1. What exactly is []?

Ans. It is representation of empty list that contains no values/items.

2. 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.)  
  
Ans. Spam[2] = ‘hello’  
( as indexing start from 0 so third value = 2nd index )

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

3. What is the value of spam[int(int('3' \* 2) / 11)]?  
  
Ans. Spam[int(int(‘3’ \*2)/ 11))] = spam[int(int(33 /11))] = spam[int(3)] = ‘d’  
(note ‘3’ is a string so \* operations ‘33’ is passed to int before division so after division ans is 3 means 3rd index in spam which is ‘d’ )

4. What is the value of spam[-1]?  
  
Ans. ‘d’   
( -1 means negative indexes count from end. )

5. What is the value of spam[:2]?  
  
Ans. [‘a’ , ‘b’]  
( note : spam[:2] means values upto 3rd index with excluding 3rd index value )

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

6. What is the value of bacon.index('cat')?  
  
Ans. 1   
( Note : although there are two ‘cat’ present whichever is first occurrence that index is returns. )

7. How does bacon.append(99) change the look of the list value in bacon?  
  
Ans. [3.14, ‘cat’, 11, ‘cat’, ‘True’, 99]  
( Note : append adds element to the end of the lists. )

8. How does bacon.remove('cat') change the look of the list in bacon?  
  
Ans. [3.14, 11, ‘cat’, ‘True’]  
( Note : here also when we use remove it renoves the first appearance of ‘cat’ only )

9. What are the list concatenation and list replication operators?  
  
Ans. Operator for list concatenation is + and   
 Operator for list replication is \*

10. What is difference between the list methods append() and insert()?  
  
Ans . append() method adds the values in lists to the end its by default  
 while insert() method can add values anywhere they want.  
we can select index at which we want to add the values.

11. What are the two methods for removing items from a list?  
  
Ans. There are del statement and remove() are the two list methods to remove the items from list.

12. Describe how list values and string values are identical.  
  
Ans. In python, lists and strings both are sequences. The difference is list is a sequence of values while string is a sequence of characters. Bith have a len() function, have indexes and slices, be used in for loops, be concatenated or replicated and be used with the in and not in oprators.

13. What's the difference between tuples and lists?  
  
Ans. The key difference between tuples and lists is that lists are mutable means we can make changes in lists like add / remove while tuples are immutable means they cannot be changed at all.   
also the length of tuples is fixed, whereas the length of a lists is variable.   
Also tuples are represented using parentheses () , while lists use the square brackets [].  
Tuples are also more memory efficient than the lists.

14. How do you type a tuple value that only contains the integer 42?  
  
Ans. (42,)  
(Note : here trailing comma is mandatory. Otherwise its considered as a int by python interepreter )  
  
tup1 = (42)  
tup2 = (42, )  
print(type(tup1))  
print(type(tup2))  
  
<class ‘int’ >  
<class ‘tuple’ >

15. How do you get a list value's tuple form? How do you get a tuple value's list form?  
  
Ans. Using list() and tuple() method  
The tuple() and list() functions. Respectively are used to convert a list to tuple and vice versa.

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

17. How do you distinguish between copy.copy() and copy.deepcopy()  
  
Ans. The copy.copy() function will do a shallo copy of a list, while the copy.deepcopy() function will do a deep copy of a list. copy.deepcopy() will duplicate any lists inside the lists.