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’, -87.0, 6 Expression =\*, -, /, +**

2. What is the difference between string and variable?

Ans- **Variable is a place placeholder which can store any type of values. We can declare variable values and reuse variable whenever we need throughout the program. They are mutable.**

**String is a data type, we can store it into a variable. We should write string always in single or double quotes. Strings are immutable.**

**Ex: string1 = “hello”: string1=variable, value= “hello”**

3. Describe three different data types.

Ans- **1) String: It is a collection of alphabet and words. It is denoted as by using single quote ‘ ’ or double quotes ” ”.It stores data according to index number starting from 0. Strings are immutable, we cannot change the change the value of string using index number. We can perform various operations on list like add, delete, modify and more.**

**E.g.- Mystring= “FirstString”**

**MyLstring[1] = i;**

**2) List: List is a collection of values of different data types. It is denoted as []. It stores data according to index number starting from 0. Lists are mutable, we can change the data of list by using the index operator. We can perform various operations on list like add, delete, replace, modify and more.**

**E.g.- MyList = [2,4,2,1,” hello”, ‘good’,321,[4,5,6,7], 498]**

**MyList[1] = 4;**

**3) Set: Set is a collection of values of different data types. It is written inside the curly brackets { }. It also stores data according to index number starting from 0. Sets are mutable. We can perform various operations on list like add, delete, replace, modify and more.**

**E.g.- Myset = {233,12,44,[2,4,2,1],” hello”, ‘good’,(2,1),[4,5,6,7], 498]**

**Myset[1] = 12;**

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

Ans- **Expression is a combination of operators and operands. Operands can be any value or variable which has value. Expression will evaluate and return the result.**

**Some operators are:**

**Arithmetic operators: +, -, \*, /**

**Logical operators: <, >, <=, =>, !=, ==**

**Bitwise operators: | , &**

**Expresstion: a+b , a/c, a\*b+c, etc**

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

Ans: **spam is a variable. 10 is a value of spam. 10 is assigned to spam. expression is the assignment. The whole line is called statement.**

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

bacon = 22

bacon + 1

Ans: **bacon=23**

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

'spam' + 'spamspam'

'spam' \* 3

Ans: **'spam' + 'spamspam'= spamspamspam**

**'spam' \* 3 = spamspamspam**

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

Ans: **There is ruled to naming a variable. Variable name should contain only characters and underscore. Eggs is a valid variable name it has characters. 100 is an integer which is not allowed.**

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

Ans: **We can use type conversion here to get all the values. The functions are int(), float() and str().**

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

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

Ans: **This expression gives an error because here, string is concatenate with integer which is not possible. String can be concatenate with string only; we can write as—**

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