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.

ANS-

\* - Expression( Mathematical Operator).

'hello' - string

-87.8 - Float

- - Mathematical Operator

/ - Mathematical Operator)

* - Mathematical Operator)

6 - Int

2. What is the difference between string and variable?

ANS-

A String is a specific type of data that represents textual information, while a variable is a name that refers to a value stored in memory, which can be of any data type, including stings.Variables provide a way to store and manipulate data, while strings represent a specific kind of data used to handle text.

3. Describe three different data types.

ANS-

1. **Integers**: Integers are whole numbers, without a fractional component. They can be positive or negative.

x=10

1. **Floats**: Floats represent real numbers and are written with a decimal point.

x=10.02

1. **Strings**: Strings in Python are sequences of character data. They are created by enclosing characters in quotes.

x= ”Hello”

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

ANS-

An expression in Python is made up of one or more values, operators, and functions combined in a way that produces a new value. Expressions can be as simple as a single value or as complex as a combination of multiple values and operations.

Expressions can include the following components:

1. Values: These can be literals, such as numbers (e.g., 42, 3.14) or strings (e.g., "Hello"), or variables that hold values.
2. Operators: Operators perform operations on values to produce a result. Python includes various types of operators, such as arithmetic operators (+, -, \*, /, etc.), comparison operators (<, >, ==, etc.), logical operators (and, or, not), and more.
3. Functions: Functions are reusable blocks of code that perform specific tasks. They can take inputs, known as arguments or parameters, and return a value. Python provides built-in functions, such as len(), print(), input(), and also allows you to define your own functions.

Expressions allow you to manipulate and transform data, make decisions based on certain conditions, and control the flow of your program. They are fundamental in creating powerful and dynamic programs.

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

ANS-

The key difference between expressions and statements is that expressions always produce a value, while statements do not necessarily produce a value. Statements are typically used to control the flow of a program, manipulate data, or perform actions, whereas expressions are used to calculate values, combine data, or make comparisons.

In the case of the assignment statement spam = 10, it is a statement that assigns the value 10 to the variable spam. The expression 10 on the right side of the assignment is evaluated and the resulting value is assigned to the variable on the left side. The statement itself does not produce a value; it simply carries out the assignment operation.

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

bacon = 22

bacon + 1

ANS-

After running the code, the value of bacon is 22, because above we don’t assign any value after 22.

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

'spam' + 'spamspam'

'spam' \* 3

ANS- ‘+’- It concatenates the string. Output- ‘spamspamspam’.

‘\*’ - It repeate the string. Output- ‘spamspamspam’.

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

ANS- We can’t have a variable name starting with a number. Thats why eggs is valid but 100 is invalid.

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- We can’t add the int with string.

To fix it - we have to use str()

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