**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 |
| 'hello' | Value- Str |
| -87.8 | Value-Int |
| - | Expression-Subtraction |
| / | Expression- Division |
| + | Expression- Addition |
| 6 | Value- Int |

**2. What is the difference between String and Variable?**

**Answer**:

Variable are references to values which have certain types. Variables can be denoted by strings or combination of strings and integer or special certain special character. For example:

Ab=5 or a1=6 or b\_a=7

However there are certain **exceptions** where variable name cannot start with integer or special character.

String is certainly one of the major type() we use as value. They are always enclosed in inverted commas. For example:

A=’aniket’ (Here aniket is a string.)

**3. Describe three different data types.**

**Answer**:

Below are the Major data types in python:

|  |  |
| --- | --- |
| Text | Str |
| Numerical | Int or float or complex |
| Sequence | List, Tuple, Range |
| Mapping | dict |
| Set | Set |
| Boolean | bool |

1. Numeric:
   1. Integers: type(int)- Can be positive or negative whole number.
   2. Float: type(float)- Real number with decimal digits
   3. Complex: in form of a+bj
2. Text:
   1. String: represents alpha numeric characters. Put in inverted commas.
3. Boolean:
   1. True: Takes the value 1.
   2. False: Takes the value 0.

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

**Answer**:

Expressions are made of values, variables, operators or also functions. Expressions are evaluated based on their operators and operands. Normally they are on the right side of variable. Evaluation of expression gives us certain value.

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

**Answer**:

Statement is often a broad term that may contain an expression. In above example: spam=10 is an assignment statement where spam viz. variable is assigned the value 10. However it is not evaluated or it does not as such produce value.

Expression normally needs to be evaluated and it produces some value.

For example:

|  |  |
| --- | --- |
| Statement | Expression |
| Can be an assignment like x=5 | Normally composed of operators, function or values etc. ex- x//2 |
| Can be conditional ex: If or while loop | Needs to be evaluated eg: if(x//2==0): here expression is inside the paranthesis |

**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?**

**Answer:**

|  |  |
| --- | --- |
| Q | A |
| 'spam' + 'spamspam' | spamspamspam |
| 'spam' \* 3 | spamspamspam |

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

**Answer**: eggs is valid variable name since it is a string and does not start with integer or special character. However, 100 starts with int and python does not accept that as variable. A100 however can be called as a variable if it starts with a string.

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

**Answer:**

Lets say we have a variable named var=1234

|  |  |
| --- | --- |
| Integer | Var= int(var) |
| Floating-point | Var= float(var) |
| String | Var=str(var) |

Var will give us respective type of version of value.

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

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

**Answer**: Here the data type() is not same for all the three types of data.

FIX: ‘I have eaten’ + ‘**99’** +’burritos’ (I guess this will fix it)