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.

Answer:

*   - *Expression (multiplication operator)*

'hello'   - *Value (string)*

-87.8   - *Value (float)*

-        - *Expression (subtraction operator)*

/   - *Expression (division operator)*

+   - *Expression (addition operator)*

6   -   *Value (integer)*

2. What is the difference between string and variable?

Answer: String => String are the sequence of character of data , which store the value by enclosing the value in quotes.

Eg: str="sun is bright"

Variable => A variable is the identifier which store and represent the data. They are declared by writing the variable name and assigning value by equals sign (=).

3. Describe three different data types.

Answer:

Tuple: Tuple are ordered collections same like list but tuple are immutable which means it can not be modified, it is created with the help () and placing the value inside () parentheses. It can store heterogeneous elements same as list.

Eg: my_tuple=('ello','right',12,[1,2,4])

Dictionaries : Dictionaries are unordered collection of items where each item stored has a key and value which makes it key-value pair. They are mutable. they are created by placing items in {} curly braces and each key value pair are separated by : colon. Also can store heterogeneous values. Each key should be unique.

Eg: my_dic={"name":"nidhi","age":21,"location":"meerut"}

Sets : A Sets is a unordered collection of items where each element is unique. It is created by placing values inside {} curly braces. It is based on a data structure knows as *Hash table.*

Eg: my_set = {"my ","name ","is ","nids "}

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

Answer: Expressions are made up of variables/constant and operators which perform the particular task . The operators perform specific operations on the operands, and the result is a single value. This value can be a number, a string, a boolean (true/false), or other data types, depending on the nature of the expression.

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

Answer:

Expression : An expression is a combination of one or more operands and operators that convert it into a single value.

Statement: A statement is a complete unit of code that performs an action or some operation. Its primary purpose is to execute a specific task, such as defining a variable, controlling the flow of code with conditional constructs (if-else, switch), or performing iterations with loops.

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

bacon = 22

bacon + 1

answer: After running this code bacon will have '23'.

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

'spam' + 'spamspam'

'spam' * 3

Answer: 'spam' + 'spamspam' => 'spamspamspam'

'spam' * 3   => 'spamspamspam'

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

Answer: Variable name can only start with the alphabet or with ' _ ' underscore and can be the combination of digits, alphabet(lower and upper) and '_' underscore as 100 is a no so start with a number so not valid.

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

Answer: Interger input format "int(input("enter value: "))"

Float number input format "float(input("enter value: "))"

String value input format "input("enter name: ")"

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

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

Answer: 99 is integer value and other are sting value hence it can not be concatenate until the are of same data type.
Corrected statement: 'I have eaten ' + str(99) + ' burritos.'