Exercise 1 – Write a program to do the following operations taking integer inputs:

i) Addition Operation
ii) Subtraction Operation
iii) Multiplication Operation
iv) Division Operation
v) Modulus Operation
vi) Exponent Operation
vii) Floor Division Operation

Program –

```
flag=1

def calc(x,y,operator):
     if(operator=="1"):
          return x+y
     elif(operator=="2"):
          return x-y
     elif(operator=="3"):
          return x*y
     elif(operator=="4"):
          if(y!=0):
               return x/y
          else:
               return("Can't divide by Zero(0).")
     elif(operator=="5"):
          if(y!=0):
               return x%y
          else:
               return("Error.")
     elif(operator=="6"):
          return x**y
     elif(operator=="7"):
          if(y!=0):
               return x//y
          else:
               return("Can't divide by Zero(0).")
     else:
          print("Sorry try again.")
          return 0

while(flag==1):
     print("Menu:")
     print("1. Addition")
     print("2. Subtraction")
     print("3. Multiplication")
```

```
        print("4. Division")
        print("5. Modulus/Remainder")
        print("6. Exponent")
        print("7. Floor Division")

        x=int(input("Enter your 1st number: "))
        y=int(input("Enter your 2nd number: "))
        operator=(input("Enter the operation (1-7): "))
        print("Result: "+ str(calc(x,y,operator)))

        intake=input("Do you wish to continue? (Press y to
continue or any key to exit.): ")

        if(intake=="Y" or intake=="y"):
            flag=1
        else:
            flag=0
            break
```

Exercise 2 – Write a program to compute distance between two points taking input from the user.(Pythagoras Theorem)

Program –

```
import math

flag=1

def distance(x1,y1,x2,y2):
    r=math.sqrt(pow((x1-x2),2)+pow((y1-y2),2))
    print("Distance: "+ str(r))

while(flag==1):
    print("Give your first point:")
    x1=int(input("x1: "))
    y1=int(input("y1: "))
    print("Give your second point:")
    x2=int(input("x2: "))
    y2=int(input("y2: "))

    distance(x1,y1,x2,y2)

    intake=input("Do you wish to continue? (Press y to
continue or any key to exit.): ")
```

```
    if(intake=="Y" or intake=="y"):
        flag=1
    else:
        flag=0
        break
```

Exercise 3 – Input three sides of a triangle and calculate the area of a triangle and display it.

Program –

```
import math

flag=1

def area(x,y,z):
    if((x+y>z) and (y+z>x) and (z+x>y)):
        s=(x+y+z)/2
        ar=math.sqrt(s*(s-x)*(s-y)*(s-z))
        print("Result: "+ str(ar))
    else:
        print("Sum of two sides is smaller than third
side.")


while(flag==1):
    x=int(input("Enter your 1st side: "))
    y=int(input("Enter your 2nd side: "))
    z=int(input("Enter your 3rd side: "))

    area(x,y,z)

    intake=input("Do you wish to continue? (Press y to
continue or any key to exit.): ")

    if(intake=="Y" or intake=="y"):
        flag=1
    else:
        flag=0
        break
```

Exercise 4 – Input two numbers and generate a Random Number between them.

Program –

```
import random

flag=1

while(flag==1):
     x=int(input("Enter your 1st number: "))
     y=int(input("Enter your 2nd number: "))

     if(x<=y):
          result=random.randint(x,y)
          print("Your number is " + str(result))
     else:
          print("Error")

     intake=input("Do you wish to continue? (Press y to
continue or any key to exit.): ")

     if(intake=="Y" or intake=="y"):
          flag=1
     else:
          flag=0
          break
```