1) . What is the difference between enclosing a list comprehension in square brackets and parentheses?

Ans: list comprehension in square brackets creates a list with values, while list comprehension in parentheses creates a generator object.

2) What is the relationship between generators and iterators?

Ans: An iterator is any object that can be iterated over, meaning it can produce its elements one at a time. Generators are a type of iterator that are defined using a special syntax that allows to create an iterator, using a function-like syntax.

3) What are the signs that a function is a generator function?

Ans:

a. The function contains a yield statement.

b. The function returns a generator object.

4) What is the purpose of a yield statement?

Ans: The yield statement returns a generator object to the one who calls the function which contains yield, instead of simply returning a value.

5) What is the relationship between map calls and list comprehensions? Make a comparison and contrast between the two.

Ans:

a. Return type: map() returns a map object, which is an iterator that generates the results lazily. In contrast, a list comprehension generates the entire list at once and returns a list object.

b. Syntax: map() takes two arguments - a function to apply to each element in the input collection, and the input collection itself. List comprehensions use a more compact syntax that combines the function application and input collection in a single expression.