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

**Ans:**

|  |  |
| --- | --- |
| Values | Expressions |
| ‘hello’ | \* |
| -87.8 | - |
| 6 | / |
|  | + |

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

**Ans**: String is a data-type and values or various data type are stored within a variable. Depending on the type of data stored within a variable – it becomes a variable of that type.

Ex: a = “Hi my name is Suchit” 🡺 *a* contains String, hence *a* is a string variable

b = [1,2,3,4,5,6,7] 🡺 *b*  contains list, hence *b*  is a list-variable

**3. Describe three different data types**

**Ans:** different types of data are as below:

Numerical type:

**Int** – this is integer type of data. Values can be integers (<0 , 0, >0)

**Float** – this type contains values which contain digits after the decimal point (ex: 3.142, 2.304, etc)

String type:

**String** contains data in text format – ex: “Hi ! I’m Suchit and I’m a Data Scientist”

Collection type:

**List** – a list may contain a collection of different types of data and a list may also contain multiple lists inside itself. A list can be altered by values or it is mutable. List is contained within a pair of square brackets.

Ex: list1 = [1,2,3, “suchit”, “Kulkarni”, [23,45,100, 99], (1,2,34)]

**Tuple** – a tuple is just like a list that can contain multiple data-type. Tuple is contained within a pair of round brackets. The difference between a list and a tuple is that tuple cannot be altered by their values or the tuple is immutable.

**Dictionary** – a dictionary is also a collection of data in the form of Key-Values. Just like a language dictionary, data is stored in the form of a keyword and its value. Dictionary is contained within a pair of flower brackets. The key value pair is assigned using a colon.

Ex: d1 = {“name”: “Suchit”, “interests” : [“math”, “football”, “guitar”, “sketching”]}

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

**Ans**: Just like in mathematics, expressions are statements which contain values (variables or contstants) with appropriate operators or functions in order to calculate to obtain a certain required result in the form of value.

**5. This assignment statements, like spam = 10. What is the difference between an**

**expression and a statement?**

**Ans:** An expression is generally written to calculate a particular value or an expression can be a value in itself ex: “My name is Suchit”.

A statement is written in order to perform a required action ex: print(“My name is Suchit”) or

intro = “Hello ! My name is Suchit”

pi = 3.14 (…etc)

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

**bacon = 22**

**bacon + 1**

**Ans: “**bacon” value would be 22 since “bacon” was never reassigned the new value (bacon + 1).

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

**‘spam’ + ‘spamspam’**

**‘spam’ \* 3**

**Ans:** both operations would give out

‘spamspamspam’

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

**Ans**: Python does not allow variable names with numeric type. Variable names should start with alphabets or underscore.

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

**version of a value?**

**Ans:** to convert to integer 🡪 int(value)

To convert to floating-point 🡪 float(value)

To convert to string type 🡪 str(value)

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

**‘I have eaten ‘ + 99 + ‘ burritos.’**

**Ans:** Python cannot concatenate string and integer data-type. Therefore the integer has to be type casted to string and then concatenated.

**‘I have eaten ‘ + str(99) + ‘ burritos.’**