**1. In the below elements which of them are values or an expression? e.g.: - values can be integer or string and expressions will be mathematical operators.**

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**\* :** This is an expression (multiplication operator)

**'hello' :** This is a value (string)

**-87.8 :** This is a value (integer)

**- :** This is an expression (minus operator)

**/ :** This is an expression (division operator)

* **:** This is an expression (plus operator)

**6 :** This is a value (integer)

**2. What is the difference between string and variable?**

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Variables are the one that can be used to store data, i.e., use to store information. E.g.: a = 10. So, here ‘a’ is a variable which stores an integer value ‘10’.

Whereas String, is a data type or we can say data which we can store in a variable. E.g.: b = “python”. Here, b is a variable of type String holding a string “python”. Strings can be either denoted in double quotes “python” or in single quotes ‘python’.

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

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The three different data types are as follow:

1. *Numeric*: numeric data types hold numeric values. They are integers (int), floating point (float) and complex (complex) classes.

Int – this class holds integer values. E.g., a = 7

Float – this class holds floating decimal points numbers. E.g., a = 3.214

Complex – this class holds complex numbers. E.g. a = 1+3k

1. *String*: String data type holds sequence of character that is denoted either in single or double quotes.

E.g., myname = “manish” or mycourse = ‘python’. Here, string variables *myname* and *mycourse* holds string values *manish* and *python* respectively.

1. *Sequence*: Sequence data types holds collection of items.

E.g., List and Tuple

List: it is an ordered collection of similar or different types of items which are separated by commas and enclosed within square brackets “[ ]”

For example: names = [“manish”, “tarun”, “tanu”]

Tuple: it is an ordered sequence of items of same or different types. It is similar to List but it is immutable. That means, Tuples can not be modified once created. It is enclosed within parenthesis “( )”

For example: brands = (‘jockey’, ‘lux’, ‘vip’, 555)

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

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Expressions are made up of operands and operators.

The expression produces some value or result after being evaluated or interpreted.

For example: a = 10 + 5 (this is an expressions). The operator ‘+’ will add 10 and 5 and the result 15 will be assigned to variable ‘a’.

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

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A statement is used to create variable and assigning or displaying some value.

For example: spam = 10. This is a statement.

Whereas expression can be defined as a line of code that is evaluated to produce some value or results.

For example: spam = spam + 10

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

bacon = 22

bacon + 1

When we print the variable ‘bacon’, it will contain value 22

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

'spam' + 'spamspam'

'spam' \* 3

When we print the above values, they will give the same output as:

'spam' + 'spamspam' : spamspamspam

'spam' \* 3 : spamspamspam

Basically, it will concatenate the first statement as “spamspamspam” and provide the output 3 times as “spamspamspam”

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

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100 is an integer value which we can assign to a variable. We can not start a variable name with digits or any value, but we can assign the value to a variable example: a = 100 or eggs = 100. Moreover, we can use letters (capital or small) or strings of characters as a valid variable name like eggs = “eat” or eggs = 1.

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

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Following are the functions used to get the integer, floating-point number, or string version of a values:

Integer: int()

Floating: float()

String: str()

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

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

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This will cause a Type Error. As 99 is an integer value and operator ‘+’ used here try to concatenate string to integer which will through an error.

We can only concatenate string to string but, not a string to integer.

To correct this, we can make the value 99 as a string by enclosing it with single quotes or double quotes as below:  
'I have eaten ' + ‘99’ + ' burritos.'