**1) What is Python? What are the benefits of using Python?**

Python is a programming language with objects, modules, threads, exceptions and automatic memory management. The benefits of pythons are that it is simple and easy, portable, extensible, build-in data structure and it is an open source.

**2) Key features of Python**

**Interpreted:** Python does not need to be compiled before it is run

**Dynamically typed:** don’t need to state the types of variables when you declare them or anything like that

**OO**: it allows the definition of classes along with composition and inheritance. Python does not have access specifiers (like C++’s public, private)

In Python, functions are first-class objects. This means that they can be assigned to variables, returned from other functions and passed into functions. Classes are also first-class objects.

**3) How is memory managed in Python**

* Memory management in python is managed by Python private heap space. All Python objects and data structures are located in a private heap. The programmer does not have access to this private heap. The python interpreter takes care of this instead.
* The allocation of heap space for Python objects is done by Python’s memory manager. The core API gives access to some tools for the programmer to code.
* Python also has an inbuilt garbage collector, which recycles all the unused memory and so that it can be made available to the heap space.

**4) What Are Namespaces in Python?**

A namespace is a simple system to control the names in a program. It ensures that names are unique and won’t lead to any conflict.

Also, add to your knowledge that Python implements namespaces in the form of dictionaries. It maintains a name-to-object mapping where names act as keys and the objects as values. Multiple namespaces may have the same name but pointing to a different variable. Check out a few examples of namespaces for more clarity.

**5) What is \_\_init\_\_?**

\_\_init\_\_ is a method or constructor in Python. This method is automatically called to allocate memory when a new object/ instance of a class is created. All classes have the \_\_init\_\_ method

**6) What is a lambda function?**

An anonymous function is known as a lambda function. This function can have any number of parameters but, can have just one statement.

**7) What is self in Python?**

Self is an instance or an object of a class. In Python, this is explicitly included as the first parameter. It helps to differentiate between the methods and attributes of a class with local variables.

The self-variable in the init method refers to the newly created object while in other methods, it refers to the object whose method was called.

**8) List Vs. Tuple**

List is mutable while Tuple is immutable. Lists has variable length; tuple has fixed length. Tuple is faster than list because smaller operation size. List can have tuples inside but not vice versa. Tuples can’t not be copied because of immutable nature. List only contain homogeneous data elements while tuple have heterogeneous elements. Syntax is as

A = [“apples”, “mangos”, “etc”]

A = (“apples”, “mangos”, “same”)

**9) Array Vs. List**

Arrays and lists, in Python, have the same way of storing data. But, arrays can hold only a single data type elements whereas lists can hold any data type elements.