Slip No. 16 (Total Marks: 30)

1. Define Student class and sort by percentage – 10 Marks

```
java
Copy code
import java.util.Scanner;
import java.util.Arrays;

class Student {
    int rollNo;
    String name;
    float percentage;

    public Student(int rollNo, String name, float percentage) {
        this.rollNo = rollNo;
        this.name = name;
        this.percentage = percentage;
    }

    public static void sortStudent(Student[] students) {
        Arrays.sort(students, (a, b) -> Float.compare(b.percentage,
a.percentage));
        for (Student student : students) {
            System.out.println("Roll No: " + student.rollNo + ", Name: " +
student.name + ", Percentage: " + student.percentage);
        }
    }

    public static void main(String[] args) {
        Scanner sc = new Scanner(System.in);
        int n = sc.nextInt();
        Student[] students = new Student[n];

        for (int i = 0; i < n; i++) {
            int rollNo = sc.nextInt();
            sc.nextLine();
            String name = sc.nextLine();
            float percentage = sc.nextFloat();
            students[i] = new Student(rollNo, name, percentage);
        }

        sortStudent(students);
    }
}
```

2. Create abstract class "Order" with subclasses "Purchase Order" and "Sales Order" – 20 Marks

```
java
Copy code
import java.io.*;

abstract class Order {
    String id, description;
```

```
    public void accept() throws IOException {
        BufferedReader br = new BufferedReader(new
InputStreamReader(System.in));
        id = br.readLine();
        description = br.readLine();
    }

    public void display() {
        System.out.println("ID: " + id + ", Description: " + description);
    }
}

class PurchaseOrder extends Order {
    String customerName;

    public void accept() throws IOException {
        super.accept();
        BufferedReader br = new BufferedReader(new
InputStreamReader(System.in));
        customerName = br.readLine();
    }

    public void display() {
        super.display();
        System.out.println("Customer Name: " + customerName);
    }
}

class SalesOrder extends Order {
    String vendorName;

    public void accept() throws IOException {
        super.accept();
        BufferedReader br = new BufferedReader(new
InputStreamReader(System.in));
        vendorName = br.readLine();
    }

    public void display() {
        super.display();
        System.out.println("Vendor Name: " + vendorName);
    }
}

public class Main {
    public static void main(String[] args) throws IOException {
        PurchaseOrder po1 = new PurchaseOrder();
        PurchaseOrder po2 = new PurchaseOrder();
        PurchaseOrder po3 = new PurchaseOrder();
        SalesOrder so1 = new SalesOrder();
        SalesOrder so2 = new SalesOrder();
        SalesOrder so3 = new SalesOrder();

        po1.accept();
        po2.accept();
        po3.accept();
```

```
        so1.accept();
        so2.accept();
        so3.accept();

        po1.display();
        po2.display();
        po3.display();
        so1.display();
        so2.display();
        so3.display();
    }
}
```