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 - string)

-87.8 (value - floating-point number)

(expression - subtraction)

/ (expression - division)

(expression - addition)

6 (value - integer)

2- What is the difference between string and variable?

A string is a data type that represents a sequence of characters, typically used for representing text. A variable, on the other hand, is a name that refers to a value or an object in the program. It can hold various types of data, including strings, numbers, and other objects.

3- Describe three different data types.

Integer: A data type used to represent whole numbers without a decimal point.

Float (Floating-Point): A data type used to represent numbers with decimal points.

String: A data type used to represent sequences of characters (letters, numbers, symbols).

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

An expression is made up of operators, operands, and sometimes function calls. Expressions compute a value based on the provided operands and operators. They can represent mathematical calculations, logical comparisons, and more complex operations.

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

An expression is a combination of values, operators, and variables that, when evaluated, results in a value. A statement, like an assignment statement, is a line of code that performs an action or carries out a task. Assignments are statements that can include expressions on the right side to determine the value being assigned.

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

bacon = 22

bacon + 1

The variable bacon still contains the value 22. The second line (bacon + 1) computes the sum of bacon and 1, but the result is not assigned to any variable or used in any way.

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

'spam' + 'spamspam'

'spam' \* 3

'spam' + 'spamspam' results in 'spamspamspam'.

'spam' \* 3 results in 'spamspamspam'.

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

Variable names in most programming languages, including Python, need to follow certain rules. Variable names can start with a letter (uppercase or lowercase) or an underscore, followed by letters, underscores, or digits. They cannot start with a digit. Hence, eggs is a valid variable name as it starts with a letter, while 100 is invalid because it starts with a digit.

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

int(): Converts a value to an integer.

float(): Converts a value to a floating-point number.

str(): Converts a value to a string.

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

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

This expression causes an error because you are trying to concatenate a string 'I have eaten ' with an integer 99 and another string ' burritos.'. To fix it, you need to ensure that all elements you want to concatenate are of the same data type (string). You can achieve this by converting the integer 99 to a string using the str() function:

python 'I have eaten ' + str(99) + ' burritos.'