

QUESTIONS

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

2. What is the difference between string and variable?

3. Describe three different data types.

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

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

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

```
bacon = 22
```

```
bacon + 1
```

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

```
'spam' + 'spamspam'
```

```
'spam' * 3
```

8. Why is eggs a valid variable name while 100 is invalid?
9. What three functions can be used to get the integer, floating-point number, or string version of a value?
10. Why does this expression cause an error? How can you fix it?
- 'I have eaten ' + 99 + ' burritos.'

ANSWERS

- 1.) Values: -87.8, "hello", 6
Expressions: *, -, /, +

- 2.) A string is a sequence of characters or words and is a datatype, while variables are used to store a value into a particular memory location, and the variable name is used to access that value whenever required and it can store multiple datatypes among which string is one, and others are integer, float, list, etc.

- 3.) A) Numeric Data Type: It represents the data, which has a numeric value. It could be in the form of an integer denoted by the keyword "int", a decimal/floating point number denoted by the keyword "float" or a complex number which can be represented by including an imaginary part to a real number, "j" acts as the imaginary coefficient. It can be represented in the form of a + bj.

B) Sequence Type: It represents the data, which is in the form of a sequence of smaller data of primitive data types. Some sequence data types in python are list, tuple and string. Strings are also called an array of characters, or a sequence on characters. But in python there is no character data type, it is considered a string of length one.

Lists are like arrays, except that they can hold values of different data types at the same time, they are mutable and objects at a particular location can be changed using assignment operation.

Tuples are like lists except that they are immutable and do not support assignment operations or insertion operations.

C) Boolean Datatype: It represents two values true and false, or 1 and 0. They are used for situations where the output is either true or false, and they follow the Boolean algebraic rules.

- 4) A) An expression is a combination of identifiers, literals and operators.

Identifiers are used to identify a particular value or function, like variable names, function names etc.

Literals are language independent entities like numbers, letters, words etc. called integer literals, string literals, floating point literals etc.

Operators are present in python, and have a token representing each operator and can be used to perform operations between literals, identifiers etc.

B) All expressions combine and solve to final give a value, which could be an integer value, floating point value, Boolean value, string value etc. etc.

5) Expressions combine to give a value and are merely complex representations of that value, while statements actually do something, like the assignment statement “spam = 10”, assigns the value 10 in the memory location pointed by the variable name spam.

6) The variable bacon still contains the value 22 as the value of bacon + 1 was stored anywhere and was just allocated a temporary memory location which gets destroyed after use immediately.

7) Both the terms would give the output “spamspamspam”.

8) In python variable names are supposed to start with an alphabet or an underscore followed by alphabets/numbers/underscore and as a result cannot start with a number, as a result “eggs” is a valid variable name, while “100” is not.

9) int() , float() , str()

10) The expression ‘I have eaten ’ + 99 + ‘ burritos.’ is causing an error as ‘I have eaten’ and ‘burritos.’ are of the string format, while 99 is an integer. This can be solved by converting 99 into the string for using single/double quotes or the str() function. The demonstration is as follows: ‘I have eaten’ + ‘99’ + ‘burritos.’

