**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 : ’hello’ ,-87.8, 6

Expressions : \*, - ,/ ,+

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

**Ans:**

**String**: is a sequesnce of characters enclosed in single or double quotes

Ex: ‘Dinesh’

**Variable:** Variable is the name given to the meory location used to store values of different

Data Types.

Ex: name= ‘Dinesh’

Here, name is a variable

‘Dinesh’ is a String which can be assigned to variable

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

**Integers**– This value is represented by int class. It contains positive or negative whole numbers (without fraction or decimal). In Python there is no limit to how long an integer value can be. Int values are not iterable.

Ex:

a =10

Here a is int type

**Float**– This value is represented by float class. It is a real number with floating point representation. It is specified by a decimal point. Optionally, the character e or E followed by a positive or negative integer may be appended to specify scientific notation.

b=2.345

Here b is float type

**Complex Numbers** – Complex number is represented by complex class. It is specified as *(real part) + (imaginary part)j*.

Ex:

C=3+7j

Here c complex type

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

a. The expression is made of values, variables, operators ,function calls and an expression always returns or produces a result value.

Ex: a = 5, b = 7

c = a / b

In above example a, b, c are variables, 5 and 7 are values and + and = are operators

here a=5, b = 7 and c = a + b are three different expressions.

c. An expression always calculates/ evaluates to itself i.e expression always returns a value as a result of its evaluation

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

a. Any instruction that an interpretor can execute is called statement. a statement is smallest unit of code that can be executed like creating a variable, displaying a value, etc

b. Every line of code that we write is a statement. For example, print statement, if statement, for and while statement, etc

c. x=7 : it is a statement where value 7 is assigned to variable x.

print(x) : it is a print statement that displays the value of variable x.

d. difference between expression and assignment

1) an expression evaluates to a value whereas a statement executes something.

2) An expression can be made of several expressions but a statement can’t be made of other statements.

3) Expressions are mostly defined by users but statements are mostly predefined in programming language.

4) Most important, an expression is a section of code that evaluates to a value, but a statement is complete line of code that performs some action.

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

**bacon = 22**

**bacon + 1**

Ans:

The value of becon remains same even after execution of above code

i.e., bacon=22

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

**'spam' + 'spamspam'**

**'spam' \* 3**

Ans:

‘spam’+’spamspam’ is equal to **‘spamspamspam’**

**‘**spam’\*3is equal to **‘spamspamspam’**

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

**Ans:**

As per the naming conventions of identifiers eggs is valid variable so that we can assign any value. Where as 100 is not valid identifier and also we can’t assign value to 100

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

**Ans:**

1. To get integer version of values we will use **int()** function

2. To get float version of values we will use **float()** function

3. To get String version of values we will use **string()** function

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

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

**Ans:**

‘I have eaten’ - String

99 -Integer

‘burritos’ - String

Here the expression gives error because here we are trying to concatenate different data types.

We can fix this by converting 99 to ‘99’.(int -> str)

**Correct Expression : ‘I have eten’ +’99’ +’String’**