1. What is the relationship between def statements and lambda expressions ?

**Ans:**

Def and lambda both can be used as a function, difference between both is this lambda can have single line expression only but def can have multiple line expressions, def can have return statement while lambda can’t, also def can call another def function while lambda can’t call another lambda function.

2. What is the benefit of lambda?

**Ans:**

Sigle line expressions in place of def function can be used, no need to call explicitly, no need to define explicitly.

3. Compare and contrast map, filter, and reduce.

**Ans:**

Map function takes 2 arguments one is function and other is list, it calls function implicitly for every list item and return a list having result after calling function for each item.

Reduce function also takes 2 arguments one is function and other is list but it does aggregation of function on list items and return aggregate result

Filter also takes 2 arguments function and list, and return a list after filter out list via function calculation.

4. What are function annotations, and how are they used?

**Ans:**

Function annotations are nothing more than a way of associating arbitrary Python expressions with various parts of a function at compile-time.

5. What are recursive functions, and how are they used?

**Ans:**

Recursive functions are functions which calls to itself, there should always be a base value for these functions and for every recursive call it should be lead towards it’s base value.

6. What are some general design guidelines for coding functions?

**Ans:**

Each function should define a unique purpose of functionality, code can be modularize in small chunks called as functions. No repetitive definitions of functions should be there.

7. Name three or more ways that functions can communicate results to a caller.

**Ans:**

If a global variable value get changed in function, then automatically it is returning changed global value to caller.

Using return statement

Rather than returning results, function can itself print results inside its body.