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.

\*

'hello'

-87.8

-

/

6

**1 Answer:**

**Values are:** “hello”, “-87.8”, “6”

**Expressions are:** ‘\*’, ‘-‘, ‘/’, ‘+’

2. What is the difference between string and variable?

**2 Answer:**

|  |  |
| --- | --- |
| **STRING** | **VARIABLE** |
| A string is a value representing a text. | A Variable is a name that can refer to any value. |
| Strings are nothing but a series of characters. It will be placed inside the double or single quotes i.e., “abc” or ‘abc’ | Variables are nothing but an empty box in which we can assign or store the value/ data. |
| Strings are immutable which means they cannot be changed after they are created | Variable name should start with alphabets. |
| Ex:- “Ineuron is the best online education platform” | Ex:- A = “Ineuron is the best online education platform.” Here, I am assigning the above string to the variable A |

3. Describe three different data types.

**Answer:**

Different Data Types are listed below:

1. Numeric
2. Boolean
3. Set
4. Dictionary
5. Sequence Type
6. **Numeric:**  Numeric Data type represents the data which has numeric value. Numeric value can be integer, floating number or even complex numbers. These values are defined as int, float and complex in python.  
   **a) Integer:** It contains positive or negative whole numbers without fraction or decimal numbers. Ex:- 2,4,5,6

**b) Float:** It contains real number with floating point representation. It is specified by a decimal point. And the character e or E defines positive or negative integer. Ex:- 48.3, 2.45, 5.32  
**c) Complex Number:** It contains real part + imaginary part. Ex:- 5+3j.

2) **Boolean:** Data type with one of the two built-in values, True or False. Boolean objects that are equal to True are truthy(true) and those equal to False are falsy (False). It is denoted by the class **bool.  
  
Ex:-** a = True  
type(a)  
Bool

**3) Sequence Type:** Sequence is the ordered collection of similar or different data types. Sequence allows to store multiple values in an organized and efficient fashion. There are several sequence types in python are:  
i) String  
ii) List  
iii) Tuple

**i) String:** Strings are arrays of bytes representing Unicode characters. A string is a collection of one or more characters put in a single quote, double quote or triple quote.

**ii) List:** Lists are just like arrays, declared in other languages which is a ordered collection of data. It is very flexible as the items in a list do not need to be of same type.

**iii) Tuple:** Tuple is an ordered collection of python objects. The only difference between tuple and list is that tuples are immutable. And Tuples cannot be modified after it is cleared.

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

**Answer:**An expression is a sequence or combination of variables, operators and function calls that always produces or returns a result value.

Example: x=5, y=3, z=x+y  
Expressions are representations of value. The evaluation of an expression produces a value, which is why expression can appear on the right hand side of assignment statement.

5. This assignment statements, like spam = 10. What is the difference between an expression and a statement?  
**Answer:**An expression evaluates to a single value. A statement does not.

|  |  |
| --- | --- |
| **Expression** | **Statement** |
| An Expression is a sequence or combination of variables, operators and function calls that always produce or returns a result value. | Any instruction that a python interpreter can execute is called a statement. |
| Every expression cannot be a statement. | Every statement can be an expression. |
| Example: a+16>>>>26 | Example: x=3 print(x)  output=3 |

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

bacon = 22

bacon + 1

**Answer:**

After running the code, the variable **bacon** contains the value **23**.

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

'spam' + 'spamspam'

'spam' \* 3

**Answer:**

The value of 'spam' + 'spamspam' is **'spamspamspam'**

The value of 'spam' \* 3 is **'spamspamspam'**

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

**Answer:** Variable names cannot begin with **a number** that’s why **eggs** a valid variable name while **100** is invalid.

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

**Answer:**

The three functions can be used to get the integer, floating-point number, or string version of a value is:  
int()  
float()  
str()

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

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

**Answer:** String can concatenate only string to string values. It will not concatenate integer values.

We can fix it as 'I have eaten ' + ‘99’ + ' burritos.'