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 1:

*	expression
'hello'	value
-87.8	value
-	expression
/	expression
+	expression
6	value

2. What is the difference between string and variable?

Solution 2: String- it is a value which consists combination of characters and is represented in either single quotation marks or double quotation marks.

Variable- a variable is simply a container to contain/hold any value which can be an integer, string, list and so on. For eg,

- name = “anna” here, name is a variable which holds a string value i.e. anna.
- id = “bennie48” ” here, id -> variable which holds a string value i.e. bennie48.

3. Describe three different data types.

Solution 3:

1. **Numeric:** It is used to hold numeric values like int, float. Complex holds complex numbers and long holds long integers. E.g. roll_no = 12456
2. **String:** it is a combination of characters which are represented in either single or double quotes. E.g. name = “Python”
3. **Boolean:** this data type has 2 build in values True and False with capital ‘T’ and ‘F’. For e.g. print(10 > 9) **o/p:** True

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

Solution 4: An expression is made up of operators and operands which is required to be evaluated to produce a single value. We can also say that it is a combination of values, variables, operators, and calls to functions.

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

Solution 6: An expression is required to be evaluated to produce a single value ultimately. To evaluate expressions, we need to consider the precedence rules, or order of operations. However, statement does not evaluate to a single value and is seen as a piece of code that executes a specific instruction or tells the computer to complete a task.

For example, expression:

- 56>42
- 7*8+5

Statement:

- spam = 10
- import pandas

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

bacon = 22

bacon + 1

Solution 6: bacon = 23

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

'spam' + 'spamspam'

'spam' * 3

Solution 7: Value both the terms will be- **'spamspamspam'**

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

Solution 8: A valid variable name must start with a letter or underscore (_), followed by-letters, digits. It cannot start digit or contain special characters (except _). A valid variable name should only contain alpha numeric characters and underscore. Therefore, a valid variable name:

- Can have alphabets, digits, and underscore.
- Can start with the alphabet, and underscore only. It can't start with a digit.
- No whitespace is allowed within the variable name.
- Must not be any reserved word or keyword, e.g. int, goto, etc.

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

Solution 9: The three functions to get integer, floating-point number or string versions of a value are- **int(), float() and str ()** respectively.

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

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

Solution 10: We cannot concatenate string with integer. So instead of 99, we will make it a string either **by placing quotes like -'99' or by using str()** and whole expression will be like - 'I have eaten ' + '99' + ' burritos.' **Or,** 'I have eaten ' + str(99) + ' burritos.'

O/P after fixing: 'I have eaten 99 burritos.'