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

'hello' - Value

-87.8 - Value

- - Expression

/ - Expression

* - Expression

6 - Value

2. What is the difference between string and variable?

Variable - A *variable* is something that holds a value that may change. In simplest terms, a variable is just a box that you can put stuff in. You can use variables to store all kinds of stuff, but for now, we are just going to look at storing numbers in variables.

String - A '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.

String - The string is a sequence of characters. Python supports Unicode characters. Generally, strings are represented by either single or double-quotes.

a = "string in a double quote"

b= 'string in a single quote'

print(a)

print(b)

List - The list is a versatile data type exclusive in Python. In a sense, it is the same as the array in C/C++. But the interesting thing about the list in Python is it can simultaneously hold different types of data.

a= [1,2,3,4,5,6]

print(a)

Tuple - The tuple is another data type which is a sequence of data similar to a list. But it is immutable. That means data in a tuple is write-protected. Data in a tuple is written using parenthesis and commas.

a=(1,2,3,4)

print(a) #prints the whole tuple

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

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

There are different types of expressions –

Constant expressions - These are the expressions that have constant values only.

Arithmetic expression - An arithmetic expression is a combination of numeric values, operators, and sometimes parenthesis.

Integral expression - These are the kind of expressions that produce only integer results after all computations and type conversions.

Floating expression - These are the kind of expressions which produce floating point numbers as result after all computations and type conversions.

Relational expression - In these types of expressions, arithmetic expressions are written on both sides of relational operator (> , < , >= , <=).

Logical expression - These are kinds of expressions that result in either True or False.

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

A statement is an instruction that the Python interpreter can execute. We have only seen the assignment statement so far. Some other kinds of statements that we’ll see shortly are while statements, for statements, if statements, and import statements.

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.

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

bacon = 22

bacon + 1

bacon = 22

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

'spam' + 'spamspam' - spamspamspam

'spam' \* 3 - spamspamspam

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

* Variable name should start with letter(a-zA-Z) or underscore
* In variable name, no special characters allowed other than underscore
* Variable name can be constructed with digits and letters

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

Int()

Float()

Str()

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

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

Type Error – can only concatenate str(not “int”)to str

Solution - print('I have eaten 99 burritos.')