1.What is the concept of an abstract superclass?

A1. An abstract superclass in Python is a class that cannot be instantiated on its own and is intended to be subclassed by other classes. It may contain abstract methods that must be implemented by any concrete subclass, defining a common interface for related classes.

2.What happens when a class statement's top level contains a basic assignment statement?

A2. When a class statement's top level contains a basic assignment statement, the assigned value becomes a class attribute that is shared by all instances of the class. This is because class statements are executed like any other code, and the assignment statement is executed at the time the class is defined.

3.Why does a class need to manually call a superclass's init method?

A3. In Python, if a subclass defines an init method, it does not automatically call its superclass's init method. This means that any initialization code defined in the superclass will not be executed unless the subclass explicitly calls the superclass's init method, usually using the "super()" function.

4.How can you augment, instead of completely replacing, an inherited method?

A4. In Python, you can augment an inherited method by calling the superclass's version of the method using "super()", and then modifying or extending its behavior. This allows you to add functionality to a method without completely replacing it.

5.How is the local scope of a class different from that of a function?

A5. In Python, the local scope of a class is different from that of a function in several ways. First, class definitions create a new namespace, so any variables defined within the class definition are not visible outside of the class. Additionally, class methods have "self" as a first parameter, which refers to the instance of the class that the method is being called on, and can access and modify the instance's attributes. Finally, unlike functions, classes can be subclassed to create new classes that inherit their attributes and methods.