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
'hello'	values
-87.8	values
-	expression
/	expression
+	expression
6	value

2. What is the difference between string and variable?

ANSWER:

a string is a type of data that can be stored in a variable, and a variable is a container that can hold data of any type, including strings.

3. Describe three different data types.

ANSWER:

1- Integer (int): a numeric data type that represents whole numbers, positive or negative, without decimals.

2- Float (float): a numeric data type, but unlike integers, floats represent real numbers (i.e., numbers with decimal points). They can be positive or negative. For example, 5.0, -20.55, 0.123 are all floats.

3- String (str): a data type used to represent a sequence of characters. Strings can include letters, numbers, and symbols. They are created by enclosing characters in quotes.

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

ANSWER:

An expression in Python is made up of constants, variables, operators, and function calls. Constants are values that do not change, such as numbers and strings. Variables are named locations used to store these values. Operators are symbols that perform operations like addition, subtraction, multiplication, and more. Function calls are parts of expressions that execute a function and use its return value.

Expressions do not perform any action, they simply evaluate to a value.

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

ANSWER:

The main difference is that expressions produce a value and do nothing, whereas statements perform an action and do not necessarily produce a value. In Python, almost all places that expect a statement will also accept an expression, but the reverse is not true - you can't use a statement where Python expects an expression.

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

bacon = 22
bacon + 1

ANSWER: 22

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

'spam' + 'spamspam'
'spam' * 3

ANSWER:

Both terms will have the values:

```
'spamspamspam'
```

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

ANSWER:

Variable names must start with a letter (a-z, A-Z) or an underscore (_). They cannot start with a number. Hence, eggs is a valid variable name as it starts with a letter, but 100 is not, as it starts with a number.

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

ANSWER:

int(): to convert a value into an integer.

float(): to convert a suitable value into a floating-point number.

str(): to convert a value into a string.

An example of how these functions could be used:

```
x = '123'

y = int(x)   # y is now the integer 123

z = float(x) # z is now the floating-point number 123.0

w = str(y)   # w is now the string '123'
```

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

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

ANSWER:

+ can only concatenate string to string the value 99 is int.

To fix it : 'I have eaten ' + str(99) + ' burritos.'