**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?**

**Ans:** Variables are symbols that you can use to store data in a program. You can think of them as an empty box that you fill with some data or value. Strings are data, so we can use them to fill up a variable.

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

**Ans:**

**1.Integer:**

An integer is a whole number that does not have any decimal or fractional part.

It can be either positive, negative, or zero.

Examples of integers include: -3, 0, 42.

**2.Floating-point:**

A floating-point number, or simply a float, is a number that has both an integer and a fractional part, separated by a decimal point.

It can represent a wide range of values, including both very small and very large numbers.

Examples of floating-point numbers include: 3.14, -0.005, 2.0.

**3.String:**

A string is a sequence of characters, such as letters, numbers, and symbols, that is used to represent text.

Strings are often enclosed in quotation marks (single or double) to distinguish them from other data types.

Examples of strings include: "Hello, World!", '12345', "Special characters: @#$%".

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

**Ans:**

1.Values: These are literals or constants, such as numbers (e.g., 5, 3.14), strings (e.g., "Hello"), or boolean values (e.g., true, false).

2.Variables: These are symbols that represent storage locations for values. Variables can be assigned values, and their values can be used in expressions.

3.Operators: These are symbols or keywords that perform operations on one or more values. Examples of operators include addition (+), subtraction (-), multiplication (\*), division (/), and many more.

4.Function Calls: Expressions can also include calls to functions. Functions are blocks of reusable code that perform a specific task. When a function is called in an expression, it may return a value that can be used in the overall expression.

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

**Ans:**

**Expression:**

An expression is a combination of values, variables, operators, and function calls that can be evaluated to produce a single value.

Expressions often represent computations or operations. They can be as simple as a constant value (e.g., 5), a variable (e.g., x), or more complex combinations of values and operators (e.g., 2 \* y + 7).

Expressions can be part of statements, providing a way to calculate values or perform operations within the context of a larger program.

Example:

spam = 10

eggs = 3 \* spam + 2

**Statement:**

A statement is a complete line of code that performs an action. It is a unit of execution and does not necessarily return a value.

Assignment statements, like spam = 10, are examples of statements. They assign a value to a variable but do not produce a value as a result.

Statements can include control flow structures (e.g., if statements, loops) and function calls.

Example:

if countt > 10:

print("Too many eggs!")

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

bacon = 22

bacon + 1

**Ans:**

Bacon will increase by one then it will become 23.

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

'spam' + 'spamspam' : This will return spamspamspam

'spam' \* 3 : This will return spamspamspam

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

**Ans:**

Variable names must begin with a letter (a-z, A-Z) or an underscore (\_).

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

**Ans:**

**Integer :** int()

**floating-point number :** float()

**string :** str()

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

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

**Ans:**

We cannot concatenate string with integer solution is to convert int 99 as string.  
sol: 'I have eaten ' + ‘99’ + ' burritos.'