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

**ANSWER:**

\* -> Expression

‘hello’ -> Value

-87.8 -> Value

- -> Expression

/ -> Expression

+ -> Expression

6 -> Value

2. What is the difference between string and variable?

**ANSWER:**

**VARIABLES:**

Variable helping in storing a value in a memory location and to manipulate it afterwards. For Example,

x = 3

Here x is a variable that stores the value 3. A memory address is allocated to store the value 3. A variable can be of several types like integer, string, float, etc. based on the value you assign to it.

**STRING:**

Strings are arrays of bytes representing unicode characters.When we assign any value to a variable using quotes (single or double) will be considered as a string (in python). For example:

a = "10"

3. Describe three different data types.

**ANSWER:**

**INTEGER:**

Integers are used to store positive/negative whole numbers inside a variable. In python there is no range limit for integer declaration.

a = 1

print(type(a))

// OUTPUT comes out to be class<int>.

**FLOAT:**

Float is used to store real numbers with the floating point representation. In python we use float as follows:

a = 1.3

print(type(a))

// OUTPUT comes out to be class<float>.

**LIST:**

Lists are ordered collection of data. It is very handy as we can add multiple elements of different data types into a list.

In python:

list = [1,2,3]

print(list)

print(list[0]) //will return the element at the 1st position in the list.

*NOTE: The indexing in the list starts from 0.*

**TUPLE:**

Tuples are similar to lists. The only difference between a list and tuple is that lists are mutable and tuples are immutable. In python,

tuple= (1,2,3)

print(tuple)

print(tuple[0]) //will return the element at the 1st position in the list.

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

**ANSWER:**

An expression is a combination of operators and operands that is interpreted to produce some other value. In python, an expression is evaluated as per the precedence of its operators.

Example:

x =15+1.3

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

**ANSWER:**

Difference between Statements and Expressions:

* Statements are used to execute something whereas Expression evaluates to a value.
* Statements change the state after execution whereas expressions do not.
* Statements may or may not return a value but expression always does.

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

bacon = 22

bacon + 1

**ANSWERS:**

The variable ‘bacon’ will contain the value 22.

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

'spam' + 'spamspam'

'spam' \* 3

**ANSWER:**

Both will have the value ‘spamspamspam’.

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

**ANSWER:**

Because in python we cannot give a number as a name to a variable.

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

**ANSWER:**

For integer: int()

For string: str()

For float: float()

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

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

**ANSWER:**

We need to treat 99 as a string and not as an integer because python does not let string and integer concatenate together.