Set A

Q. 1 Python program to calculate Area of Triangle

```
def calculate_triangle_area(base, height):
    return 0.5 * base * height
base = float(input("Enter the base of the triangle: "))
height = float(input("Enter the height of the triangle: "))
area = calculate_triangle_area(base, height)
print(f"The area of the triangle is: ",area)
```

Output:

```
Enter the base of the triangle: 6
Enter the height of the triangle: 8
The area of the triangle is:  24.0
```

Q.2 Python program to Swap two Variables .

```
a=10
b=30
t=a
a=b
b=t
print("the value of a and b:",a,b)
```

Output:

```
the value of a and b: 30 10
```

Q.3 Python program to Generate a Random number.

```
import random
random_number = random.randint(1, 10)
print("Random number between 1 and 10:", random_number)
random_float = random.random()
print("Random float between 0 and 1:", )
```

Output:

```
Random number between 1 and 10: 2
Random float between 0 and 1:
```

Set B

Q.1 Write a python program to check if a Number is Positive, Negative or Zero.

```
def check_number(n):
  if n>0:
     return "Positive"
  elif n<0:
     return "Negative"
  else:
     return "Zero"
n=float(input ("Enter a number:"))
result=check_number(n)
print("The number is", result)
```

Output:

```
Enter a number:70
The number is Positive

Enter a number:-70
The number is Negative

Enter a number:0
The number is Zero
```

Q.2 Write a python program to check if a Number is Odd or Even.

```
n=int(input("Enter no:"))
if(n%2==0):
   print('The number is even')
else:
   print('The number is odd')
```

Output:

```
Enter no:9
The number is odd

Enter no:88
The number is even
```

Q.3 Write a python program to check Prime Number.

```
def is_prime(n):
   if n<=1:
      return False
   for i in range(2,int(n**0.5)+1):
```

```
        if n%i==0:
            return False
    return True
num=int(input("Enter a number:"))
if is_prime(num):
    print(num,"is a prime number")
else:
    print(num,"is not a prime number")
```

Output:

```
Enter a number:13
13 is a prime number

Enter a number:15
15 is not a prime number
```

Q.4 Write a python program to check Armstrong number.

```
n=int(input("Enter no:"))
x=n
sum=0
rem=0
while(n>0):
    rem=n%10
    sum=sum+rem*rem*rem
    n=n//10
if(sum==x):
    print("Armstrong")
else:
    print("Not Armstrong")
```

Output:

```
Enter no:371
Armstrong

Enter no:120
Not Armstrong
```

Q. 5 Write a python program to find the Factorial of a Number.

```
def factorial(num):
    if num==0:
        return 1
```

```
    else:
        return num*factorial(num-1)
num=int(input("Enter a number:"))
if num<0:
    print("Factorial is not defined for negative numbers")
else:
    result=factorial(num)
    print("Factorial of",num,"is", result)
```

Output:

```
Enter a number:50
Factorial of 50 is
30414093201713378043612608166064768844377641568960512000000000000
```