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

**Solution:** Values: ‘hello’, -87.8, 6 Expressions: \*, -, /, +

2. What is the difference between string and variable?

**Solution:**

String -> A string is the combination of characters taken together.

Example: a = “apple”, Here “apple” is string whereas, (a) is a variable.

Variable -> A variable means something that can take any value like string, int, float etc.

Example: a= 5 or a= “apple” or a= 4.5 Here ‘a’ is a variable which can take any type of value.

3. Describe three different data types.

**Solution:**

Integer : In python, for integer datatype, we write int.

N = int(input()) 🡪 takes integer input from user

String : N= 4 🡪 integer

In order to convert this integer to string, we use str

S = str(N)

Float : N=4.5 🡪 Anything with decimal value is a float number

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

**Solution:** An expression is made up of mathematical operators and operands which help to produce a new result.

Example: N = 7 \* 8 is an expression with \* s operator and (7, 8) as operands.

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

**Solution:** An expression is the one that can be used to produce a new result i.e. an expression can be reduced to a value whereas a statement cannot be reduced to any value, it is just used to define something.

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

bacon = 22

bacon + 1

**Solution:** bacon will still contain 22.

**Reason:** The code does not assign the new value to bacon after incrementing it.

bacon+=1 or bacon = bacon + 1 will produce answer as 23.

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

'spam' + 'spamspam'

'spam' \* 3

**Solution:** Both will give output as spamspamspam.

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

**Solution:** A variable name must start with a letter or the underscore character. A variable name cannot start with a number. A variable name can only contain alpha-numeric characters and underscores (A-z, 0-9, and \_) Variable names are case-sensitive (age, Age and AGE are three different variables)

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

**Solution:** int(), float(), str() functions can be used to get the integer, floating-point number, or string version of a value.

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

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

**Solution:** The expression causes an error because string can be concatenated with string only, not integer or float.

**Fixing Error:** 'I have eaten ' + str(99) + ' burritos.' OR 'I have eaten ' + ‘99’ + ' burritos.'