TYPE-C:INTRODUCTION TO PYTHON MODULES:CH-8

1) Write a program whose three sample runs are shown below :

   Sample Run 1:
     Random number between 0 and 5 (A):
     Random number between 0 and 5 (B): 5.
     A to the power B = 32
   Sample Run 2
     Random number between 0 and 5 (A) 4
     Random number between 0 and 5 (B): 3
     A to the power 64
   Sample Run 3
     Random number between 0 and 5 (A): 1
     Random number between 0 and 5 (B): 1.
     A to the power 81

   sol:

```
import random
a=random.randint(0,5)
b=random.randint(0,5)
print('the random number between0 and 5:',a)
print('the random number between0 and 5:',b)
print('a to the power b:',a**b)
```

   output:
     the random number between0 and 5: 3
     the random number between0 and 5: 1
     a to the power b: 3
     ----
     the random number between0 and 5: 0
     the random number between0 and 5: 2
     a to the power b: 0

2) Write a program that generates six random numbers in a sequence created with (start, stop, step). Then print the mean, median and mode of the generated numbers

   sol:

```
import statistics
import random
start=int(input('enter the start value:'))
```

```
stop=int(input('enter the stop value:'))
step=int(input('enter the step value:'))

num1=random.randrange(start,stop,step)
print(num1)
num2=random.randrange(start,stop,step)
print(num2)
num3=random.randrange(start,stop,step)
print(num3)
num4=random.randrange(start,stop,step)
print(num4)
num5=random.randrange(start,stop,step)
print(num5)
num6=random.randrange(start,stop,step)
print(num6)
list=[num1,num2,num3,num4,num5,num6]
print(list)
mean=statistics.mean(list)
median=statistics.median(list)
mode=statistics.mode(list)
print('the mean of the sequence is:',mean)
print('the median of the sequence is:',median)
print('the mode of the sequence is:',mode)
```

output:
```
enter the start value:3
enter the stop value:50
enter the step value:2
13
19
47
17
37
7
[13, 19, 47, 17, 37, 7]
the mean of the sequence is: 23.333333333333332
the median of the sequence is: 18.0
the mode of the sequence is: 13
```

3) Write a program to generate 3 random integers between 100 and 999 which is divisible by 5.

sol:
```
import random
```

```
for i in range(1,4):
    a=random.randrange(100,999,5)
    print('the random number',i,'is: ',a)
```

output:
```
the random number 1 is:  630
the random number 2 is:  380
the random number 3 is:  195
----------------------------------------
the random number 1 is:  155
the random number 2 is:  325
the random number 3 is:  615
```

4) Write a program to generate 6 digit random secure OTP between 100000 to 999999

sol:
```
import random
a=random.randint(100000,999999)
print('the six digit otp is:',a)
```

output:
```
the six digit otp is: 333140
```

5) Write a program to generate 6 random numbers and then print their mean, median and mode.

sol:
```
import statistics
import random
start=int(input('enter the start value:'))
stop=int(input('enter the stop value:'))
step=int(input('enter the step value:'))
num1=random.randrange(start,stop,step)
print(num1)
num2=random.randrange(start,stop,step)
print(num2)
num3=random.randrange(start,stop,step)
print(num3)
num4=random.randrange(start,stop,step)
print(num4)
num5=random.randrange(start,stop,step)
print(num5)
num6=random.randrange(start,stop,step)
print(num6)
list=[num1,num2,num3,num4,num5,num6]
```

```
print(list)
mean=statistics.mean(list)
median=statistics.median(list)
mode=statistics.mode(list)
print('the mean of the sequence is:',mean)
print('the median of the sequence is:',median)
print('the mode of the sequence is:',mode)
```

output:
```
enter the start value:3
enter the stop value:50
enter the step value:2
13
19
47
17
37
7
[13, 19, 47, 17, 37, 7]
the mean of the sequence is: 23.333333333333332
the median of the sequence is: 18.0
the mode of the sequence is: 13
```

6) Write a program to calculate the area of an equilateral triangle. (area= 2 side side).

sol:
```
import math
side=float(input('enter the side of the triangle :'))
root=math.sqrt(3)
area=root*(side**2)/2
print('the area of the triangle is:',area,'metre square')
```

output:
```
enter the side of the triangle :12.2
the area of the triangle is: 128.89922109927582 metre square
```

7) Write a program to computer (ab) using the formula+b+3a2b+3ab²

sol:
```
a = int(input("Enter a: "))
b = int(input("Enter b: "))
res = a ** 3 + b ** 3 + 3 * a ** 2 * b + 3 * a * b ** 2
print("Result =", res)
```

output:
   Enter a: 45
   Enter b: 35
   Result = 512000