1.What is Object-Oriented Programming, and how does it differ from procedural programming?

object oriented programming allows decomposition problems into number of units called objects and then build the data and functions around these objects,where as procedural programming is derived from structural programming based on the concepts of function or procedures and it is easy to change the data in procedural oriented where it diffuclt in object oriented programming since it can hidden and not accessed externally.

2.Explain the principles of OOP and how they are implemented in Python.
Describe the concepts of encapsulation, inheritance, and polymorphism in Python.

Object,Class,inheritance,polymorphism,encapsulation,abstraction are the main features of OOP.
Object:It is an entity which has state and behavior.
Inheritance:
    By using inheritance we can create a class which uses all the properties and behaviours of another class.The new class is called derived class and the one from which is derieved is called parent class.It is mainly to reuse code again.
Polymorphism:
    polymorphism means that the methods in class retruns different out for varing inputs.
Encapsulation:
    En capsulation is such that the variables and mathods are contained in a class,and also they can be restricted from external person to get accessed.
Abstraction :
     In this the parent class has empty methods and they are implemented in derived class with the help of inheritance.

3.What is the purpose of the self keyword in Python class methods?
The self keyword is used as a compulsory parameter for every methods in a class or else we get error.self represents the class itself.

4.How does method overriding work in Python, and why is it useful?
In overriding helps to change the implementation of a method in derived class different from parent class.It helps since we dont have change implentaion in parent class, since it can be parent for many other classes which impacts those derived classes.

5.What is the difference between class and instance variables in Python?
The variables which are declared inside the class outside of methods are called class variables,and those which are created inside the class methods are instance variables.

6.Discuss the concept of abstract classes and how they are implemented in Python.
The class which contains one or more abstract methods is said to an abstract class.The abstract method means it have declaration but dont have implementaion in the parent class but get implementated in the derived class or classes

7.Explain the importance of the super() function in Python inheritance.
The super() function is builtin fuction which help to inherit the methods of parent class inside the derived class.

8.How does Python support multiple inheritance, and what challenges can arise from it?
The python supports muliple inheritance in the same way it supports single inheritance,just by adding the another parent class as paramter when then the derived class is defined.There may be a possibility of same named method which is implemented different ways in the parent classes which will confusion ,to escape from this try to make methods with unique names in every parent classes.

9.What is a decorator in Python, and how can it be used in the context of OOP?

10. What do you understand by Descriptive Statistics? Explain by Example.
One of the fundamental aspects of statistics is descriptive statistics, which is used to describe and summarize a set of data. The purpose of descriptive statistics is to provide an overview of the data under study, and this is achieved through various measures such as measures of central tendency, measures of variability, and graphical displays.

11. What do you understand by Inferential Statistics? Explain by Example.

nferential statistics can be defined as a field of statistics that uses analytical tools for drawing conclusions about a population by examining random samples. The goal of inferential statistics is to make generalizations about a population. In inferential statistics, a statistic is taken from the sample data (e.g., the sample mean) that used to make inferences about the population parameter (e.g., the population mean)