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:-

| String | Variable |
| --- | --- |
| 1. String is the type of variable. We can assign the string value to the variable. 2. Eg: a= ‘Sachin’   Here ‘Sachin’ is string | 1. Variables are the place holder or memory in the computer which holds the value temporary. 2. Eg:- x=10   Here x is an integer variable which is storing the value(integer) 10. |

3. Describe three different data types.

Ans:-

| Numeric | String | Set |
| --- | --- | --- |
| Numeric data types are those data types which consist of numbers. | In Python, string is an immutable sequence data type. It is the sequence of Unicode characters wrapped inside single, double, or triple quotes. | A set is a mutable collection of distinct hashable objects.  It is an unordered collection of objects, meaning it does not record element position or order of insertion and so cannot access elements using indexes. |
| Python includes three numeric types to represent numbers: integers, float, and complex numbers. | Eg:  a=’Sachin’  b=”Robin”  c=”””Jack””” | The set is a Python implementation of the set in Mathematics. A set object has suitable methods to perform mathematical set operations like union, intersection, difference, etc. |
| Eg: a=1 (Integer)  b= 2.5 (Float)  c= 1+2j | We can perform slicing operations on strings.  Eg: a=’sachin’  print(a[1:4])  >> ach | A set object contains one or more items, not necessarily of the same type, which are separated by a comma and enclosed in curly brackets {}. |

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

**Ans:** An *expression* is a construct made up of variables, operators, and method invocations, which are constructed according to the syntax of the language, that evaluates to a single value.

Eg: 5\*2/3

After evaluation we get 3.3333\_\_\_

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

Ans:-

| Expression | Statement |
| --- | --- |
| An *expression* is a construct made up of variables, operators, and method invocations, which are constructed according to the syntax of the language, that evaluates to a single value. | statement is just a standalone unit of execution and doesn’t return anything. |
| Eg: 5\*2/3  After evaluation we get 3.3333\_\_\_ | Eg:- if condition:  Do something  else:  Do Something  Here if and else blocks are said to be statements. We may have expressions within the statement. |
| Mathematical operators form the expressions. | All the keywords in python form Statements. |

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

bacon = 22

bacon + 1

**Ans:** variable bacon contains integer value 23.

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

'spam' + 'spamspam'

**Ans:** ‘spamspamspam’

'spam' \* 3

**Ans:** ‘spamspamspam’

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

**Ans:** eggs is a valid variable name but 100 is not a variable name because in declaring the name of the variables, we have certain rules in python(or any other programming language) and one of the rules says that we cannot name (declare) the variable with numbers. And since 100 starts with number 1 it is not a valid variable name.

This naming convention is formed so that the compiler can easily debug(understand) the differences between variables , tokens and values.

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

**Ans: The int() , float() , and str( ) functions can be used to get integer, floating-point numbers, and string versions of the value passed to them.**

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

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

**Ans:** This expression causes an error because 99 is the integer value and we can not add strings with integer.

So what we can do is convert 99 into a string like ‘99’. So the expression becomes

'I have eaten ' + ‘99’ + ' burritos.'

And then we get the output **‘I have eaten 99 burritos’**