1. What exactly is []?

[] is used to create a list.

[] is an empty list.

1. 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.insert(2,'hello')

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

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

spam = ['a', 'b', 'c', 'd']

spam[int(int('3' \* 2) / 11)] gives value 'd'

1. What is the value of spam[-1]?

spam = ['a', 'b', 'c', 'd']

spam[-1] gives value d

5. What is the value of spam[:2]?

spam = ['a', 'b', 'c', 'd']

spam[:2] gives value ['a','b']

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

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

index 1 gives value 'cat'

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

it adds the value 99 at the end of the list bacon. it looks like this

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

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

there are two 'cat' values in the bacon list.

remove(cat) removes the first 'cat' value in the list and it looks like this

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

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

list concatenation concatenates 2 lists variables.

eg l1 = [1,2,3] l2 = [4,5]

l1+l2 gives output [1, 2, 3, 4, 5]

\* operator works as replication in python.

eg l1 = [1,2,3]

l1\*3 gives [1, 2, 3, 1, 2, 3, 1, 2, 3]

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

In python, insert() method inserts an element at the specified index.

whereas, append() inserts an element at the end of the list.

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

remove() & pop() methods are used for removing items from a list.

in remove() an element is specified. if there are multiple occurances of element in a list,

the first element is removed.

in pop() method, index is used. it removes the element based on the index number provided.

in list index starts from 0.

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

Both list values and string values are sequences.

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

The main difference between python tuples and lists is that,

tuples are immutable whereas lists are mutable

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

declare tuple as below

t1 = (42)

print(t1)

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

lets say l1 is a list variable.

its tuple form is tuple(l1)

lets say, t1 is a tuple variable.

its list form is list(t1)

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

Python variables contains references to list values instead of values themselves.

Python variables uses references for mutable data types, such as lists or dictionaries.

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

copy.copy() also known as shallow copy. when you shallow copy,

if you make changes to original variable, the changes also reflects in copied variable.

in case od copy.deepcopy() also known as deep copy. when you deep copy,

if you make changes to original variable, the changes are not reflected in deep copied variable.

below is one code example illustrating this.

import copy

l = [0, 1, [2, 3]]

l\_assign = l # assignment

l\_copy = l.copy() # shallow copy

l\_deepcopy = copy.deepcopy(l) # deep copy

l[1] = 100

l[2][0] = 200

print(l)

# [0, 100, [200, 3]]

print(l\_assign)

# [0, 100, [200, 3]] # in assignment operator, the values are changed

print(l\_copy)

# [0, 1, [200, 3]] # in copy() the values are changed

print(l\_deepcopy)

# [0, 1, [2, 3]] # in deepcopy the values are not changed