**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 :

Values : ‘hello’ , -87.8 , 6

Expression : \* , - , / , +

**2.** What is the difference between string and variable?

Ans :

A string is a data type used to represent text and a variable is a named storage location that can hold different types of data, including string.

**3.** Describe three different data types.

Ans :

Commonly used three data types are:

1. Integer (int): The integer data type represents whole numbers without any fractional or decimal part. It can hold both positive and negative numbers or zero. For example: 1, -5, 1000.
2. String (str): The string data type represents a sequence of characters, such as letters, numbers, symbols, or spaces. For example: "Hello, World!"
3. Boolean (bool): The boolean data type represents a logical value that can be either true or false. For example: True, False.

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

Ans :

An expression is made up of one or more operands and operators. Operands are values, variables, or function calls that the expression operates on, while operators are symbols or keywords that perform specific actions on the operands.

Expressions are used to perform computations or operations in programming. They can involve mathematical calculations, logical evaluations, or string manipulations, among other tasks. Expressions can be as simple as a single value or as complex as a combination of multiple operands and operators.

All expressions in programming have a result or value. When an expression is evaluated, it produces a resulting value based on the operations performed on the operands. The value can be of various data types, such as numbers, booleans, strings, or even more complex objects.

Expressions are fundamental in programming as they allow us to perform calculations, make decisions, assign values to variables, and control the flow of a program. They are used extensively in algorithms, conditional statements, loops, and other programming constructs to process and manipulate data.

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

Ans :

An expression is a combination of operands and operators that evaluates to a value.

Eg : 5 + 3

A statement is a complete unit of code that performs an action or controls the flow of a program.

Eg : spam = 10

Expressions produce values, while statements execute actions or control program flow.

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

bacon = 22

bacon + 1

Ans : 22

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

'spam' + 'spamspam'

'spam' \* 3

Ans :

'spam' + 'spamspam' : spamspamspam

'spam' \* 3 : spamspamspam

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

Ans :

In Python variable names need to adhere to certain rules. The variable name 'eggs' is valid because it starts with a letter and contains only letters. The name '100' is invalid because it starts with a number, which is generally not allowed in variable names.

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

Ans :

The three functions are:

1. Integer: int()
2. Floating-point number: float()
3. String: str()

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

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

Ans :

The expression 'I have eaten ' + 99 + ' burritos.' causes an error because it attempts to concatenate a string with an integer directly. To fix it, you need to convert the integer to a string using the str() function: 'I have eaten ' + str(99) + ' burritos.'