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

**Solution1**:- Following are values: 'hello', -87.8 and 6 and rest are expression.

2. What is the difference between string and variable?

**Solution2**:- Variables store information in a program. we can think of variables as a container with a name on them, related to the things inside it. A string is a type of value that can be stored in a variable. A string is made up of characters, and can include letters, words, phrases, or symbols.

3. Describe three different data types.

**Solution3:-**

(a)Sequence data types :- It consists Strings, List and Tuples.

A string is made up of characters, and can include letters, words, phrases, or symbols like “hello”, “my name is khan”, etc.

A List can be written using big braces [ ] and it can contain numbers, Strings and nested lists.

A tuple can be written using small braces ( ) and it can contain numbers, Strings and nested tuples.

(b)Boolean data type:- it gives only two output as True and False. Symbocially True stands for digit 1 and False stands for digit 0.

(c)Dictionary data type: It can be written using middle braces { }. Inside the braces we have to put key:value pairs such as “key1”:2, 1:3

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

**Solution4:-** An expression is an instruction that combines values and operators and always evaluates down to a single value. For example, this is an expression: 2 + 2. The 2s are integer values and the + is the mathematical operator. This expression evaluates down to the single integer value 4.

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

**Solution5:-**Evaluation of an expression always Produces or returns a result value. Execution of a statement may or may not produces or displays a result value, it only does whatever the statement says.

Spam=10 state that the value of variable spam is 10 but after execution it will not give any output but the expression 2+2 will give 4 as a output after execution.

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

bacon = 22

bacon + 1

**Solution6:-** bacon is equal to 22.

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

'spam' + 'spamspam'

'spam' \* 3

**Solution7**:- 'spam' + 'spamspam' will give 'spamspamspam'

And 'spam' \* 3 will give same output as 'spamspamspam'

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

**Solution8**:- eggs can be used as variable until and unless we do not put it in double quots as “eggs”. While 100 is taken as an integer value by default by python. Hence an integer value can not be used as variable name.

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

**Solution9**:- The int() , float() , and str( ) functions will evaluate to the integer, floating-point number, 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.'

**Solution10**:- Here we are trying to add two different data types. Hence it will give an error. If value 99 is also converted into string, then it will get fixed.

'I have eaten ' + ‘99’ + ' burritos.' Will give 'I have eaten 99 burritos.'