PART A

Program:1(Fibonacci sequence)

```
n=int(input("Enter a number:"))
c=0
a=1
b=1
if n==0 or n==1:
   print ("yes, it is Fibonacci Number")
else:
      while c<n:
         c=a+b
         b=a
         a=c
      if c==n:
         print("Yes,{0} is fibonacci number".format(n))
      else:
          print("No,{0} is not fibonacci number".format(n))
```

Program:2(quadratic eqavation)

```
import cmath
a=int(input("enter value for a:"))
b=int(input("enter value for b:"))
c=int(input("enter value for 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:\n",sol1,"and",sol2)
```

Program:3 (Natural Numbers)

```
num=int(input("enter a number:"))
if num<0:
   print("enter a positive number:")
else:
   sum=0
while(num>0):
   sum+=num
   num-=1
print("the sum is:",sum)
```

Program:5(check prime or Not)

```
num=int(input("please enter a number:"))
i=2
flage=0
while i<num:
   if num%i==0:
    flage=1
   print(num,"is not prime number!")
   break
it=1
if flag==0:
   print(num,"is a prime number!")
```

Program:7 (calculator program)

```
def calculater(x, a, b):
  switcher ={
       1: (a+b),
       2: (a-b),
       3: (a*b),
       4:(a/b)
    }
  print(switcher.get(x, "invalid"))

print("----------simple calculater----------")
print("1. addition")
print("2. substaction")
print("3. multiplication")
print("4. divition")

x = int(input("Enter your choise"))
a = int(input("Enter first value: "))
b = int(input("Enter first value: "))

calculater(x , a, b)
```

Program:4(Multiplication table)

```
num=int(input("Display Multiplication Table of :"))
for i in range(1,11):
   print(num,'x',i,'=',num*i)
```

Program:9(selection)

```
array=[]
print("enter the limit")
n=int(input())
for i in range(n):
   element=int (input("enter the element:"))
   array.append(element)
for i in range(n-1):
   min=i
   for j in range (i+1,n):
      if array[min]>array[j]:
         min=j
         if min!=i:
            temp=array[i]
            array[i]=array[min]
            array[min]=temp
print("the sorted array ub ascending order :",end='\n')
for i  in range(n):
   print(array[i])
```

Program:10(Implement stack)

```
stack=[]
stack.append('1')
stack.append('2')
stack.append('3')
print(stack)
print('\n element poped fromo my_stack')
print(stack.pop())
print(stack.pop())
print(stack.pop())
print('\n my_stack after element are poped:')
print(stack)
```

program no:6(implelment sequential seardh)

```
def lin_search(list,n,key):
    for i in range(0,n):
        if(list[i]==key):
            return i
    return-1
n=int(input("enter the size:"))
list1=input("enter the number:").split()
list1=[int(x)for x in list1]
key=int(input("entern the key element to searched:"))
n=len(list1)
res=lin_search(list1,n,key)
if(res==-1):
    print("element not found")
else:
    print("element found at index:",res)
```

program no 8:(string function)

```
str1=input("enter a first string:")
str2=input("enter a second string:")
print("Uppercase of ",str1,"is :",str1.upper())
print("Lowercase of ",str2,"is:",str2.lower())
print("Swapcase of ",str1,"is:",str1.swapcase())
print("Titlecase of ",str1,"is:",str1.title())
print("Replacement of ",str1,"is:",str1.replace(str1,str2))
string="python is awesome and it is programming language"
capitalized_string=string.capitalize()
print("Old string:",string)
print("Capitalized String:",capitalized_string)
substring="is"
count=string.count(substring)
print("the count of given string is:",count)
if string.isalpha()==True:
   print("all character are alphabets")
else:
   print("all character are not alphabets")
num=[2,4,5,7,33,8]
print("the maximum :",max(num))
teststring="python"
print("length of",teststring,"is:",len(teststring))
```

program No:11(Read And Write into File)

```
file=open("C:\\Users\\gayak\\OneDrive\\Desktop\\MG Python.txt","w")
file.write("Welcome to BCA Department\n")
L= ['This is BCA College \n', 'Place is Nidasoshi \n', 'Fourth semester \n']
file.writelines(L)
file.close()
file=open("C:\\Users\\gayak\\OneDrive\\Desktop\\MG Python.txt","r")
file_cont=file.read()
print(file_cont)
```

PART B

Program No:2(Regular Expression password/Invalidation)

```
import re
p=input("enter your password:")
x=True
while x:
   if(len(p)<6 or len(p)>20):
      break
   elif not re.search("[a-z]",p):
     break
   elif not  re.search("[A-Z]",p):
     break
   elif not re.search("[0-9]",p):
     break
   elif not re.search("[$#@]",p):
     break
   elif re.search("\s",p):
     break
   else:
        print("valid password")
        x=False
        break
if x:
    print("Invalid password")
```

Program No:3(Use of List)

```
print("PROGRAM FOR BUILT-IN METHODS OF LIST\n")
number=[1,2,13,40,5]
print(number)
sum_of_number=sum(number)
print("Sum=",sum_of_number)
max_number=max(number)
print("max=",max_number)
min_number=min(number)
print("min=",min_number)
number.sort()
print("sorted number in ascending ",number)
number.reverse()
print("sorted number in descending",number)
number.append(6)
print("updated number",number)
number.remove(13)
print("removed",number)
number.clear()
print("list after clear",number)
```

Program No:4(Use Of Dictionaries)

```
person={"name":"amit","age":"21",
"city":"bengaluru","occupation":"student"}
print(person["name"])
print(person["age"])
print(person["city"])
print(person["occupation"])
person["age"]=25
person["occupation"]="engineer"
print(person)
person["country"]="India"
print(person)
del person["city"]
print(person)
if"occupation"in person:
    print("occupation:",person["occupation"])
```

Program No:5(SQLite Database)

```
import sqlite3
conn=sqlite3.connect('text.db')
cursor=conn.cursor()
cursor.execute("create table emp10(id integer,name text)")
cursor.execute("insert into emp10(id,name)values(101,'ravi')")
cursor.execute("insert into emp10(id,name)values(102,'raj')")
cursor.execute("insert into emp10(id,name)values(103,'ramesh')")
print("\n displaying the emp10 table")
cursor.execute("select *from emp10")
rows=cursor.fetchall()
for row in rows:
    print(row)
print("\n after update and delete the records in the table")
cursor.execute("update emp10 set name='Akash' where id=101")
cursor.execute("delete from emp10 where id=103")
print ("displaying the emp10 table")
cursor.execute("select  * from emp10")
rows=cursor.fetchall()
for row in rows:
   print(row)
print("\n table is droped...")
cursor.execute("drop table emp10")
conn.commit()
cursor.close()
conn.close()
```

Program No:6(GUI using TKinter)

```
import tkinter as tk
from tkinter import messagebox
def show_message():
   messagebox.showinfo("Hello", "Welcome to the GUI")
window = tk.Tk()
window.title("My GUI")
window.geometry("300x200")
label = tk.Label(window, text="Hello, world")
label.pack()
button = tk.Button(window, text="Click me", command=show_message)
button.pack()
window.mainloop()
```

Program No:7(Exception in python)

```
try:
   num1=int(input("enter the number:"))
   num2=int(input("enter the denominator:"))
   result=num1/num2
   print("result:",result)
except ValueError:
      print("Invalid input")
except ZeroDivisionError:
     print("connot divide by zero")
else:
    print("no exception occur")
finally:
    print("end of program")
```

Program No:8(Line Bar chart)

```
import matplotlib.pyplot as plt
x=[2,3,4,6,8]
y=[2,3,4,6,8]
plt.subplot(121)
plt.plot(x,y,color='tab:red')
plt.title('Line Chart')
plt.xlabel('X axis label')
plt.ylabel('Y axis label')
plt.subplot(122)
plt.title('Bar chart')
plt.xlabel('X axis label')
plt.ylabel('Y axis label')
plt.bar(x,y)
plt.show()
```

program No: 9 (Histogram &pie matplotlib)

```
import matplotlib.pyplot as plt
import numpy as np
r=np.random
data=r.randint(0,100,100)
sizes=[20,30,30,15,10]
labels=['A','B','C','D','E',]
plt.subplot(121)
plt.hist(data,bins=20)
plt.title("Hist")

plt.subplot(122)
plt.pie(sizes,labels=labels)
plt.title("pie chat")

plt.show()
```

Program No:10(airthmatic operation and numpy arrays)

```
import numpy as np

array1 = np.arange(9, dtype=np.float64).reshape(3, 3)

array2 = np.arange(11, 20, dtype=np.float64).reshape(3, 3)

print("First Array:", array1)

print("Second Array:", array2)

print("Adding two arrays:", np.add(array1, array2))

print("Subtracting two arrays:", np.subtract(array1, array2))

print("Multiplying two arrays:", np.multiply(array1, array2))

print("Dividing two arrays:", np.divide(array1, array2))
```