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 mathematical operators

'hello' = string value

-87.8 = integer value

- = expression mathematical operators

/ = expression mathematical operators

* = Expression mathematical operators

6 = integer value

2. What is the difference between string and variable?

ANS. **String:** A string is a data type in Python used to represent a sequence of characters. It is enclosed within single quotes ('') or double quotes (""). For example: Name = “ John”

String also used to store and manipulate textual data . They can be concatenated by (+) operator. And perform many function like extract , slicing and many others.

**Variable**: A variable is a name that represents a value stored in the computer's memory. It can hold different types of data, including strings, numbers, Booleans , and more. Variables are used to store and manipulate data during program execution. For example: X=4 , y=5 Total = x+y.

In the above x, y ,total are variables. They can be assigned different values , modified, and used in various operations within the program.

***In summary, a string is a specific type of data used to represent textual information, while a variable is a name that can hold any type of data, including strings. Variables provide a way to store and manipulate data during the execution of a program.***

3. Describe three different data types.

Ans. = **Data types Classes Define**

Numeric ( int , float ,complex) holds numeric values

Sequence (list , tuple ,range) holds collection of items

String str holds sequence of characters

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

Ans. An expression is a combination of values, variables, operators, and function calls that evaluates to a single value. It can be as simple as a single variable or a constant, or it can be a more complex combination involving multiple operators and operands.

Expressions are used to perform computations, make comparisons, and produce results. They can be used in various contexts, such as assignments, conditional statements, loops, function arguments, and more.

The primary purpose of expressions is to compute a value. When an expression is evaluated, it produces a result based on the values, variables, and operators involved. This result can then be stored in a variable, used for decision-making, or used in other expressions.

For example,

result = 2 \* (3 + 4)

In this expression, the values 2, 3, and 4, along with the operators \*, +, and parentheses, are combined to compute the result, which is 14. The computed value is then assigned to the variable **result**.

Expressions are fundamental building blocks in Python, enabling you to perform calculations, make comparisons, and create complex logic within your programs.

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

Ans. Assignment is the process in which Assignment operator (=) is used to assign a literal, value of a variable, the result of any expression or the return value of a method to a variable. Expression is a set of variables, constants and arithmetical operators.

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'= ‘spamspamspam’

'spam' \* 3 = ‘spamspamspam’

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

Ans. Because variable name cannot begin with a number.

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

Ans. int , float , str .

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

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

Ans. only concatenate string to string type not string to int type If we remove the int part and concatenate only string then it is work like ‘I have eaten ’+’burritos’= ‘I have eaten burritos’.