1) What the data types in python? Explain.

A. Python data types:-

Data types are the classification or categorization of data items. It represents the kind of value that tells what operations can be performed on a particular data.

1) Numeric :-

A numeric value is any representation of data which has a numeric value. These values can be integer, floating or complex numbers.

* Integer : positive or negative whole numbers without a fractional part.

* Float :- Any real number with a floating point represents in which a fractional component is denoted by a decimal symbol.

* Complex number :- A number with a real and imaginary component represented as $x+yj$. where x & y are floats and j is -1.

2) Boolean:- Data with one of two built in values

i.e. True (or) false when T & F are capital. But letter t and f are not valid booleans and python throw an error for them.

3) Sequence type :- A Sequence is an ordered collection of similar or different data types. It has following built-in data types.

* String :- A String value is a collection of one or more characters put in single, double or triple quotes.

* List :- A list object is an ordered collection of one or more data items, not necessarily of the same type, put in (parentheses) Square brackets.

* Tuple :- A tuple object is an ordered collection of one or more data items, not necessarily of the same type put in parentheses.

4) Dictionary :- A dictionary object is an unordered collection of data in a key value pair form. A collection of such pairs is enclosed by curly brackets.

① Briefly explain the history of python.

-A. Python is an interpreted, high level, general purpose programming language.

It was created by "Guido van Rossum", during 1985-1990.

Python is named after a TV Shows called Monty Python flying circus and not after the python the Snake. It was mainly developed for emphasis on code readability and its syntax allows programmers to express concepts in fewer lines of code.

Python 2.0 was released on october 16, 2000, with many major new features, including a cycle-detecting garbage collector for memory management & Support for unicode. The most change was to develop itself, with a shift to more transparent and community-backed process.

3) Explain all the operators in Python.

A. operators in Python are:-

(i) Arithmetic operators:-

Arithmetic operators are used to perform mathematical operations like addition, Subtraction, multiplication etc.

Ex:- +, -, *, /, %, **, //

(ii) comparison operators:-

These are used to compare values. It returns either True or false according to the condition.

Ex :- >, <, ==, !=, >=, <=.

(iii) **Logical operators :-**

Logical operators are the and, or, not operators.

(iv) **Bitwise operators :-**

Bitwise operators acts on operands as if they were strings of binary digits. They operated bit by bit, hence

Ex :- &, |, ~, ^, >>, <<

(v) **Assignment operators :-**

These are used in python to assign values to variables

Ex :- =, +=, -=, *=, /=, %=, //=, **=, &=,

|=, ^=, >>=, <<=

(vi) **Special operators :-**

Python language offers some special types of operators like the indentity operator and the membership operator.

These are described below.

Identity operators :-

"is" and "is not" are the identity operators in Python.

These are used to check if two values (or variables) are located on the same part of the memory. Two variables that are equal does not imply that they are identical.

Membership operators:-

"in" and "not in" are the membership operators in python. They are used to test whether a value or variable is found in a sequence. (String, list, tuple, set & dictionary).

4) Explain the features of python.

A. Python is a dynamic, high level, free open source and interpreted programming language. It supports object-oriented language programming.

Features in python:-

1) Easy to code

2) Free and open source

3) object-oriented language

4) GUI programming support

5) High-level language

6) Extensible feature

7) Python is portable language

8) Python is Interpreted language

9) Interpreted language

10) Large Standard Library

11) Dynamically typed language

6) Justify why python is interactive interpreted language

A. Interpreted Python:-

Unlike C/C++ etc., python is an interpreted object
oriented programming language. By interpreted it is
meant that each time a program is run the interpreter
checks through the code for errors and then interprets
the instructions into machine-readable byte code.

An interpreter is a translator in computer's language
which translates the given code line-by-line into
machine readable bytecodes. And if any error is encountered
it stop the translation until the error is fixed.
Unlike c language, which is a compiled programming
language. The compiler translates the whole code in
one-go rather than line-by-line. That is the reason
why in c language, all the errors are listed during
compilation only.