1. In Python, what is the difference between a built-in function and a user-defined function? Provide an example of each.

**Ans1.** Some function are already provided by Python we can directly access them and use it like print(), sum(), slice() etc.

We can also create our own function in Python which are known as User defined functions. Function are nothing but some piece of code. For user defined function, we used def keyword.

def my\_function():

1. How can you pass arguments to a function in Python? Explain the difference between positional arguments and keyword arguments.

**Ans2.** Arguments can be passed as given below in code:

def my\_function(x,y):

In positional arguments, we can not change position of input values while passing it in functions.

In arguments, we can change position of input values. We can pass some values while using it in functions.

def my\_function(name, age):

my\_function(name=’Tom’,age=30)

1. What is the purpose of the return statement in a function? Can a function have multiple return statements? Explain with an example.

**Ans3.** Function is piece of code which can be reused many times by calling it. To get some output from function, can used return statement. Yes,we can have multiple return statement but same data type.

def my\_function(x,y, calculation):

if calculation == 'add':

return x+y

elif calculation == 'sub':

return x-y

elif calculation == 'mul':

return x\*y

elif calculation == 'div':

return x/y

1. What are lambda functions in Python? How are they different from regular functions? Provide an example where a lambda function can be useful.

**Ans4.** Lambda function are without names. Regular functions are defined using def keywords but lambda functions are defined using lambda keyword.

**Regular function:** def my\_function():

**Lambda function:** add = lambda x,y: x+y

print(add(x,y))

1. How does the concept of "scope" apply to functions in Python? Explain the difference between local scope and global scope.

**Ans5.** A variable created inside a function belongs to the local scope of that function, and can only be used inside that function. Global scope is defined in main body of the program. Global scope varibales can be access anywhere but local scope variable can not access outside the scope(function).

x=10

def my\_function():

y=20

print(‘Variable are ’,x,’ ‘,y)

In the above code, x is a global variable and can be access anywhere but y is a local variable can not access outside the function my\_function.

1. How can you use the "return" statement in a Python function to return multiple values?

**Ans6.** We can return list, dictionary, tuple from the function and get multiple values as output.

1. What is the difference between the "pass by value" and "pass by reference" concepts when it comes to function arguments in Python?

**Ans7.**  In “pass by value” the parameter values copies to another variable while in “pass by refrence” the actual parameter passes to the function.

1. Create a function that can intake integer or decimal value and do following operations:

a. Logarithmic function (log x)

b. Exponential function (exp(x))

c. Power function with base 2 (2 x )

d. Square root

**Ans8.**

1. Logarithmic function(log x)

import math

math.log2(4)

1. Exponential function (exp(x))

import math

math.exp(4)

1. Power function with base 2 (2 x )

pow(2,3)

1. Square root

import math

math.sqrt(4)

1. Create a function that takes a full name as an argument and returns first name and last name.

**Ans9.** Here is the code:

def first\_last\_name(full\_name):

first\_name=full\_name.split(" ")[0]

last\_name=full\_name.split(" ")[1]

my\_dic={"First Name":first\_name,"Last Name":last\_name}

return my\_dic

first\_last\_name("Ashish Srivastava")