1. What is the result of the code, and explain?

>>> X = 'iNeuron'  
>>> def func():  
print(X)  
>>> func()

The Result of this code is iNeuron, it's because the function intially looks for the variable X in its local scope,But since there is no local variable X, its returns the value of global variable x ie iNeuron

X **=** 'iNeuron'

**def** func():

print(X)

func()

iNeuron

#### 2.  What is the result of the code, and explain?

>>> X = 'iNeuron'  
>>> def func():  
X = 'NI!'  
>>> func()  
>>> print(X)

The Result of this cide is NI!, because the function initially looks for the variable X in its local scope if X is not available then it checks for variable X in the global scope, Since here the X is present in the local scope. it prints the value NI!

X **=** 'iNeuron'

**def** func():

X **=** 'NI!'

print(X)

func()

NI!

#### 3. What does this code print, and why?

>>> X = 'iNeuron'  
>>> def func():  
X = 'NI'  
print(X)  
>>> func()  
>>> print(X)  
The output of the code is NI and iNeuron. X=NI is in the local scope of the function func() hence the function prints the x value as NI. X = 'iNeuron' is in the global scope. hence print(X) prints output as iNeuron

X **=** 'iNeuron'

**def** func():

X **=** 'NI'

print(X)

func()

print(X)

NI

iNeuron

#### 4. What output does this code produce? Why?

>>> X = 'iNeuron'  
>>> def func():  
global X  
X = 'NI'  
>>> func()  
>>> print(X)

The output of the code is NI. the global keyword allows a variable to be accessible in the current scope. since we are using global keyword inside the function func it directly access the variable in X in global scope. and changes its value to NI. hence the output of the code is NI

X **=** 'iNeuron'

**def** func():

**global** X

X **=** 'NI'

func()

print(X)

NI

#### 5. What about this code—what’s the output, and why?

>>> X = 'iNeuron'  
>>> def func():  
X = 'NI'  
def nested():  
print(X)  
nested()  
>>> func()  
>>> X

The output of the code is NI. the reason for this output is if a function wants to access a variable, if its not available in its localscope. it looks for the variable in its global scope. similarly here also function nested looks for variable X in its global scope. hence the output of the code is NI

X **=** 'iNeuron'

**def** func():

X **=** 'NI'

**def** nested():

print(X)

nested()

func()

X

NI

'iNeuron'

#### 6. How about this code: what is its output in Python 3, and explain?

>>> def func():  
X = 'NI'  
def nested():  
nonlocal X  
X = 'Spam'  
nested()  
print(X)  
>>> func()

The output of the code is Spam. nonlocal keyword in python is used to declare a variable as not local.Hence the statement X = "Spam" is modified in the global scope. hence the output of print(X) statement is Spam

**def** func():

X **=** 'NI'

**def** nested():

**nonlocal** X

X **=** 'Spam'

nested()

print(X)

func()

Spam