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

Ans: def keyword is used to create a user defined function. Lambda is also used to create a function. But those functions created using lambda is known as anonymous funvtions.Lambda functions are sikngle line function and fast in its execution than def.

2. What is the benefit of lambda?

Ans. Lambda is a single line funtion. Anonymous as we don't define any name for the function. Fast in its execution. Its useful to use in functions like map , filter,reduce, which takes another function as its parameter. Its use and throw funtion. Which means if we have to use a funtion temporarily or once only, then we can use lambda.

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

Ans: Map: Map function is easy to use when we need to apply a lambda funtion on a collection of values. It is very fast in its execution and reduces complexity of code.

Reduce : Reduce funtion takes a lambda function or any other user defined function and an iterable as its parameters and reduce the value (applys the function we passed). we can pass an initial value also to reduce function. This is not an inbuilt function. This function can imported from functools module.

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

Ans : Function annotations are arbitrary python expressions that are associated with various part of functions. These expressions are evaluated at compile time and have no life in python’s runtime environment. Python does not attach any meaning to these annotations.

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

Ans: recursive functions are functions which call the function itself while run. default limit of recursion is 1000, but we can change it using sys.getrecursionlimit() function. we use this by writing function call within the function defenition itself.

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

Ans: def function\_name(parameters to function):

function variable decleration.

expressions used on function variables.

return statement

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

Ans: using return satement , using yield , by calling the same funtion itse.lf