* Is Python an object-oriented language? What is object-oriented programming?

Yes, Python is object-oriented programming language meaning it can enclose the codes within the objects. The property allows the storage of the data and the method in a single unit called the object.

* What is Python module? How is it different from libraries?

A module is a single file (or files) containing functions, definitions, and variables designed to do certain tasks. It is a .py extension file. It can be imported at any time during a session and needs to be imported only once. To import a python module, there are two ways: import or from module\_name import.

A library is a collection of reusable functionality of codes that allows us to perform a variety of tasks without having to write the code. A python library does not have any specific context to it. It loosely refers to a collection of modules. These codes can be used by importing the library and by calling that library’s method (or attribute) with a period(.).

* What is PEP8?

PEP8 is a coding convection. It consists of coding guidelines that are a set of recommedations for Python language about making the Python more readable and usable for another person.

* Name mutable and immutable objects.

The mutability of a data structure is the ability to change the portion of the data structure without having to recreate it. Mutable objects are lists, sets, values in a dictionary.

Immutability is the state of the data structure that cannot be changed after its creation. Immutable objects are integers, strings, float, bool, tuples, keys of a dictionary.

* What are compound data types and data structures?

The data type that is constructed using simple, primitive, and basic data types are compound data types. Data structures in Python allow us to store multiple observations. These are lists, tuples, sets, and dictionaries.

* What is the difference between a list and a tuple?

**List:**

1. Lists are enclosed with in square []
2. Lists are mutable, that is their elements and size can be changed.
3. Lists are slower than tuples.
4. Example: [‘A’,1,’i’]

**Tuple:**

1. Tuples are enclosed in parentheses ()
2. Tuples are immutable i.e. cannot be edited.
3. Tuples are faster than lists.
4. Tuples must be used when the order of the elements of a sequence matters.
5. Example(’Twenty’,20,’XX’)

* What are list and dictionary comprehension? Give an example of each.

Python comprehensions are syntactic constructs providing a way to build a list, dictionary or set based on the existing list, dictionary or set whilst altering or filtering elements.

1. These are generally more compact and faster than normal functions and loops for creating lists.
2. Must avoid writing very long comprehensions in one line to ensure that code is user-friendly and to maintain the readability.

* What are generators and decorators?

A generator is a function returning an iterable or object over which can iterate that is by taking one value at a time. A decorator allows us to modify or alter the functions, methods, and classes.

* What is the difference between %, /, and //?

% is the modulus operator that returns a remainder after the division

/ is the operator that returns the quotient after the division.

// is the floor division that rounds off the quotient to the bottom.

* What is the difference between is and ‘==’?

‘==’ checks for equality between the variables, and ‘is’ checks for the identity of the variables.

* What is the difference between indexing and slicing?

Indexing is extracting or lookup one or particular values in a data structure, whereas slicing retrieves a sequence of elements.

* What is the lambda function?

1. Lambda functions are an anonymous or nameless function.
2. These functions are called anonymous because they are not declared in the standard manner by using the def keyword. It doesn’t require the return keyword as well. These are implicit in the function.
3. The function can have any number of parameters but can have just one statement and return just one value in the form of an expression. They cannot contain commands or multiple expressions.

* What is the difference between del(), clear(), remove(), and pop()?

1. del(): deletes the with respect to the position of the value. It does not return which value is deleted. It also changes the index towards the right by decreasing one value. It can also be used to delete the entire data structure.
2. clear(): clears the list.
3. remove(): it deletes with respect to the value hence can be used if you know which particular value to delete.
4. pop(): by default removes the last element and also returns back which value is deleted. It is used extensively when we would want to create referencing. In sense, we can store this deleted return value in a variable and use in future.

* What is the difference between range, xrange, and arrange?

range(): returns a Python list object, which is of integers. It is a function of BASE python.

xrange(): returns a range object.

arange(): is a function in Numpy library. It can return fractional values as well.

* What is the difference between pass, continue and break?

**Pass**: It is used when you need some block of code syntactically, but you want to skip its execution. This is basically a null operation. Nothing happens when this is executed.

**Continue:** It allows to skip some part of a loop when some specific condition is met, and the control is transferred to the beginning of the loop. The loop does not terminate but continues with the next iteration.

**Break:** It allows the loop to terminate when some condition is met, and the control of the program flows to the statement immediately after the body of the loop. If the break statement is inside a nested loop( the loop inside another loop), then the break statement will terminate the innermost loop.

* What are namespaces in Python?

A namespace is a naming system that is used to ensure that every object has a unique name. it is like space( for visual purposes, think of this space as a container) is assigned to every variable which is mapped to the object. So, when we call out this variable, this assigned space or container is searched and hence the corresponding object as well. Python maintains a dictionary for this purpose.

* What is the difference between global and local variables?

Global variables are the ones that are defined and declared outside a function, and we need to use them inside a function. A variable declared inside the function’s body or the local scope is known as a local variable.

* What is a default value?

Default argument means the function will take the default parameter value of the used has not given any predefined parameter value.

* When to use for loop and while loop?

For loop is used when you know beforehand which elements need to be iterated. If you want to iterate over every element of the data structure, then used for loop. On the other hand, the while loop is used to check for some conditions on the variables. Hence, we know the exact condition to run but do not know how many times to run the loop.

* What is a class and object?

A class is used-defined prototype which basically is a blueprint that defines the nature of a future object. An object is an instance of the class. Therefore, classes can construct instances of objects. This is known as instantiation.