1) What is PYTHONPATH?

PYTHONPATH is an environment variable which the user can set to add additional directories that the user wants Python to add to the sys.path directory list. In short, we can say that it is an environment variable that you set before running the Python interpreter. Mostly you should not set these variables as they are not needed for Python to execute normal programs because it knows where its standard library is to be found. PYTHONPATH is used to help in importing the modules. So, when you import modules in your Python scripts, PYTHONPATH is also checked to see which directories might contain the imported module.

2) What are python modules? Name some commonly used built-in modules in Python?

A Python module is a file containing Python definitions and statements. A module can define functions, classes, and variables. A module can also include runnable code. Grouping related code into a module makes the code easier to understand and use. It also makes the code logically organized. For example: In Test.py, where the test is the module name. Here are some of the commonly used built-in modules in Python: os, sys, math, random, data time, JSON.

3) What are local variables and global variables in Python?

Global variables are those which are not defined inside any function and have a global scope whereas local variables are those which are defined inside a function and its scope is limited to that function only. In other words, we can say that local variables are accessible only inside the function in which it was initialized whereas the global variables are accessible throughout the program and inside every function.

Local variables are those which are initialized inside a function and belongs only to that particular function. It cannot be accessed anywhere outside the function.

4) Is python case sensitive?

Python is a case-sensitive programming language. For example, if a variable is named 'Hello World ', then an error will occur if the variable is called 'hello world '. Variables, functions, and objects in Python must be called exactly how they are named, including the case. Any computer function or a program that differentiates between upper and lowercase letters is called a case-sensitive program.

5) What is type conversion in Python?

Python defines type conversion functions to directly convert one data type to another which is useful in day-to-day and competitive programming. There are two types of Type Conversion in Python:

Implicit Type Conversion - In Implicit type conversion of data types in Python, the Python interpreter automatically converts one data type to another without any user involvement.

Explicit Type Conversion - In Explicit Type Conversion in Python, the data type is manually changed by the user as per their requirement. Various forms of explicit type conversion are explained below:

1. int(a, base): This function converts any data type to integer. 'Base' specifies the base in which string is if the data type is a string.

2. float(): This function is used to convert any data type to a floating-point number

3. ord() : This function is used to convert a character to integer.

4. hex() : This function is to convert integer to hexadecimal string.

5. oct() : This function is to convert integer to octal string.

6. tuple() : This function is used to convert to a tuple.

7. set() : This function returns the type after converting to set.

8. list() : This function is used to convert any data type to a list type.

9. dict() : This function is used to convert a tuple of order (key,value) into a dictionary.

10. str() : Used to convert integer into a string.

11. complex(real,imag) : This function converts real numbers to complex(real,imag) number.

12. chr(number): This function converts number to its corresponding ASCII character.

6) Is indentation required in python?

Indentation is the mechanism by which a code block is represented in python. Yes, python is very sensible about indentation, if code is not properly indented it won't be executed, as python doesn't have brackets to separate code segments then it is necessary to indent pretty well.

7) What is the difference between Python Arrays and lists?

A list in Python is a collection of items which can contain elements of multiple data types, which may be either numeric, character logical values, etc. It is an ordered collection supporting negative indexing. A list can be created using [] containing data values. Contents of lists can be easily merged and copied using python's inbuilt functions. An array is a vector containing homogeneous elements i.e. belonging to the same data type. Elements are allocated with contiguous memory locations allowing easy modification, that is, addition, deletion, accessing of elements. In Python, we have to use the array module to declare arrays. If the elements of an array belong to different data types, an exception "Incompatible data types" is thrown.