1. ‘hello’, -87.8 and 6 are values whereas -,\*,/,+ are mathematical operators and according to question these are expressions. Expressions can be made by combining values and operators e.g. 5\*6-4/2+2.
2. A string is a datatype like int, float etc. which can hold alphabets, words or other characters. String can be called as a collection each value in a string can be accessed via indexing 0 to n-1 whereas a variable is an entity to store data into main memory which helps in reusing the same data, variable points to a specific location where data is stores whereas string in itself is a data. Also a string is of a specific datatype whereas a variable can be of any datatype depending on the value assigned to it.
3. 3 datatypes are:
4. int: also known as integers, these are positive or negative whole numbers with no decimal points.
5. float: it represents a floating point numbers and it represents numbers having decimal points.
6. String: it is a collection of alphabets, characters, words and also numbers but all enclosed within string literals. Each element of a string can be accessed via indexing.
7. An expression is made up of values and mathematical operators e.g 5\*6-4/2+2 and ‘a’ + ‘b’ which performs concatenation of 2 strings a and b and expressions help in calculation of numerical value outputs when int values given and as specified above, it can also perform concatenation when string values given.
8. Assignment statements as given in question assign specific values/data to the variables so that these values can be accessed from main memory via variables. In general terms, A statement is an instruction that a Python interpreter can execute. So, in simple words, we can say anything written in Python is a statement. Difference between a statement and expression is that an expression is a combination of values and operators to give output whereas a statement can be anything i.e. even a simpleline of code like print(5), len(a) etc. which are not expressions. An expression is always a statement but a statement is not always an expression.
9. Bacon variable still contains 22 bcoz bacon+1 is a separate value which has not been assigned any location in main memory whereas 22 was assigned location in main memory with reference of variable Bacon and also no re-assigment has been done to variable bacon.
10. For both of them, the output will be ‘spamspamspam’ which is bcoz of concatenation of strings.
11. It is bcoz an int, string or any other datatype can never play a role of a variable and eggs is not a string as it is not enclosed within string literals, so eggs can be a variable.
12. The following typecasting functions are int(), float() and str() respectively.
13. Bcoz since it is a concatenation operation for strings or an addition operation for int, both these operations cannot be performed together, either we need all int values for addition or we need all string values for concatenation/