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: In the list you provided:

Values:

1. 'hello' (string)

2. -87.8 (float)

3. 6 (integer)

Expressions:

1. \* (multiplication)

2. - (subtraction, unary negation)

3. / (division)

4. + (addition)

2. What is the difference between string and variable?

Ans:

String is data type which is represent the text data. The text data can be enclosed within single quote (‘ ‘), double quote (“ ”), and triple quote (“”” “””). Whereas variable is symbolic name which can be used to hold the data. It can hold or store the data temporary into the main memory of system. It can store the string and other data type data,

3. Describe three different data types.

Ans:

1. Integer (int):
   1. Its is an type of data type which hold number without any decimal point value. It store only the integer value or whole number value.
2. Float (float):
   1. A float (floating-point number) represents real numbers and includes a decimal point. It can also be expressed using scientific notation.
   2. Example: pi = 3.14 or speed = 2.5e8 (scientific notation for 2.5 \* 10^8)
3. String (str):
   1. A string is a sequence of characters, typically used to represent text. Strings are enclosed in single quotes (' '), double quotes (" "), or triple quotes (''' ''' or """ """).
   2. Example: name = "Alice" or message = 'Hello, World!'

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

The expression is combination of values, variable and operator which is used to evaluated to produced a result. Expression can be single variable, multiple variables, or complex and operators.

For Example:

X = 5 # here x is variable which holds the integer value which is 5

result = X + X # here X+X is an expression, + is operator and we are executing the expression to perform addition.

Basically expression are used to perform the operation and produced the result by computing the expression.

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

Ans:

The key difference between the expression and statement is expression returns a value by computing it but statement may or may not return the value.

The expression is produce the result by executing the expression which combination of variables, operators and values.

The statement is single line of code. It may or may not return result. In this spam = 10 is statement which is assigning the value of 10 to the placeholder spam to hold or store the value temporary.

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

bacon = 22

bacon + 1

Ans: The bacon will contain the 23. Bacon + 1, It is same like bacon += 1 or bacon = bacon + 1.

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

'spam' + 'spamspam'

'spam' \* 3

Ans: The first: spamspamspam and Second: spamspamspam

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

Ans:

As per the rules and convention in python variable name can not be start with the number or built in keywords. Therefore eggs is variable which is start with char and 100 is invalid.

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

Ans: The following three functions can be use:

1. Int(X): Integer value
2. Float(X): Floating-Point Number
3. Str(X): String value

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

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

Ans: This expression contains the combination of string and integer value. String can only concatenate the string value not integer that’s why it will generate the TypeError.

We can resolve this error by converting the integer number 99 into the string by doing follows:

‘I have eaten’ + str(99) + ‘burritos.’