**NOIDA INSTITUTE OF ENGINEERING AND TECHNOLOGY, GREATER NOIDA**

**(AN AUTONOMOUS INSTITUTE)**

**SEMESTER-EVEN**

**Problem Solving Using Advance Python Lab**

**List of Experiments**

1. Write a program to create class Employee. Display the personal information and salary details of 5 employees using single inheritance.
2. **WAP that extends the class Employee. Derive two classes Manager and Team Leader from Employee class. Display all the details of the employee working under a particular Manager and Team Leader.**
3. **Write a program that has a class Point. Define another class Location which has two objects (Location and destination) of class Point. Also, define a function in Location that prints the reflection on the y-axis.**
4. **WAP that create a class Student having attribute as name and age and Marks class inheriting Students class with its own attributes marks1, marks2 and marks3 as marks in 3 subjects. Also, define the class Result that inherits the Marks class with its own attribute total. Every class has its own display() method to display the corresponding details. Use \_\_init\_\_() and super() to implement the above classes.**
5. Write a program that create a class Distance with members km and metres. Derive classes School and office which store the distance from your house to school and office along with other details.
6. Write a program to create an abstract class Vehicle. Derive three classes Car, Motorcycle and Truck from it. Define appropriate methods and print the details of vehicle.
7. Write a program that has a class Polygon. Derive two classes Rectangle and triangle from polygon and write methods to get the details of their dimensions and hence calculate the area.
8. Write a program that extends the class Shape to calculate the area of a circle and a cone .(use super to inherit base class methods)
9. Write a program to demonstrate hybrid inheritance and show MRO for each class.
10. Write a program to overload + operator to multiply to fraction object of fraction class which contain two instance variable numerator and denominator. Also, define the instance method simplify() to simplify the fraction objects.
11. Write a program to compare two-person object based on their age by overloading > operator.
12. Write a program to overload **in** operator.
13. **WAP to create a Complex class having real and imaginary as it attributes. Overload the +,-,/,\* and += operators for objects of Complex class.**
14. Write a program to inspect the object using type() ,id(), isinstance(), issubclass() and callable() built-in function.
15. **WAP to inspect the program code using the functions of inspect module.**

# *(TO BE CONTINUED...)*