What exactly is []?

**List is a mutable collection of ordered and changeable items.could be collection of any data type in python.**

In a list of values stored in a variable called spam, how would you assign the value 'hello' as the third value? (Assume [2, 4, 6, 8, 10] are in spam.)

**spam [3] = 'Hello'**

Let's pretend the spam includes the list ['a', 'b', 'c', 'd'] for the next three queries.

What is the value of spam[int(int('3' \* 2) / 11)]?

**'d'**

What is the value of spam[-1]?

**'d'**

What is the value of spam[:2]?

**['a', 'b']**

Let's pretend bacon has the list [3.14, 'cat,' 11, 'cat,' True] for the next three questions.

What is the value of bacon.index('cat')?

**1**

How does bacon.append(99) change the look of the list value in bacon?

**[3.14, 'cat,' 11, 'cat,' True,99]**

8. How does bacon.remove('cat') change the look of the list in bacon?

**[3.14, 11,True,99]**

9. What are the list concatenation and list replication operators?

**list concatenation and list replication operators are ‘+ ‘and ‘\*‘** **first one add up two list after the last item or after the highest index of first list appends second list in a single list and second one is simply multiplication or repetition of given list sequence in a single list cannot be multiplied with a non-integer datatype**

10. What is difference between the list methods append() and insert()?

**Append*(#any datatype)* appends *#any datatype* after the highest index position this function doesn’t have any positional arguments for selecting particular index location inside a list whereas insert*(#any datatype)* have positional arguments for selecting a index location inside a list to insert *#any datatype*  at desired index location.**

11. What are the two methods for removing items from a list?

**pop() & remove()**

12. Describe how list values and string values are identical?

**Both are sequences.**

13. What's the difference between tuples and lists?

**Mutability, list is having this tuple is not (supports item assignment / replacement of item in it)**

14. How do you type a tuple value that only contains the integer 42?

**(42)**

15. How do you get a list value's tuple form? How do you get a tuple value's list form?

**By list comprehension method e.g: x3 = (1,2,'L',3)**

**x4 = [i for i in x3]**

**x4 or x3 =(1,2,3)**

**x1 = list(x3)**

**x1**

**x1= [1,2,3]**

**x3 = tuple(x1)**

**x3**

**e.g tuples in a form of list [(1,2),’k’,(‘5’,’6’),3] & list inside a tuple ([1,2,3],4,’k’)**

16. Variables that "contain" list values are not necessarily lists themselves. Instead, what do they contain?

**e.g contain = [1,2,3,[1,2,3],’Tanmoy’,(1,2)]**

17. How do you distinguish between copy.copy() and copy.deepcopy()?

**Copy.copy() and copy.deepcopy() is two methods to copy a object in case of 1st one after object being copied for any change in source object ( limit of copying object ) is going to be updated in destination object also after in case deep copy this thing will never happen**

**In short for shallow copy there is no allocated memory space is given for copied object but for deep copy allocated memory space have been given for copied object.**