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: Below are mentioned values & expressions

Values:

’hello’, -87.8, 6

Expressions:

\*, -, /, +

2. What is the difference between string and variable?

Ans: String:

A string is a sequence of characters, such as letters, numbers, or symbols, enclosed within quotes (" " or ' ').

Variable:

A variable is a named storage location in a program that holds a value, which can be of various data types (including a string, number, etc.).

3. Describe three different data types.

Ans: Below are the data types

1. Int: A data type that stores whole numbers (e.g., 5, -10, 0).
2. Float: A data type that stores decimal numbers or real numbers (e.g., 3.14, -0.5).
3. Boolean: A data type that stores only two possible values: True or False.
4. What is an expression made up of? What do all expressions do?

Ans: An expression is made up of operands (values or variables) and operators (like +, -, \*, /). It can also include function calls or parentheses for grouping.

All expressions evaluate to a value. When executed, they compute and return a result, which can be used or assigned to a variable.

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

Ans: Expression: A combination of values, variables, and operators that evaluates to a value.

Statement: A complete instruction that performs an action but does not necessarily return a value.

spam = 10

print(spam)

In spam = 10, the assignment statement stores the value 10 in the variable spam; the expression 10 evaluates to a value but the statement itself doesn’t return anything.

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

bacon = 22

bacon + 1

Ans: The expression bacon + 1 evaluates to 23, but since its result is not assigned back to bacon, the value of bacon remains 22. So, bacon still contains 22.

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

'spam' + 'spamspam'

'spam' \* 3

Ans: The values of the following two terms are:

1. 'spam' + 'spamspam'

This is string concatenation: 'spam' and 'spamspam' are combined.

Result: 'spamspamspam'

1. 'spam' \* 3

This is string repetition: 'spam' is repeated 3 times.

Result: 'spamspamspam'

So, both expressions result in the string 'spamspamspam'.

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

Ans: eggs is valid because Variable names can start with a letter or an underscore \_.

They can contain letters, digits, or underscores but must not start with a digit. Ex. egg=5

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

Ans: 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.'

Ans: because a TypeError because Python cannot concatenate a string ('I have eaten ') with an integer (99). In Python, the + operator between strings performs string concatenation, but all the parts must be strings.

To fix the error, convert the integer 99 to a string using the str() function:

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