Assignment - 2

1) What are the data types in python. Explain?

A) 1) Numbers :-

Number data types store numeric values. Number objects are created when you assign a value to them.

Ex: a = 10
b = 11.25

2) Strings :-

Strings in python are identified as a contiguous set of characters represented in the quotation marks. Python allows either a pair of single (or) double quotes.

Ex: x = "orange"

3) Lists:

Lists are the most versatile of Python's compound data types. A list contains items separated by commas, enclosed within square brackets.

Ex: y = [1,2,3,4]

4) Tuples:

A tuple is another sequence datatype is similar to list. A tuple consists of number of values separated by commas, enclosed within paranthesis.

Ex: z = (1,2,3,4,5,6,7,8)

5) Dictionary:

Python's dictionaries are kind of hash-table type They work like associative arrays or hashes found

in Perl and consist of key-value pairs. A dictionary key can be almost any Python type, but are usually numbers or strings. Values, on the other hand, can be any arbitrary Python object. Dictionaries are enclosed within curly braces.

Ex: {"name": "vasavi", age : 18}.

2) Explain briefly history of python.

A)
- Python was conceived in the late 1980s.
- Its implementation was started in December 1989 by Guido van Rossum at CWI in the Netherlands.
- Python was named for the BBC TV show Monty Python's Flying Circus.
- Python 2.0 was released on October 16, 2000 with new features, including a cycle-detecting garbage collector for memory management and support for Unicode. The most important change was to the development process itself.
- Python 3.0, backwards-incompatible release, released on December 3, 2008 after a long period of testing. Many of major features have been backported to the backwards-compatible while by now unsupported, Python 2.6 and 2.7.
- With its released, it used a lot fewer codes to express the concepts, when we compare it with Java, C and C++.

3) Explain all the operators in python

A) Operators are the symbols that perform mathematical operations between two operands

1) Arithmetic operators :-

Operator	Description	Syntax
+	Addition	a+b
-	Subtraction	a-b
*	Multiplication	a*b
/	Division	a/b
//	Floor division	a//b
%	Modulus	a%b
**	Power	a**b

2) Relational operator :-

Operator	Description	Syntax
>	Greater than	a>b
<	Less than	a<b
>=	Greater than or equal to	a>=b
<=	Less than or equal to	a<=b
==	Equal to	a==b
!=	Not equal to	a!=b

3) Logical operators :-

Operator	Description	Syntax
and	Logical AND	a and b
or	Logical OR	a or b
not	Logical NOT	not a

4) Bitwise operators:-

Operator	Description	Syntax
&	Bitwise AND	a&b
|	Bitwise OR	a|b
~	Bitwise NOT	~a
^	Bitwise XOR	a^b
>>	Bitwise right shift	a>>
<<	Bitwise left shift	a<<

5) Special operators:-

is - True if the operands are identical

is not - True if the operands are not identical

6) Membership operators:-

in - True if value is found in sequence

not in - True if value is not found in sequence

4) Explain the features of python.

A) 1) Easy to learn and use

Python is easy to learn and use. It is developer-friendly and high level programming language

2) Expressive language

Python is expressive language since it is more understandable and readable

3) Interpreted language

The interpreter executes the code line by line at a time. This makes debugging easy and thus suitable for beginners.

4) Cross-platform language.

Python can run equally on different platforms like Windows, Linux, Unix etc. So, we can say that it is portable language

5) Free and Open source.

This language is freely available at official web address. The source-code is also available.

So, it is open source.

6) Object oriented language

This language supports the concepts of classes and objects come into existance

7) Extensible

It implies that other languages such as C/C++ can be used to compile the code and thus it can be further used in our python code

8) Large Standard Library.

Python has a large and broad library and provides rich set of module and functions for rapid application development.

9) GUI programming support

Graphical User Interfaces can be developed using Python

10) Integrated

It can be easily integrated with languages like C, C++, Java etc.

5) Justify why python is interactive interpreted language.

A) Python is interpreted language since interpreter exeautes the code line by line at a time. This makes debugging easier. And converts machine readable bytecodes. And if any error is encountered it stops the translation until the error is fixed.

Python is interactive. When a python statement is entered, and is followed by the return key, if appropriate, the result will be printed on screen immediately in next line. It is used in a similar way as the Unix command line or the terminal. And is helpful for the debugging purpose.