Assignment-2

① What are the data types in python ? Explain.

Python has 5 data types.

→ numbers
→ strings
→ List
→ Triple
→ Dictionary

Numbers :-

Python numbers variables are created by standard python method

Ex :- v=5

Python will atomatically convert from one type to another if it needs (or) we can also use python conversion functions (int(), long(), float(), complex()) to convert data from one type to another.

String :-

Create string variables by enclosing in quotes python uses single quotes, double quotes or triple quotes to denote literal strings

Ex :- m= "Hello world"

string can be accessed as whole string or a substring of complete variable using brackets[]

Ex m= "Hello world"
print(v[0]) OP: H

List:

A list can contain a series of values not variables declared by using brackets [].

Ex:- A[] # This is a blank list.
B[2,4,'J'] # List of 3.

list aren't limited to single dimension. You can declare multiple dimension by seperatin an array with comma.

Ex:- MyTable = ([],[])

Tuple:

Tuples are group of values like a list and are manipulated in similar ways.

But Tuples are fixed size. Once they are assigned.

Tuples are defined by parenthesis()

Ex:

My group = ('m', 'v', 's')

Dichionary:

Dichionaries in pyton are lists of

key: value pairs.

The main operation of a dichionary is to extract a value based on key name.

This can be also used to sort, iterate and compare data

Dichionaries are created using braces({}) with pairs seperated by a comma(,) and the key values are associated with a colon(:)

Ex:-

```
room_num = {'J': 425, 'T': 212}
room_num['J'] = 645
print (room_num['T'])
print (room_num['J'])
```

O/P: 212
645

(2.) Brief explain the history of python

A. ⇒ * Python laid its foundation in the late 1980s
* The implementation of python was started in december 1989 by Guido Van Rossum at CWI netherland
* In February 1991, Van Rossum published the code to all sources
* In 994 python 1.0 was released with new features like lambda, map, filter & reduce.
* Python 2.0 added new features like list comprehensions, Garbage collection systems
* On December 3, 2009, python 3.0 was released It was designed to rectify fundamental flaw of the language
* ABC programming language is said to be predecessor of python language which was capable of exception handling and interfacing with Amobea OS.

→ Key Python is influenced by ABC language and Modula-3

③ Explain all the operators in Python.

Operators are special symbols in python that carry out arithmatic or logical computation

Arithmatic operators:-

They are used to perform mathematical operations like addition, subtraction etc

Ex:-

```
x=15
y=4
print ('x+y=', x+y)    # addition
print ('x-y=', x-y)    # subtraction
print ('x*y=', x*y)    # multiply two operands
print ('x/y=', x/y)    # divide
print ('x//y=', x//y)  # floor division (whole no. adjusted to left in numbers)
print ('x**y=', x**y)  # exponent left operand raised to the power of right
print ('x%y=', x%y)    # modulus
```

o/p: x+y= 19
x-y=11
x*y=60

x / y = 3.75

x // y = 3

x ** y = 90625

x % y = 3

Comparision operators :-

Used to compare values. It returns true or false.

Ex :-

```
x = 10
y = 12
print ('x > y is', x > y)    # Greater than
print ('x < y is', x < y)    # less than
print ('x == y is', x == y)  # Equal to
print ('x := y is', x := y)  # Not equal to
print ('x >= y is', x >= y)  # Greater than or Equal
print ('x <= y is', x <= y)  # less than or Equal
```

O/P

x > y is False
x < y is True
x == y is false
x := y is True
x >= y is false
x <= y is True

Logical operators.

Logical operators are and, or, not.

Ex :- x = True
y = False.

```
print ('x and y is,' x and y)
print ('x or y is,' x or y)
print ('not x is,' not x)
```

O/p:
x and y is false
x or y is True
not x is false.

(4) Explain the features of python.

A Python provides lots of features that are listed below.

1. Easy to learn and use: It is developer friendly and high level programming langugage.
2. Expressive Language: Python language is more expressive means that it is more understandable and readable
3. Interpreted language: Python is an interpreted language. i.e., interpreter executes the codes 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 plat forms such as window, linux, unix etc. So we can say python is a portable language.
5. Free and open source:
   Python language a freely available at official web address. The source code is also available.

Therefore it is open source.

6. Object-oriented language:
Python supports object oriented language and concepts of classes and objects come into existence

7. Extensible:
It implies that other languages such as c/c++ can be used to compile the code and thus it can be used further in python code.

8) Large standard Library:
Python has large & broad Library and provides rich set of so module and function rapid application development.

9) GUI programming support
Graphical user interfaces can be developed using this

10) Integrated:
It can be easily integrated with programming Languages such as C, C++, Java etc.

(5.) Justify why python is Interactive Interpreted language.

A. Interpreted python:

An interpretor takes the written code which we write and executes whatever actions you specified creates the variables you created and does a lot behind the scenes work to ensure it runs smoothly or tells you about error.

Python is called an interpreted language. Because it goes through an interpreter which turns the code we write into a language understood by the computer's processor.

Interactive python:

Python is interactive. This mode is handy when we just want to execute basic.

Python commands or you are new to python programming

```
Eg:- If 5>10:
        print ("5 is greater than 10")
     else print ("5 is less than 10")

5 is less than 10.
```

The above example demonstrates how we can run multiple python statements in interactive mode. The two print statement have been indented using four spaces just like in script mode, if you dont indent properly you will get an error. Also to get o/p after last print statement we should press enter twice.