Section A: Fundamentals of Python

1. Write a Python program to print "Hello Python"

```
s="Hello Python"
print(s)
```

```
    Hello Python
```

2. Write a Python program to do arithmetical operations addition and division.?

```
num1=int(input("Enter the first number :"))
num2=int(input("Enter the second number :"))
print("addition of the two numbers is:",num1+num2)
```

3. Write a Python program to find the area of a triangle?

```
a=int(input("Enter the base length of the triangle:"))
b=int(input("Enter the  height of the triangle:"))
c=0.5*a*b
print("Area of the triangle is :",c)
```

4. Write a Python program to swap two variables?

```
x = input('Enter value of x: ')
y = input('Enter value of y: ')
temp = x
x = y
y = temp

print('The value of x after swapping: '.format(x))
print('The value of y after swapping: '.format(y))
```

5. Write a Python program to generate a random number?

```
import random
print(random.randint(0,9))
```

Section B:

1. Write a Python program to convert kilometers to miles?

```
km = float(input("Enter the speed in Kilometer : "))
miles = km * 0.621371
print("The speed value in Miles:\n", miles)
```

Enter the speed in Kilometer : [   ]

2. Write a Python program to convert Celsius to Fahrenheit?

```
c = float(input("Enter temperature in celcius:"))
f = (c*9/5)+32
print("Temperature in Fahrenheit is:", f)
```

3. Write a Python program to display calendar?

```
import calendar
yy=2020
print(calendar.calendar(yy))
```

4. Write a Python program to solve quadratic equation?

```
import cmath
 a = float(input('Enter a: '))
 b = float(input('Enter b: '))
 c = float(input('Enter c: '))
 d = (b**2) - (4*a*c)
sol1 = (-b-cmath.sqrt(d))/(2*a)
sol2 = (-b+cmath.sqrt(d))/(2*a)
print('The solution are',sol1 ,'and',sol2 )
```

5. Write a Python program to swap two variables without temp variable?

```
x =input('Enter value of x: ')
y =input('Enter value of y: ')

x, y = y, x
print("x =", x)
print("y =", y)
```

Section C:

1. Write a Python Program to Check if a Number is Positive, Negative or Zero?

```
num = int(input("Enter a number: "))
if num > 0:
    print("The number is Positive ")
elif num == 0:
    print("The number is Zero")
else:
    print("The number is Negative ")
```

2. Write a Python Program to Check if a Number is Odd or Even?

```
num = int(input("Enter a number: "))
if num/2==0:
    print("The number is even")
else:
    print("The number is odd")
```

3. Write a Python Program to Check Leap Year?

```
year=int(input("Enter the year to be checked:"))
if(year%4==0 and year%100!=0 or year%400==0):
    print("The year is a leap year!)
else:
    print("The year is not a leap year!)
```

4. Write a Python Program to Check Prime Number?

```
num = int(input("Enter a number: "))
if num > 1:

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

else:
    print(num,"is not a prime number")
```

5. Write a Python Program to Print all Prime Numbers in an Interval of 1-10000?

```
def prime(num):
    if num > 1:
        for i in range(2, num):
            if (num % i) == 0:
                break
        else:
```

```
          print(num,end=" ")
lower = int(input("enter lower limit: "))
upper = int(input("enter upper limit: "))
for i in range(lower, upper + 1):

    prime(i)
```

Section D:

    1. Write a Python Program to Find the Factorial of a Number?

```
num=int(input("Enter the number :"))
def factorial (num):

fact = 1

for i in range(1, num+1):

fact = fact * i

print("Factorial of", num," is ",fact)
```

    2. Write a Python Program to Display the multiplication Table?

```
number = int(input ("Enter the number to print the multiplication table: "))
print ("The Multiplication Table of: ", number)
for count in range(1, 11):
    mul= number * count
    print (number, 'x', count, '=',mul)
```

    3. Write a Python Program to Print the Fibonacci sequence?

```
nterm=int (input("Enter the terms to be printed:"))

n2=1

count=0

if nterm<=0:

    print("Please enter a positive integer, the given number is not valid")

elif nterm==1:

    print ("The Fibonacci sequence of the number upto:",nterm, ":")
    print (nl)

else:
    print ("The Fibonacci sequence of the number is:")

    while count <nterm:
```

```
        print (n1)
        nth=n1+n2

        n1=n2

        n2=nth
        count +=1
```

4. Write a Python Program to Check Armstrong Number?

```python
num = int(input("Enter a number: "))


sum = 0

temp = num
while temp > 0:
   digit = temp % 10
   sum += digit ** 3
   temp //= 10

if num == sum:
   print("The number is an Armstrong number")
else:
   print("The number is not an Armstrong number")
```

5. Write a Python Program to Find Armstrong Number in an Interval?

```python
lower = int(input("Enter lower number: "))
upper = int(input("Enter upper number: "))

for num in range(lower, upper + 1):


   sum = 0

   temp = num
   while temp > 0:
       digit = temp % 10
       sum += digit ** order
       temp //= 10

   if num == sum:
       print(num)
```

6. Write a Python Program to Find the Sum of Natural Numbers?

```python
num = int(input('Enter a number: '))
sum = 0
```

```
x = 1
while x <= num:
 sum += x
 x += 1
print('The sum of natural number =',sum)
```

Section E:

   1. Write a Python Program to find sum of array?

```
num= [10, 25, 38, 4, 15];
sum=0
for i in range(0, len()):
   sum = sum + num[i];
print("Sum of all the elements of an array: " + str(sum));
```

   2. Write a Python Program to find largest element in an array?

   3. Write a Python Program for array rotation?

   4. Write a Python Program to Split the array and add the first part to the end?

   5. Write a Python Program to check if given array is Monotonic?

Section F:

   1. Write a Python program to find sum of elements in list?

```
num = [20,4,12,50,7,29,23,4,5]
summ = sum(numlist)
print('Sum of List: ',summ)
```

   2. Write a Python program to Multiply all numbers in the list?

```
list1 = [1, 2, 4, 3]
print(list1)
def multiply(list) :
product = 1
    for i in list:
            product = product * i
    return product
print(multiply(list1))
```

3. Write a Python program to find smallest number in a list?

```
list = [1,2,3,4]
smallest = min(a)
print("Smallest number in the list is :",smallest)
```

4. Write a Python program to find largest number in a list?

```
list = [1,2,3,4]
largest = max(a)
print("largest number in the list is :",largest)
```

5. Write a Python program to find second largest number in a list?

6. Write a Python program to find N largest elements from a list?

7. Write a Python program to print even numbers in a list?

```
list = [1,2,5,3,6,11,4]

for num in list:

    if num % 2 == 0:
        print("The even numbers in list is:",num, end = " ")
```

8. Write a Python program to print odd numbers in a List?

```
list = [1,2,5,3,6,11,4]

for num in list:

    if num % 2 != 0:
        print("The odd numbers in list is:",num, end = " ")
```

9. Write a Python program to Remove empty List from List?

```
list1=[1,[],2,3,[],4,[],5]
```

10. Write a Python program to Cloning or Copying a list?

```
list1=[1,2,3,4]
list2=[5,6,7]
list1=list2
print("[list1=list2] :",list1)
```

11. Write a Python program to Count occurrences of an element in a list?