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

**SEMESTER-EVEN**

**UNIT: 2 ASSIGNMENT 2**

**Subject Name:** Problem Solving Using Advance Python

**Name of Faculty: Submission Date:\_\_\_\_\_\_\_\_**

1. Differentiate between:
2. Generalization and Specialization
3. Abstract method and Concrete method
4. Multiple and Multi-level Inheritance
5. What is Inheritance? What are its advantages?
6. Create a class **Theory** with variables: name, m1, m2, m3 to store marks in three subjects and a method getdata. Define another class **Lab** with variables: p1, p2 to store marks in two labs and a method getdata. Define a class **Student** that extends the above two classes and have a method display to display name, total marks obtained in theory and labs and average marks.
7. Write short notes on:
   1. super( ) function
   2. Polymorphism
8. What is method overriding? Explain it with an example.
9. What is abstract class? How do you write an abstract class in Python?
10. What is method resolution order (MRO)? Explain the principles followed by MRO with example?
11. What is introspection in python? Explain five functions each from built-in and *inspect* module.
12. Define the term Operator overloading. Write a Python program that overloads the + operator to add two objects of class **Time**. Time class should have attributes: hours, minutes and seconds. Class Time must have a method named gettime to get the time entered by the user and display method to display time.
13. Write a program to define a class **Player** having variables: name, no of matches played methods: constructor to initialize variable members and display. Define 2 sub-classes **Bowler** and **Batsman** that inherit the class Player.

Class **Bowler** has variables no of wickets taken, no of overs bowled, no of runs conceded and methods getdata and displayDetail (to display name, matches played, wickets taken, no of overs bowled, no of runs conceded). Class **Batsman** has variables runs, balls faced and methods getdata and displayDetail (to display name, matches played and strikeRate).

Define a class **AllRounder** that inherits the members of Bowler and Batsman class. getdata and displayDetail methods of AllRounder class should use super() method to acess the corresponding methods of Bowler and Batsman classes.