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

Ans.) ‘hello’,-87.8,6 are values and -,/,+ are expression.

2. What is the difference between string and variable?

Ans.) In simple words,a variable holds a value that may change. In simplest terms, a variable is just a box that you can put stuff in.For e.g.- a=4.Whereas 'string' is simply a list of characters in order. A *character* is anything you can type on the keyboard in one keystroke, like a letter, a number, or a backslash. For example, "hello" is a string. It is five characters long — h, e, l, l, o.

3. Describe three different data types.

Ans.) **1.Numeric Data Type**

**Integers**– This value is represented by int class. It contains positive or negative whole numbers (without fraction or decimal). In Python there is no limit to how long an integer value can be.

**Float**– This value is represented by float class. It is a real number with floating point representation. It is specified by a decimal point. Optionally, the character e or E followed by a positive or negative integer may be appended to specify scientific notation.

**Complex Numbers** – Complex number is represented by complex class. It is specified as *(real part) + (imaginary part)j*. For example – 2+3j

**2)Sequence Data Type**

[**Strings**](https://www.geeksforgeeks.org/python-strings/)–These 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.

**List-**these are just like the 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 the same type.

**Tuple-**Just like list, [tuple](https://www.geeksforgeeks.org/python-tuples/" \t "_blank) is also an ordered collection of Python objects. The only difference between type and list is that tuples are immutable i.e. tuples cannot be modified after it is created. It is represented by tuple class.

**3)Boolean data type-**  
 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). But non-Boolean objects can be evaluated in Boolean context as well and determined to be true or false. It is denoted by the class bool.

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

Ans.) An **expression** is a combination of values, variables, operators, and calls to functions. Expressions need to be evaluated. If you ask Python to print an expression, the interpreter **evaluates** the expression and displays the result. In **Python**, operators are special symbols that designate that some sort of computation should be performed. The values that an operator acts on are called operands. A sequence of operands and operators, like a + b - 5 , is called an **expression**.

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

### Ans.) ★Expression

* Expressions always returns a value
* Functions are also expressions. Even a non returning function will still return
* Functions are also expressions. Even a non returning function will still return value, so it is an expression.
* Can print the result value
* Examples Of Python Expressions: “Hello” + “World”, 4 + 5 etc.

### ★Statement

* A statement never returns a value
* Cannot print any result
* Examples Of Python Statements: Assignment statements, conditional branching, loops, classes, import, def, try, except, pass, del etc

Like given in question,spam=10,this is a assignment statement which assigns a value of 10 to spam.

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

bacon = 22

bacon + 1

Ans.)After running the code,the variable bacon contains 23.

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

'spam' + 'spamspam'

'spam' \* 3

Ans.)For both of the terms the value will be ‘spamspamspam’.

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

Ans.)There are some rules for naming a variable in python according to which variable name can have numbers but not at the beginning.Variable name should start with letter or underscore.Also,100 is itself a variable so it cannot be avariable name and at the same place eggs start with a letter and can be a valid variable name.

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

Ans.) The int(), float(), and **str**() functions will evaluate to the integer, floating-point number, and string versions of the value passed to them.

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

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

Ans.)This expression cause an error because we can concatenate only str(not “int”) to str.As 99 is an integer so it cannot concatenate with strings.To fix this error we will convert 99 i.e integer into string.We will modify the code as ‘I have eaten’+’ 99 ’+’burritos’.Now this code will run without error. The output will be ‘I have eaten 99 burritios’.