a Python program to implement the simple calculator.

```
def add(P, Q):
   # This function is used for adding two numbers
   return P + Q
def subtract(P, Q):
   # This function is used for subtracting two numbers
   return P - Q
def multiply(P, Q):
   # This function is used for multiplying two numbers
   return P * Q
def divide(P, Q):
   # This function is used for dividing two numbers
   return P / Q
# Now we will take inputs from the user
print ("Please select the operation.")
print ("a. Add")
print ("b. Subtract")
print ("c. Multiply")
print ("d. Divide")

choice = input("Please enter choice (a/ b/ c/ d): ")

num_1 = int (input ("Please enter the first number: "))
num_2 = int (input ("Please enter the second number: "))
```

```
if choice == 'a':
   print (num_1, " + ", num_2, " = ", add(num_1, num_2))

elif choice == 'b':
   print (num_1, " - ", num_2, " = ", subtract(num_1, num_2))

elif choice == 'c':
   print (num1, " * ", num2, " = ", multiply(num1, num2))
elif choice == 'd':
   print (num_1, " / ", num_2, " = ", divide(num_1, num_2))
else:
   print ("This is an invalid input")
```

O/P:

```
Please select the operation.
a. Add
b. Subtract
c. Multiply
d. Divide
Please enter choice (a/ b/ c/ d): d
Please enter the first number: 15
Please enter the second number: 10
15  /  10  =  1.5
```