1. In the below elements which of them are values or an expression? eg:- values can be integer or string and expressions will be mathematical operators.

\* - expression (multiplication operators)

'hello' – value (String)

-87.8 – value (float)

- - expression (substraction expression)

/ - expression (division expression)

* - expression (addition expression)

6 – value (integer)

2. What is the difference between string and variable?

Answer: string is a datatype and variable is nothing but a storage location which holds a value into it.

Example: A = ‘sudhanshu’ “string”

“Variable”

3. Describe three different data types.

Answer:

1. Numeric Datatype:
   * 1. Numerical datatype internally divided into 3 more types
        + 1. Int: whole number e.g.: 100,34,65 etc
          2. Float: decimal numbers e.g.: 24.5463,34.4,56.7etc
          3. Complex: complex numbers are combination of real and imaginary number e.g.: 3+2j, 4-2j etc
2. String Datatype:

In String datatype we usually refer to text (composed of sequence of character) under double quotes or single quotes

1. Boolean Datatype:

Boolean Datatype can be 0 or 1 which represents either False or True. It is also a built-in datatype provided by python. Generally, it is used to represent the truth values of the expressions. For example, 1==1 is True whereas 2<1 is False

1. Sequential Datatype:
   * 1. Sequential datatype is of 4 types
        + 1. List:

list is mutable that means values stores in the list type can be changes.

List can store any type of values. It also stores duplicate values inside it

List values are stored inside square brackets ‘[]’

To define a list type you can use list function list()

Directly assign list values to a variable for e.g., myList = [1,2.3,’sudhanshu’,1+3J] or list([1,2.3,’sudhanshu’,1+3J])

* + - * 1. Tuples:

Unlike list tuples can also store any type of values but they are immutable you cannot modify the data stored inside tuples.

Tuples values are stored inside round brackets ‘()’

To define a tuple type you can use tuple function i.e., tuple()

Directly assign tuple values to a variable for e.g., mytuple = (1,2.3,’sudhanshu’,1+3J)

* + - * 1. Dictionary:

Dictionary are used to store values in a key and value pair format

You can store any type of values in dictionary

Dictionary values are stored inside curly brackets ‘{}’

To define a dictionary type you can use dict function i.e., dict()

Directly assign dictionary values to a variable for e.g.,

myDict = {

“name” : “Sudhanshu”,

“Age”:”37”,

“Profession”: ”Owner of Ineuron platform”

}

* + - * 1. Set:

Set is used to store unordered list of values.

Set does not stores duplicate values inside it.

Set values are stored inside curly brackets ‘{}’. But not in key value pair format which is the case in dictionary

To define a set type you can use set function i.e., set()

Directly assign set values to a variable for e.g.,

Myset = {“Sudhanshu”,”Krishan”,1,2,3.4}

4. What is an expression made up of? What do all expressions do?

Answer: A combination of operands and operators is called an expression. The expression in Python produces some value or result after being interpreted by the Python interpreter. An example of expression can be:

+ : add (plus). e.g., 10+20 = 30

- : subtract (minus). e.g., 10 – 20 = -10

x : multiply. e.g., 10x20 = 200

/ : divide. e.g., 10/20 = 0.5

//: floor divide e.g., 10//20 = 0 – if you don’t need the fractional part or decimal values then you can use floor divide

\*\* : power. e.g., 2\*\*2 = 4

% : modulo. e.g., 10%20 = 10

5. This assignment statements, like spam = 10. What is the difference between an expression and a statement?

6. After running the following code, what does the variable bacon contain?

bacon = 22

bacon + 1

Answer: output: 22

Because bacon + 1 is not assigned back to the bacon variable that’s the reason the output will be 22

7. What should the values of the following two terms be?

'spam' + 'spamspam'

'spam' \* 3

Output for both the terms will be same i.e., Output: spamspamspam

8. Why is eggs a valid variable name while 100 is invalid?

Answer: eggs is a valid variable because as per the rules defined for variable declaration

1. A variable name must start with a letter or the underscore character.
2. A variable name cannot start with a number.
3. A variable name can only contain alpha-numeric characters and underscores (A-z, 0-9, and \_ )
4. Variable names are case-sensitive

9. What three functions can be used to get the integer, floating-point number, or string version of a value?

Answer: int(), float(), str()

10. Why does this expression cause an error? How can you fix it?

'I have eaten ' + 99 + ' burritos.'

Answer: In python, we cannot concatenate string with integer values. So, we need to typecast integer value i.e., 99 to string then only it will fix the expression.

Like below statement

**'I have eaten ' + str(99) + ' burritos.' Or 'I have eaten ' + ‘99’ + ' burritos.'**